Work Package 2 – Deliverable 2.1

Linkages between Science and Technology and Development Goals of the Pacific island region and Lessons Learned

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List of Acronyms and Abbreviations

ACIAR	Australian Centre for International Agricultural Research
ACP	African, Caribbean and Pacific Group of States
ACP S&T	ACP Science and Technology Programme
ADB	Asian Development Bank
AFD	Agence Française de Développement
ANU	Australian National University
AOSIS	Alliance of Small Island States
APRO	Asia and the Pacific Regional Office
AusAID	Australian Agency for International Development
CAP	College of Asia and Pacific
CEDAW	Committee on the Elimination of Discrimination against Women
CERF	Critical Ecosystem Partnership Fund
CII	Cooperative Initiative on Invasive Alien Species on Islands
CIRAD	Coopération Internationale en Recherche Agronomique pour le Développement
CNRS	Centre National de la Recherche Scientifique
CNRT	Centre National de Recherche Technologique
COP	Centre Océanologique du Pacifique
CRIOBE	Centre de Recherches Insulaires et Observatoire de l'Environnement
CRISP	Coral Reef Initiatives for the Pacific
CROP	Council of Regional Organisations in the Pacific
DevNet	Development Network
DG	Directorate General
DGCID	Directorate-General for Development and International Co-operation
DGDEVCO	Directorate General for EuropeAid Development and Co-ooperation
EC	European Commission
EDF	European Development Fund
EEZ	Exclusive Economic Zone
EPHE	Ecole Pratique des Hautes Etudes
ESL	English as Second Language
EU	European Union
EWC	East West Center
FACT	Facilitating Agricultural Commodity Trade
FAME	Fisheries, Aquaculture and Marine Ecosystems (Division)
FFA	Forum Fisheries Agency
FP 7	Framework Programme for research and technological development
FSMed	Fiji School of Medicine
GEF	Global Environment Facility
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GIS	Geographic Information System
GOPS	Grand Observatoire de l'environnement et de la biodiversité terrestre et marine du Pacifique Sud
GPS	Global Positioning System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HPU	Hawaii Pacific University

IA	Internal Assessment
IAC	Institut Agronomique néo-Calédonien
ICCAI	Climate Change Adaptation Initiative
ICPD	International Conference on Population and Development
ICRI	International Coral Reef Initiative
ICT	Information and Communication Technology
IDRF	International Development Research Fund
IFRECOR	Initiative Française pour les Récifs Coralliens
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
ILM	Institut Louis Malardé
ILO	International Labour Organisation
IP	Institut Pasteur
IPIN	Institut Pasteur International Network
IPNC	Institut Pasteur de Nouvelle-Calédonie
IRD	Institut de Recherche pour le Développement
ISSG	Invasive Species Specialist Group
IUCN	International Union for Conversation of Nature
IUFM	Institut Universitaire de Formation des Maîtres
JICA	Japan International Cooperation Agency
LDCs	Least Developed Countries
LRD	Land Resources Division
KOICA	Korea International Co-operation Agency
MCC	Millennium Challenge Corporation
MCO	Multi Country Office
MDGs	Millennium Development Goals
MOM	Memorandum of Understanding
NABSAPS	Pacific Island National Biodiversity Strategies and Action Plan
NARI	National Agricultural Research Institute
NCD	Non Communicable Diseases
NGOs	Non Governmental Organisations
NIWA	National Institute of Water and Atmosphere Research
NOAA	National Oceanic Atmospheric Administration
NRI	National Research Institute of Papua New Guinea
NUS	National University of Samoa
NZAID	New Zealand Agency for Development
OCT	Overseas Countries and Territories
ODA	official development assistance
ODN	Oceanic Development Network
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the United Nations High Commissioner for Human Rights
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer
PACE-Net	Pacific Europe Network for Science and Technology
PACE-SD	Pacific Centre for Environment and Sustainable Development
PCCR	Pacific Climate Change Roundtable
PCCSP	Pacific Climate Change Science Programme
PEPP	Pacific Island Energy Policy and Plan
PGNIMR	Papua New Guinea Institute of Medical Research
PHD	Public Health Division
PHREI	Pacific Health Research and Education Institute

PICs	Pacific Island Countries
PICTs	Pacific island countries and territories
PIDP	Pacific Islands Development Programme
PIF	Pacific Islands Forum
PIFACC	Pacific Islands Framework for Action on Climate Change 2006-2015
PIFS	Pacific Islands Forum Secretariat
PiPP	Pacific Institute of Public Policy
PIROP	Pacific Islands Regional Ocean Policy
PIROFISA	Pacific Islands Regional Ocean Framework for Integrated Strategic Action
PNGFRI	Forest Research Institute of Papua New Guinea
POLHN	Pacific Open Learning Health Net
PoW	Programme of Work
PPHSN	Pacific Public Health Surveillance Network
PSA	Pacific Science Association
PSSC	Pacific Senior Secondary Certificate
PTSD	Post-Traumatic Stress Disorder
RIP	Regional Indicative Programme
RSPAS	Research School of Pacific and Asian Studies
S&T	Science and Technology
SAR	Synthetic Aperture Radar
SARS	Severe Acute Respiratory Syndrome
SIDS	Small Island Developing States
SHOM	Service Hydrographique et Océanographique de la Marine
SOPAC	South Pacific Applied Geoscience Commission
SPBEA	South Pacific Board for Educational Assessment
SPC	Secretariat of the Pacific Community
SPFSC	South Pacific Form Seven Certificate
SPREP	South Pacific Regional Environment Programme
SPSLCMP	South Pacific Sea Level and Climate Monitoring Project
SRD	Social Resources Division
SRO	Pacific Sub-regional Office
STAR	Science Technology and Resources Network
STI	Sexually Transmitted Infections
SUDI	Sudden Unexpected Death of Infants
SWAPs	Sector-Wide Approaches
UH	University of Hawaii System
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNC	Université de la Nouvelle-Calédonie
UNCLOS	United Nations Convention on the Law of the Sea
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nation Environmental Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNEPOC	United Nations ESCAP Pacific Operations Centre
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund

UNIFEM	United Nations Development Fund for Women
UNOCHA	United Nations Office for the Coordination of the Humanitarian Affairs
UoG	University of Guam
UPF	Université de la Polynésie Française
UPNG	University of Papua New Guinea
USAID	United States Agency for International Development
USP	University of the South Pacific
WCPF	Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean
WHO	World Health Organisation
WPRO	Western Pacific Regional Office
WSSD	World Summit on Sustainable Development
ZoNéCo	Zone Economique de Nouvelle-Calédonie

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1. Introduction

1.1. Key Role of Science and Technology for Development

In 1982, a United Nations Educational, Scientific and Cultural Organisation (UNESCO) report stated that, 'assimilation of scientific and technological information is an essential precondition for progress in developing countries'. The World Summit on Sustainable Development (WSSD), held in Johannesburg in 2002, emphasised the critical role of science and technology (S&T) as key instruments to address the challenges in sustainable development, in particular, in the specific areas of water, energy, health, agriculture and biodiversity. Over the past few decades, it has been widely recognised that sustainable economic, social and environmental growth, three pillars of sustainable development, cannot take place without a strong science base. The generation of knowledge through science and the use of this knowledge for development through technology have been recognised as essential steps in the pursuit of these development goals.

In the past, in agriculture, advances in S&T have facilitated higher yields, greater efficiency and greater nutritional content in the world's food supply. In health, advances in scientific knowledge and its application have helped slow the trend of 'high fertility, high mortality' and led to increasingly better health for many people in the developing countries. With respect to economic growth, emerging evidence shows that – when an enabling environment for investment is present – the developing countries like China and India are using technological capabilities to capture growing percentages of expanding global high tech export markets, and thereby adding to their rates of gross domestic product growth.

Scientific and technological progresses have been responsible for vast improvements in the physical conditions and living standards of the majority of the world's population. The industrial revolution, the pharmaceutical/medical revolution, the green revolution, or the ongoing information and communication technology revolution all demonstrate how S&T has contributed to human development and shaped present-day society. Therefore the role of S&T in achieving informed sustainable development cannot be overemphasised.

However, while the accelerating rate of progress in S&T creates tremendous opportunities and it also generates significant risks. The economic and social growth through S&T has created new issues and challenges regarding the sustainable management of resources and the environment. The industrial revolution triggered the world's thirst for non renewable energy, the green revolution caused massive leeching of nutrients and chemical in our water and soil systems, and the ever increasing population started consuming more and more, leading to massive discharges of wastewater and solid waste into the environment. Finding solutions to the major sustainability problems of the 21st century, including poverty alleviation, food security, health, a looming water crisis, environmental impact, renewable energy sources, desertification, diminishing ecosystem services, biodiversity maintenance and use, climate change and adaptation, natural disaster mitigation and rapid urbanisation... – all

critically require knowledge from scientific research to harness appropriate technologies and informed, effective management policies.

1.2. Development Needs and Challenges of the Pacific Island Countries and Territories

The Pacific Island Countries and Territories (PICTs) also face these common global challenges. They also have their specific local and regional development needs and challenges, which can also be moderated through effective adaptation and use of S&T.

The Pacific, also collectively known as Oceania, is a region of a multitude of small islands scattered over the Pacific Ocean that covers one-third of the earth's surface. These islands are mostly grouped in archipelagos and vary greatly in size and composition, from large multi-ethnic Papua New Guinea to very small islands states such as Niue and Tokelau.

The region is made of 25 PICTs, each unique given its distinctive combination of geographical, ecological, geological, sociological, political and economic characteristics. Home to diverse groups of indigenous peoples and cultures, the region is ethnologically grouped into three commonly recognised sub-regional constituents – Melanesia extending from Fiji to Papua New Guinea; Micronesia in the northwest; and Polynesia in the east.

As PICTs differ in many respects – size, population, resource endowments and social and economic achievement –any generalised description of the Pacific islands therefore becomes problematic. However, despite their differences, similarities in culture, traditions, history and geography mean that these countries face many common development challenges as well as opportunities for development cooperation and coordination. The common and not so common development needs and challenges are discussed in length in the Annex 1 and are put under the headings: size, isolation and resources economy; institutional and infrastructure capacity; demography and urbanisation; productive sectors; environmental fragility; social situation; political leadership and governance; and regional cooperation and regionalism.

1.3. Presentation of the Study

This Study was carried out within the framework of the Pacific Europe Network for Science and Technology (PACE-Net), a European Commission (EC)-funded project (Grant n° 244514). The PACE-Net project first seeks to improve regional and bi-regional collaboration and cooperation activities in S&T research within the Pacific and between the Pacific and Europe. It will do so by implementing platforms that will bring relevant S&T experts and stakeholders together and will thereby establish and reinforce contacts and dialogues within the scientific community of the Pacific region and between the Pacific and Europe.

Secondly, taking advantage of the above dialogue fora, PACE-Net aims to define priority research thematic areas and a research programme for EC's main funding instrument for research known as the 7th Framework Programme for research and technological development (FP 7). Under the European strategy for the Pacific as described in the

communication *EU relations with the Pacific Islands – A strategy for strengthened partnership* (2006), the European Council seeks to upgrade and recalibrate Europe's strategy for the Pacific by focusing on a limited set of priorities where Pacific has significant needs for which Europe has comparative advantage. Linking these priorities with PICTs' S&T research and development thematic areas would ensure a greater and more effective cooperation between the Pacific and Europe.

Finally the PACE-Net will also identify the possible S&T research synergies with other European Union (EU) cooperation for development activities, particularly the European Development Fund (EDF).

In order to inform the above dialogue activities, the PACE-Net project will evaluate the current landscape of S&T research in the Pacific. Consequently the 3-year PACE-Net project is divided into three distinctive activities: Information and Analysis; Action and Dialogue; and Dissemination and Outreach. The current Study inscribe into "Information and Analysis" activity, which serves to inform the Action and Dialogue activity of the project [1].

This report corresponds to the Task 2.1 (to identify existing linkages made between S&T and development goals in the Pacific region) of the Work Package 2 of the PACE-Net project and is the first of the many successive reports that will be published under the Information and Analysis activity of the project. It seeks to identify the existing linkages between S&T research and development goals in the Pacific to understand PICTs research and development issues.

The objective of this report is to assist the PACE-Net partners and the dialogue fora to define the priority research thematic areas to meet the objective n° 2 of the PACE-Net project. To address this question, the focus S&T areas as well as cross cutting issues of a large number of development agendas, including development commitments, various co-operation for development programmes, development programmes and initiatives, and numerous research programmes for development of the Pacific islands and/or relevant to the Pacific islands have been reviewed for relevance to or for bearing on S&T areas.

1.4. Methodology used

The information presented in this report has been obtained from desktop review of documents and reports that have been accessed either through the internet or have been provided by the different organisations.

The development agendas and documents reviewed include: regional and international development commitments (Chapter 2); research programmes of various national and regional academic and research institutions, (Chapter 3); development programmes of inter-governmental organisations (Chapter 4); and development initiatives of a number of civil society organisations (Chapter 5); as well as other development initiatives in the

[1] For further information refer to PACE-Net's Document of Work (DoW).

region (Chapter 6) and co-operation for development programmes of various funding agencies (Chapter 7). Chapter 8 concludes the outcomes of the Study and provides some recommendations on the priority S&T sector groups and the potential sub-categories in which research in the Pacific can be taken to address the goals and needs of the region. In all 136 documentations were studied.

Before initiating the Study, the following keywords were defined:

S&T – covers a very broad range of activities and is thus difficult to characterise. As such the S&T themes in this Study have been inspired from the documents that were analysed in this Study and the research & development (R&D) sectors defined by EU (http://cordis.europa.eu/themes/home_en.html). These R&D sectors are provided in the Annex 2.

Development agendas – as S&T is inherently cross-sectoral as it implicates or has impacts on many segments of the society, the authors have used an inclusive, multi-stakeholder approach in this Study. Therefore, the development agendas in Study comprise documents, plans or strategies of governments, inter-governmental organisations, research centres, civil society organisations and donor agencies.

1.5. Complementary Studies

To inform further PACE-Net towards its objectives, the two complementary studies were undertaken in parallel to the above Study. The first complementary study entitled "Existing networks, partnerships or alliance in the Pacific region" identifies and provides a comprehensive list (if not exhaustive) of the existing S&T networks in the Pacific region, while the second entitled "Physical constrains to establishing PACE-Net networks" informs PACE-Net of the physical barriers that it may face when establishing networks between S&T actors in the Pacific region and between the Pacific and Europe.

The findings of these two studies and the reports are attached to the Annex 3 and 4 for readers' reference.

2. Linking Science and Technology to Development Commitments of the Pacific islands

2.1 Introduction

The purpose of this Chapter is to identify the themes and cross cutting issues in the key development agendas endorsed by Pacific island leaders that have relevance to S&T. These themes and cross cutting issues have been extrapolated from a number of documents that include priority sectors noted by Pacific island leaders for regional and national development as well as from international agendas relevant to the region and are summarised in the Table 1.

2.2 Regional Commitments

2.2.1 Pacific Island Forum Resolutions

The Leaders of the 16 member state that make up the Pacific Islands Forum (PIF) meet annually for a major regional political meeting to discuss issues and strategies for peace, stability, human security and socio-economic development. The meeting stemmed from a desire by Leaders to address common issues from a regional perspective and to give their collective views greater weight in the international community. These annual Forum Leaders' meetings are chaired by the Head of Government of the Host Country, who remains as Forum Chair until the next meeting. Decisions by the Leaders are reached by consensus and are outlined in a Forum Communiqué, from which policies are developed and work programmes are prepared. Below is a list of development themes of relevance to S&T research opportunities in the Pacific that have been noted in various Forum Communiqués since 2005.

2005 Madang Communiqué and Kalibobo Roadmap (Papua New Guinea): Labour mobility, education, governance, economic development, trade, climate change, human security, sustainable development, fisheries, information and communication technology (ICT), health, transport, environmental issues and disaster management.

2006 Nadi Communiqué (Fiji): Private sector development, labour mobility, education, governance, economic development, trade, energy, climate change, human security, sustainable development, fisheries, ICT, health, transport and environmental issues.

2007 Vava'u Communiqué (Tonga): Waste management, private sector development, education, governance, trade, energy, climate change, human security, sustainable development fisheries, ICT, land, health and transport.

2008 Alofi Communiqué (Niue): Education, human resources, trade, governance, economic development, energy, climate change, food security, fisheries, human security, sustainable development, ICT, land, health and transport.

2009 Cairns Communiqué and Cairns Compact (Australia): Private sector development, education, human resources, trade, governance, economic development, energy, climate change, food security, fisheries, human security, sustainable development, ICT, land, health, transport, infrastructure, tourism, disabilities, and disaster management.

2010 Port Vila Communiqué (Vanuatu): global warming, climate change, natural disasters, fisheries, trade, disabilities, renewable energy, labour mobility, sexual and gender-based violence, radioactive contaminants, and private sector.

In addition to the above communiqués, subsequent to certain PIF meetings, a numbers of declarations were also adopted by the Leaders. Of these, the Niue Declaration on Climate Change (2008) and Vava'u Declaration on Pacific Fisheries Resources (2007) are of pertinence to PACE-Net. The Niue Declaration is the principal political climate change statement of the Pacific region. The key issues for, and challenges faced by the region that are raised in this Declaration include: climate variability; sea level raise and extreme weather events; repercussions on water and food resource and health (water scarcity, disruptions to food supply, spatial spread of food, water and vector-borne disease); alternative and renewable energy sources to reduce the emissions and improve energy efficiency; and building regional expertise in the development and deployment of adaptation technologies.

In the Vava'u Declaration on Pacific Fisheries Resources, the Leaders have reaffirmed the importance of regional fisheries resources as a key driver for sustainable economic growth in the region. The key issues raised in this document include: protection of high seas biodiversity in particular tuna species; and conservation and management of non-highly migratory fish stocks in the Pacific Ocean through implementation of long-term strategic approaches of conservation and management; and development and management of coastal fisheries and aquaculture to ensure food security, sustainable livelihoods and economic growth.

2.2.2 Pacific Island Leader's Endorsed Documents

Of relevance to the present Study, the Pacific Island Leaders have made significant mention of S&T research in the following endorsed documents: Pacific Regional Digital Strategy for ICTs; Pacific Islands Energy Policy and Plan; Pacific Regional Strategy on Disability; 1999 Pacific Islands Regional Ocean Policy; and Pacific Islands Framework for Action on Climate Change 2006-2015.

The 1999 Pacific Islands Regional Ocean Policy (PIROP) was endorsed by Pacific Island Leaders in 2002 and its Strategic Action Framework was adopted in 2004. The Policy underscores the importance of the ocean to Pacific Island nations and communities and serves to unify a number of existing regional initiatives that address issues relevant to management and development of ocean and coastal resources and environment. Its goal is to ensure the sustainable use of the Pacific Ocean and its resources by Pacific island communities and external partners.

The Pacific Islands Regional Ocean Framework for Integrated Strategic Action (PIROFISA) is guided by 5 principles embodied in the PIROP: ***(1)*** improving understanding of the ocean; ***(2)*** sustainably developing and managing the use of ocean

resources; ***(3)*** maintaining the health of the ocean; ***(4)*** promoting peaceful use of the ocean; and ***(5)*** creating partnerships and promoting cooperation. These principles provide 6 thematic directions and objectives for the Framework, which are further developed through a series of priority initiatives and actions. Of high relevance to S&T research in the Pacific and to PACE-Net is the theme 2.

"Theme 2: Improve understanding of the ocean
Initiative 2.1: Identify and prioritise information needs and expand information gathering efforts. As utilisation of the ocean intensifies the need for an expanded information and knowledge base increases. Significant needs include inventorying and gaining access to the results of research activities, identifying and addressing gaps in the knowledge base, and coordinating future research.
Actions 2.1.4: Develop regional and national guidelines to monitor and coordinate research, in accordance with United Nations Convention on the Law of the Sea (UNCLOS) provisions."

The Pacific Islands Energy Policy and Plan (PEPP) is structured around the following ten areas: ***(1)*** regional energy sector co-ordination; ***(2)*** policy and planning; ***(3)*** access to power; ***(4)*** environment friendly transportation; ***(5)*** renewable energy; ***(6)*** supplies of petroleum products to all areas of the Pacific; ***(7)*** social and economic development of rural and remote islands; ***(8)*** development of environmentally sustainable energy sources; ***(9)*** energy efficiency and conservation; and ***(10)*** development of human and institutional capacity. To achieve these goals, policies have been designed and are supported by specific strategies and actions. The policies 10.2 and 10.4 under section 10 of the PEPP are of particular relevance to the objectives of PACE-Net.

"Policy 10.2: Promote an interdisciplinary approach to energy training and capacity building programmes that merges the physical sciences (physics, engineering, mathematics) and the social sciences (economics, management)
Strategy 10.2.1: Provide a regional focus for energy research, analysis, and training
Activities: Create a regional centre of excellence in energy
Policy 10.4: Accelerate research and development of energy technologies that are appropriate for adoption within the region
Strategy 10.4.1; Enhance regional research and development
Activities: Conduct research on appropriate new technologies and fuels; conduct research on adapting appropriate existing technologies; and promote private sector participation in energy technologies research"

In 2005, PIF Leaders endorsed the Pacific Islands Framework for Action on Climate Change (PIFACC) 2006-2015. This Framework aims is to ensure that Pacific island peoples and communities build their capacity to be resilient to the risks and impacts of climate change with the key objective to deliver on the expected outcomes under the following 6 principles: ***(1)*** implementing adaptation measures; ***(2)*** governance and decision-making; ***(3)*** improving our understanding of climate change; ***(4)*** education, training and awareness; ***(5)*** contributing to global greenhouse gas reduction; and ***(6)*** partnerships and cooperation. The Action Plan for the implementation of PIFACC has identified the key areas that will be impacted by climate change as: food security and agriculture; health; coastal areas and infrastructure; and water resources. Sectors of importance to the sustainable development of PICTs such as tourism, land-based

resources, fisheries, industry and biodiversity are also considered under this Action Plan. Moreover, the recommendations made under the principles 3, 4 and 6 in the Action Plan are of further relevance to S&T research and to PACE-Net.

"Principle 3: to increase capacity for climate change and health research in the Pacific; and to improve regional and international collaboration in this regard.
Principle 4: *to develop and maintain regional expertise for research and development focused on climate change, climate variability and sea level rise*; *develop a directory of regional and national organisations and individuals, with a view to build active networks in the implementation of climate change activities and to increase the capacity of regional educational and research institutions*; *and to coordinate the collection and dissemination of information, advice, training, networking and linkages to ongoing research in Council of Regional Organisations in the Pacific (CROP), at the University of the South Pacific (USP) and other tertiary institutions, through the Clearing House Mechanism.*
Principle 6: to promote joint climate change projects between international organisations, education and research institutions and PICTs."

The Action Strategy for Nature Conservation in the Pacific Islands Region 2008 – 2012 was developed in 2002 at the 7th Pacific Islands Conference on Nature Conservation and Protected Areas and endorsed by SPREP's member countries. This Action Strategy has received broad acceptance of all key stakeholders in the region (national governments, regional organizations, non government organisations, church groups, and donors) and now represents the WSSD Type II Partnership Initiative on mainstreaming conservation which was identified as a priority by Pacific island Leaders in 2002. The Action Strategy highlights the priority concerns for conservation in the Pacific region, and outlines a roadmap for achieving the key goals. It centers on the following three 30-year goals: ***(1)*** environmental including conservation of biodiversity and natural environment; ***(2)*** economic - nature conservation and sustainable resource use; and ***(3)*** social - peoples, governments, and institutions in the Pacific involved in sustainable and equitable natural resources use activities and the following key focus areas: ***(1)*** ensure conservation has a development context that recognises, respects and supports sustainable livelihoods and community development aspirations; ***(2)*** identify, conserve and sustainably manage priority sites, habitats and ecosystems; ***(3)*** protect and recover threatened species and species of ecological, cultural and economic significance; and ***(4)*** manage threats to biodiversity, especially climate change. These focus areas are drawn from common priorities identified in Pacific Island National Biodiversity Strategies and Action Plans (NBSAPs) that were developed by 22 PICTs, presenting the key goals and actions that these nations feel are necessary to safeguard their biological diversity. Of relevance to S&T, the following common themes have been identified in the NBSAPs: endangered species; invasive species; ecosystem management; genetic resource use; agro-biodiversity; ecological social and economic development; waste management; human resources and institutional development; mainstreaming biodiversity conservation; securing and enhancing traditional knowledge; addressing pollution; and education and awareness.

2.2.3 Pacific Island Ministers' Outcomes

The biennial meeting of Ministers of Health for the Pacific Island Countries (PICs) is the major venue to review progress in public health, identify emerging challenges and map

new directions in the Pacific. The first ministerial meeting of health for the Pacific Islands was convened in Fiji in 1995. This inaugural meeting laid out a vision of "healthy islands" that has guided public health in the Pacific for the past dozen years and is articulated in the "Yanuca Island Declaration" of 1995.

Since, the following series of meetings has led to the development of this Vision, which takes into account the geographical, social, economic and health features in areas such as human resources for health, environmental health, non communicable diseases (NCDs), mental health, elimination of lymphatic filariasis, tuberculosis and parasitic diseases, pharmaceutical and traditional medicine. This is corroborated in the following documents: Rarotonga Agreement: Toward Healthy Islands, 1997; Palau Action Statement on Healthy Islands, 1999; Madang Commitment Towards Healthy Islands, 2001; Tonga Commitment to Promote Healthy Lifestyles and Supportive Environment, 2003; Samoa Commitment towards Achieving Health Islands 2005; Vanuatu Commitment 2007; and Madang Commitment 2009

Of interest to PACE-Net, three common themes have emerged from all of the above documents. These include: ***(1)*** the predominant and growing burden of NCDs (cancer, cardiovascular disease, diabetes and hypertension); ***(2)*** the persistent burden of infectious diseases (HIV/AIDS, sexual transmitted infections or STI, dengue) and the dangers of their re-emergence (pandemic influenza); and ***(3)*** the need to support health systems so that they can cope with this double burden of communicable diseases and NCDs.

In the Madang Declaration, the Pacific Health Ministers have acknowledged that while the Pacific faces many familiar challenges, including the dual burdens of communicable and NCDs, more recent threats have emerged, such as climate change and food security. In particular, the Ministers noted the importance of inter-sectoral approaches when addressing health issues related to food security, climate change, NCDs and maternal, child and adolescent health.

2.2.4 The Pacific Plan

The Pacific Plan for Regional Integration and Cooperation (The Pacific Plan) 2006-2015 was endorsed by Pacific Leaders at the 2005 PIF meeting in Papua New Guinea and provides the strategic framework for regional efforts to further the sustainable development of the Pacific islands. It contains four pillars of regional development and economic integration: ***(1)*** economic growth; ***(2)*** sustainable development; ***(3)*** governance; and ***(4)*** security.

Though the Pacific Plan does not make specific reference to S&T research, the pillar relating to sustainable development is the most relevant to the present Study as it provides the context for research opportunities. The strategic objectives underlined within this pillar include: reduced poverty; improved natural resource and environmental management with initiatives in sustainable development fisheries resources management, waste management, environmentally sound energy, adaptation and mitigation in climate change and disaster management, biodiversity and environmental protection; improved health with initiatives in the areas of HIV/AIDS and STI and NCDs; improved education and training; improved gender equality; enhanced

involvement of youth; increased levels of participation and achievement in sports; and recognized and protected cultural values, identities and traditional knowledge.

The themes of relevance to S&T research for development in the Pacific region are therefore education, governance, economic growth and development, trade, energy, climate change, food security, human security, sustainable development, poverty alleviation, fisheries, information and communication technology, health, transport, infrastructure, tourism, disabilities and culture.

2.3 National Commitment

All countries in the Pacific region have national development plans which are endorsed at the highest level of government. National development plans provide an opportunity for countries to determine and prioritise short, medium and long term development options and strategies, towards sustainable development to ensure socially responsible economic development while protecting the resource base and environment for the benefit of future generations. Most PICs do not specifically make reference to S&T research as a means to achieving their goals in their national development plans, with the exception of Samoa and Tonga as both these countries development strategies note the importance of research within the agricultural and environmental management sectors.

However, within the spectrum of PIC national development plans one finds reference to a broad range of themes on which S&T research for development could be based. These themes include waste management, private sector development, labour mobility, culture, education, human resources, governance, economic development, trade, energy, climate change, food security, human security, sustainable development, poverty alleviation, fisheries, ICT, land resources, health, transport, infrastructure, tourism, disabilities, gender equality, water and sanitation, sea bed resource development, land and marine resource management, environmental conservation and disaster management.

2.4 International Commitments

2.4.1 Ambo Declaration

The Ambo Declaration was adopted at the 2010 Tarawa Climate Change Conference by Australia, Brazil, China, Cuba, Fiji, Japan, Kiribati, Maldives, Marshall Islands, New Zealand, Solomon Islands and Tonga. This Declaration calls for more and immediate action to be undertaken to address the causes and adverse impacts of climate change. The Declaration was slated to be a non-legally-binding agreement between the nations to present at the larger international climate change summit, the 16th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Cancun, Mexico in 2010.

Of relevance to this Study, the Ambo Declaration recognizes that climate change is one of the greatest challenges of our time and that there is an urgent need for more and

immediate action to be undertaken to address the causes and adverse impacts of climate change.

The Declaration underlies the concern over loss and degradation of biodiversity and its impact on human livelihood and welfare, in particular, in the most vulnerable States in the frontline, and also concern over the emissions added by land degradation. It calls on developed country Parties to give priority support to the capacity building and technology transfer needs and priorities of the developing country Parties, in particular that of the most vulnerable States to enhance their ability to contribute to the rapid reduction and mitigation of global emissions and to adapt to the adverse impacts of climate change, and further supported by transfer of environmentally sound technologies on mitigation and adaptation.

2.4.3 Cotonou Agreement

The Cotonou Agreement is a treaty between the EU and 79 African, Caribbean and Pacific Group of States (ACP) countries. This Agreement replaced the Lome Convention which had been the basis for ACP-EU development co-operation since 1975. Signed in 2000 for a twenty-year period, the Cotonou Agreement is a comprehensive development, trade and aid partnership, setting out the framework for the EU's relationship with ACP countries. The subsequent revisions to the Agreement were endorsed in 2005 by Pacific Leaders and other ACP Leaders. The Cotonou Agreement is aimed at the reduction and eventual eradication of poverty while contributing to sustainable development and to the gradual integration of ACP countries into the world economy. The revised Cotonou Agreement is also concerned with the fight against impunity and promotion of criminal justice through the International Criminal Court. In its structure, the Agreement encompasses three pillars for the relationship between EU and ACP countries: ***(1)*** a political dialogue between ACP countries and the EU; ***(2)*** the development of a new trade regime, called Economic Partnership Agreements; and ***(3)*** the development aid co-operation.

In various articles, the Cotonou Agreement follows the appeal of the Libreville Declaration. The Libreville Declaration, adopted in 1997 by the 78 ACP countries, aimed to improve the development co-operation between ACP countries and the EU by placing "*greater emphasis on the development of our human resources, on enhanced access to science and technology, especially on information technology and the financing of research relevant to our socio-economic development*". Article 23j of the Cotonou Agreement states for instance that the co-operation should support the *'development of scientific, technological and research infrastructure and services, including the enhancement, transfer and absorption of new technologies*'. Article 33b aims to improve the '*capacity to analyse, plan, formulate and implement policies, in particular in the economic, social, environmental research, science and technology and innovative fields*'. The ACP countries in the Libreville Declaration have particularly emphasised their determination '*to master information technologies and develop infrastructure, particularly telecommunication informatics*'.

Other areas mentioned in the Cotonou Agreement on which S&T research opportunities can be based appear under the co-operation strategies and include: private sector development; economic sector development (through energy, transport, ICT, mining and

industrial sector and trade); tourism; social sector development (through health systems and nutrition, food supply and security, HIV/AIDS, water and sanitation, urban development, integrating population issues into development strategies and human security); gender issues; regional co-operation (in transport and ICT infrastructure, environment, water resource management and energy, health, education and training, research and technological development, disaster management); environment and natural resources (includes issues of scientific and technical human and institutional capacity building, forests, water resource, coastal, marine and fisheries resources, biodiversity, soils, protection of ecosystems, renewable energy, rural and urban development, desertification, drought and deforestation, sustainable tourism, hazardous waste, climate change); institutional development and capacity building (for democracy, human rights, justice, transparent and accountable governance and administration); maritime transport; and ICT and information society (development and encouragement of the use of affordable renewable energy resources and of local content for ICT).

2.4.3 Leader's Meetings Outcomes

The Pacific Alliance Leaders Meeting (PALM) is a forum between the government of Japan and Leaders in the Pacific islands region. The PALM was established by Japan in 1997 in order to facilitate and strengthen relations with the Leaders of the nations of the PIF. Since its foundation, PALM has become an important venue of dialogue between Japan and Pacific island nations for important issues such as development aid and climate change. There have been five PALM meetings since the forum's founding.

At the meeting of the PALM 4 in 2006, Japanese and Pacific Leaders adopted the Okinawa Partnership. Under the Okinawa Partnership which would facilitate the achievement of the objectives of the Pacific Plan, Japan agreed to increase its commitment to the development of PIF countries by means of the Assistance Plan with the following areas of priority: ***(1)*** economic growth by cooperation in such areas as trade, investment, infrastructure, fisheries and tourism; ***(2)*** sustainable development by cooperation in such areas as environment, health, water and sanitation, education and vocational training; ***(3)*** good governance by cooperation in such areas as administrative capacity building and institutional capacity building; ***(4)*** security by cooperation in such areas as disaster mitigation and management, and measures against organized crime; and ***(5)*** people to people communication and exchange by enhancing exchange of personnel and cultural exchange.

At the PALM 5 that took place in 2009, the Hokkaido Declaration was adopted. The main of themes of relevance to S&T outlined in this Declaration include: environment and climate change; human security including access to health, education and clean water supplies, bolstering food security, development of agriculture, fisheries and tourism sectors and improving transport and telecommunications infrastructure; cultural exchanges of people between Japan and the Pacific islands; fisheries; and trade and investment.

2.4.5 Millennium Development Goals

Following the 2000 United Nations (UN) Millennium Summit, the Millennium Declaration, incorporating eight key Millennium Development Goals (MDGs) was

adopted by 192 world Leaders, including Pacific island Leaders. MDGs were derived from earlier international development targets relating to improving social and economic conditions in the world's poorer countries in order to spur development in these countries. The eight MDGs include: ***(1)*** eradicate extreme poverty and hunger; ***(2)*** achieve universal primary education; ***(3)*** promote gender equality and empower women; ***(4)*** reduce child mortality rate; ***(5)*** improve maternal health; ***(6)*** combat HIV/AIDS, malaria and other diseases; ***(7)*** ensure environmental sustainability; and ***(8)*** develop a global partnership for development

The themes emanating from the eight MDGs above directly concern education, health (child, maternal and reproductive health, HIV/AIDS, malaria, tuberculosis, pneumonia, diarrhoea, measles, nutrition), poverty alleviation (hunger and employment), gender equity, environment (deforestation, biodiversity, climate change, sustainable access to water and basic sanitation, improvement of conditions of living), trade and private sector involvement, all of which are key topics that feature in the various Pacific island development agendas.

2.4.5 Port Moresby Declaration

The Port Moresby Declaration is a new policy framework comes under what the Australian Government calls the Pacific Partnership for Development. The Pacific Partnerships for Development are a core component of Australia's development assistance programme to the Pacific islands, which in 2008–2009 was almost AUD1 billion.

These Pacific Partnerships for Development provide a new framework for Australia and the Pacific island nations to commit jointly to achieving shared goals including economic growth and rapid progress to MDGs. These Partnerships will embrace the following areas: ***(1)*** improving economic infrastructure and enhancing local employment possibilities through infrastructure and broad-based growth; ***(2)*** enhancing private sector development, including better access to microfinance; ***(3)*** achieving quality, universal basic education; ***(4)*** improving health outcomes through better access to basic health services; and ***(5)*** enhancing governance, including the role of civil society, and the role of non government organisations (NGOs) in basic service delivery. Since the signing of Port Moresby Declaration, Australia has strengthened its engagement with Pacific islands through a number of Pacific Partnerships for Development.

2.4.6 The Mauritius Strategy

The Mauritius Strategy is a Programme of Action for Sustainable Development centred on the specific needs of Small Island Developing States (SIDS). Adopted by 129 Member States in Mauritius in 2005, including Pacific island Leaders, and subsequently endorsed by the General Assembly of the UN, the Programme of Action reflected in the Mauritius Strategy is a blueprint for SIDS and the international community to address national and regional sustainable development in SIDS that takes into account the economic, social and environmental aspects that are the pillars of the holistic and integrated approach to sustainable development. The Mauritius Strategy, organised in twenty chapters, addresses all important elements covering the sustainable development of SIDS, as well as actions that should be taken in specific strategic sectors.

In relation to S&T research for development, the Mauritius Strategy includes references to continuing to strengthen S&T collaboration through North-South and South-South cooperation, as well as noting the importance of facilitating research into new products and maximising the use of existing SIDS' resources. Furthermore, the Mauritius Strategy makes reference to a broad range of themes on which S&T research for development in the Pacific region could be based (see Table 1).

2.5 Synthesis

The Table 1 below compiles 38 priority themes and cross cutting issues that have been endorsed by the Pacific Leaders in the 25 key development commitments discussed in this Study.

The most frequently mentioned themes include:
- health (appears in 17 agendas), climate change (15), fisheries and aquaculture (14), food security (12), environment (11), ICT (11), transport (11), and energy (11).

The most frequently mentioned cross cutting issues include:
- economic development (13), trade (13), education (12), governance and policy (12), sustainable development (12), human security (10), and private sector development and integration (10).

Other frequent themes were:
- agriculture and forestry, disaster management, and water and sanitation.

Other frequent cross cutting issues were:
- human resource development, infrastructure development, and tourism.

The less frequently mentioned themes include:
- biodiversity, waste and pollution management, culture, social and human sciences, technology transfer and innovation, and mineral resources.

The less frequently mentioned cross cutting issues include:
- disabilities, crime management, civil sector involvement, labour mobility, infrastructure development, gender equality, indigenous knowledge systems, industrial sector development, institutional capacity building, microfinancing, poverty alleviation, rural development, and social development.

The themes that have a direct link to S&T and appear as top priorities include:
- health;
- climate change;
- fisheries and aquaculture;
- food security
- environment
- ICT;
- transport; and
- energy.

The cross-cutting issues most mentioned that may have present S&T opportunities include:
- economic development;
- trade;
- education;
- governance and policy;
- sustainable development;
- human security; and
- private sector development and integration.

Table 1: Linking S&T to development commitments of the Pacific islands

Development commitments / Themes and cross cutting issues[2]	1. Action Strategy for Nature Conservation in the Pacific Islands Region	2. Alofi Communiqué	3. Ambo Declaration	4. Cairns Communiqué	5. Cotonou Agreement	6. Hokkaido Declaration	7. Madang Communiqué and Kalibobo Roadmap	8. Madang Declaration	9. Millennium Development Goals	10. Nadi Communiqué	11. Niue Declaration	12. Okinawa Partnership	13. Pacific Islands Energy Policy and Plan	14. Pacific Islands Framework for Action on Climate Change	15. Pacific Islands Regional Ocean Policy	16. Pacific Plan	17. Pacific Regional Digital Strategy for Disability	18. Pacific Regional Strategy for Information Communication Technology	19. PICT National Development Plans	20. Port Moresby Declaration	21. Port Villa Communiqué	22. The Mauritius Strategy	23. Vava'u Communiqué	24. Vava'u Declaration	25. Yanuca Island Declaration	**Total**	Rank
1. Agriculture & Forestry		√		√	√				√					√		√			√			√	√			9	15
2. Biodiversity	√			√					√					√										√		5	24
3. Civil Society Involvement					√															√						2	31
4. Climate Change		√	√	√	√		√	√	√	√	√			√		√			√		√	√	√			15	2
5. Crime Management & Terrorism					√							√														2	31
6. Culture, Social and Human Sciences				√	√							√				√			√			√				6	21
7. Disabilities				√												√	√		√		√	√				6	21
8. Disaster Management				√	√		√				√	√							√		√	√				8	17
9. Earth Sciences																											
10. Economic Development	√	√		√	√		√		√	√		√				√			√	√	√	√		√		13	4
11. Education		√		√	√		√		√	√		√				√			√	√		√	√			12	5
12. Energy		√		√	√					√	√		√			√			√		√	√	√			11	9
13. Environment					√		√		√	√		√	√	√	√				√		√	√				11	9
14. Fisheries & Aquaculture		√		√	√		√			√	√			√	√	√			√		√	√	√	√		14	3
15. Food Security		√		√	√			√	√		√			√		√			√		√	√		√		12	5
16. Gender Equality					√				√										√		√	√				5	24
17. Governance & Policy		√		√	√		√			√		√				√			√	√	√	√	√			12	5
18. Health		√		√	√		√	√	√	√	√	√		√		√			√	√	√	√	√		√	17	1

[2] From the study of the development commitments described above, 38 themes and cross cutting issues have emerged. However, from all the documents and sources studied in the subsequent chapters, 40 different themes and cross cutting issues have inventoried in all. Consequently, these 40 themes and cross cutting issues will appear in all tables of synthesis (Table 1, 2, 3, 4, 6, 7and 8).

Key: S&T themes with highest scores cross cutting issues with highest scores

Themes and cross cutting issues / Development commitments	1. Action Strategy for Nature Conservation in the Pacific Islands Region	2. Alofi Communiqué	3. Ambo Declaration	4. Cairns Communiqué	5. Cotonou Agreement	6. Hokkaido Declaration	7. Madang Communiqué and Kalibobo Roadmap	8. Madang Declaration	9. Millennium Development Goals	10. Nadi Communiqué	11. Niue Declaration	12. Okinawa Partnership	13. Pacific Islands Energy Policy and Plan	14. Pacific Islands Framework for Action on Climate Change	15. Pacific Islands Regional Ocean Policy	16. Pacific Plan	17. Pacific Regional Digital Strategy for Disability	18. Pacific Regional Strategy for Information Communication Technology	19. PICT National Development Plans	20. Port Moresby Declaration	21. Port Villa Communiqué	22. The Mauritius Strategy	23. Vava'u Communiqué	24. Vava'u Declaration	25. Yanuca Island Declaration	**Total**	Rank
19. Human Resource Development	√	√		√	√						√	√	√						√	√						9	15
20. Human Security				√	√		√			√						√			√		√	√	√	√		10	13
21. ICT		√		√	√		√			√						√		√	√		√	√	√			11	9
22. Indigenous Knowledge Systems	√																									1	35
23. Industrial Sector Development					√									√												2	31
24. Infrastructure Development				√	√							√		√		√			√	√		√				8	17
25. Institutional Capacity Building					√							√	√	√												4	28
26. Labour Mobility							√			√									√		√					4	28
27. Media Studies																											
28. Mineral Resources				√			√			√									√			√	√			6	21
29. Microfinancing & Investment																				√						1	35
30. Private Sector Development & Integration				√	√				√	√			√						√	√	√	√	√			10	13
31. Poverty Alleviation					√				√							√			√			√				5	24
32. Rural Development					√								√													2	31
33. Social Development					√				√				√													3	30
34. Sustainable Development	√			√	√		√			√		√				√			√		√	√	√	√		12	5
35. Technology Transfer & Innovation			√	√	√						√															4	28
36. Tourism				√	√							√		√		√			√			√				7	20
37. Trade	√	√		√	√		√		√	√		√				√			√		√	√	√			13	4
38. Transport		√		√	√		√			√			√			√			√		√	√	√			11	9
39. Waste & Pollution Management	√				√														√			√	√			5	24
40. Water & Sanitation					√				√		√	√		√					√		√	√				8	17

Key: S&T themes with highest scores cross cutting issues with highest scores

3. Linking Science and Technology to Research Programmes of Academic and Research Institutions for the Pacific islands

3.1 Introduction

There are many academic and science institutions in the Pacific with national and regional mandates that are involved in S&T research for development either by funding research activities and/or employing and training scientists to implement a broad range of research topics related to sustainable development on which national development policies can be based. The major academic and science institutions based in the Pacific islands and those based in Australia and New Zealand with strategic focus on Pacific island region, as well as their contribution to S&T research for development are described below. The themes and cross cutting issues have been extrapolated from these documents are summarised in the Table 2.

3.2 Academic Institutions

3.2.1 Australian National University (ANU)

The Australian National University (ANU) is a public teaching and research university located in Canberra, Australia. It was established by an Act of Federal Parliament in 1946, with the legislated purpose of conducting and promoting research in Australia. ANU's expertise in research and training spans a wide range of sectors from science, engineering and medicine to law, social sciences, the arts and humanities. ANU has seven academic colleges, which contain a network of inter-related faculties, research schools and centers. Each college is responsible for undergraduate and postgraduate education as well as research in its respective field. These colleges include: College of Arts and Social Sciences; College of Business and Economics; College of Engineering and Computer Science; College of Law, College of Medicine; Biology and Environment; College of Physical and Mathematical Sciences; and College of Asia and the Pacific.

ANU offers excellent resources and facilities for research in the Pacific islands region. Since the foundation of the University, the area has been a major focus of interest, and the University has achieved international renown through its research and publications.

Of interest to PACE-Net, ANU's College of Asia and the Pacific (CAP) hosts education and research in more than a dozen disciplines in the humanities and social sciences with a focus on Australia's geographic neighborhood. Research in the ANU CAP is focused on anthropology, archaeology, economics, gender relations, history, international relations, linguistics, political science, regulatory institutions, resources management and strategic and defense studies. The formation of the Research School of Pacific and Asian Studies (RSPAS) within this College expressed the need for accurate research, policy discussion, and technical services for the region.

The Pacific Centre at the RSPAS further expresses the implication of ANU in the region. The Centre provides a formal and focused structure to tap the unmatched strengths of the School and the ANU in Pacific scholarship and to enhance its regional outreach activities. Its objectives are to: ***(1)*** develop and promote Pacific studies within ANU; ***(2)***

develop links with government agencies, institutions and university within Australia and the Pacific region and act as a focal point for their access to Pacific studies at ANU; and ***(3)*** finally to facilitate contact and communication between Pacific scholars in Australia and the outside world through active cooperation with other centers and institutes for Pacific studies. The Centre pursues these goals by creating a network of information, consolidation and expanding Pacific island library and reference material in Australia, establishing visiting fellowships, hosting major annual workshop and by facilitating collaborative research projects with island universities in humanities and the social science.

3.2.2 East-West Center (EWC)

The East-West Center (EWC), headquartered in Honolulu, Hawaii, is an education and research organization established by the U.S. Congress in 1960 to strengthen relations and understanding among the peoples and nations of Asia, the Pacific and the United States. The Center is an independent, public, non-for-profit organization with funding from the United States government, and additional support provided by private agencies, individuals, foundations, corporations, and governments in the region. It serves as a resource for information and analysis on critical issues of common concern, bringing people together to exchange views, build expertise, and develop policy options.

The Center carries out its mission through programs of cooperative study, training and research. Of interest to PACE-Net**,** EWC conducts multidisciplinary research on issues of contemporary significance to Asia, the Pacific and the United States. Its work is organized into four study areas: economics; environmental change, vulnerability, and governance; politics, governance and security; and population and health.

3.2.3 Fiji School of Medicine (FSMed)

The Fiji School of Medicine (FSMed) is a tertiary education institution located in Fiji that has been educating health care professionals since its establishment in 1885 as Suva Medical School. It offers academic programmes at the undergraduate and postgraduate levels in most health science disciplines including medicine, dentistry, pharmacy, physiotherapy, radiography, laboratory technology, public health, dietetics and environmental health. FSMed hosts the secretariat of the Pacific Society for Reproductive Health and the secretariat of the Pacific Health Research Council.

Of particular interest to the PACE-Net project is FSMed's Research Unit, which serves functions both within FSMed and in its external relationships with collaborating academic institutions, Fiji Government, donors, the UN agencies, regional agencies and the general community.

Of relevance to promoting S&T research for development in the Pacific are the FSMed supported three research centres:

Pacific STI & HIV Research Centre is dedicated to conducting STI and HIV research, in particular, the social conditions that lead to the transmission of these diseases. A study on the relationship of drug and alcohol to HIV/STI transmission is being conducted in collaboration with the Pacific Drug and Alcohol Research Network.

Centre for the Prevention of Obesity and NCDs leads solution-oriented research on obesity and NCDs and incorporates the Translational Research for Obesity Prevention in Communities and the Pacific Obesity Prevention in Communities projects.

Centre for Health Information, Policy and Systems Research provide opportunities for FSMed staff and students to research operational issues and to provide of the evidence for health policy developments in Fiji and the Pacific. It is collaborating with the Nossal Institute at Melbourne University to assist in three research projects: governance mechanisms; funding flows; and the Pacific flagship course on health policy and financing.

Other research projects that the FSMed is involved in are a baseline study in nine schools in Fiji against which the new Family Life Education Curriculum will be evaluated, and Traffic Related Injury Prevention research.

3.2.4 Hawaii Pacific University (HPU)

Hawaii Pacific University (HPU) is a private, non-sectarian, co-educational university with two main campuses, one located in Honolulu, Hawaii and the other in Kaneohe, Hawaii. Founded in 1965, the School's largest academic programs are in business administration, nursing, and international relations.

HPU is made up of multiple colleges: College of Business Administration, College of Humanities and Social Sciences, College of Nursing and Health Sciences, and the College of Natural and Computational Sciences. HPU offers both undergraduate and graduate programs in each of its colleges and schools. HPU is also affiliated with the Oceanic Institute, a 56-acre aquaculture research facility.

Of relevance to PACE-Net the Oceanic Institute's scientific research is integrated across the following departments: fisheries and marine sciences, shrimp department, finfish department, and aquatic feeds and nutrition department.

3.2.5 National University of Samoa (NUS)

The National University of Samoa (*Le Iunivesite Aoao o Samoa*; NUS), established in 1984 by an act of parliament, is the only national university in Samoa. NUS has the distinction of being one of two universities in Samoa, the second being the Alafua Campus of University of the South Pacific (USP), which specializes in agriculture.

In 2010 about 2 000 students were enrolled with an estimated 300 staff. The University offers over 60 academic, technical and vocational programmes from the certificate to the diploma, bachelor and postgraduate levels including the world's first Master of Samoan Studies. These programmes are supported by NUS through the Institute of Technology, Institute of Higher Education, Center for Samoan Studies and Oloamanu Centre for Professional Development, which include eight faculties and schools; namely Faculty of Arts, Faculty of Business and Entrepreneuship, Faculty of Education, Faculty of Nursing and Health Science, Faculty of Science, School of Business and General Studies, School of Engineering and School of Maritime Training.

Of interest to PACE-Net, the Centre for Samoan Studies is charged with coordinating the research activities of NUS and promotes interdisciplinary and multidisciplinary research and scholarship for the benefit of Samoa and its people, addressing Samoa's natural resources and environment and its development in economic, technical, commercial, political, theological, medical, educational and cultural spheres.

3.2.6 University of Auckland (UoA)

The University of Auckland (*Te Whare Wanaga o Tamaki Makaurau*; UoA) is New Zealand's largest university established in 1883. The mission of UoA is to be *'a research-led, international university, recognised for excellence in teaching, learning, research, creative work, and administration, for the significance of its contributions to the advancement of knowledge and its commitment to serve its local, national and international communities'.* The University is made up of eight faculties and two research institutes over six campuses: Faculty of Arts; Business School; National Institute of Creative Arts and Industries; Faculty of Education; Faculty of Engineering; Faculty of Law; Faculty of Medical and Health Sciences; Faculty of Science; Liggins Institute; and Auckland Bioengineering Institute. The research topics of UoA are very diverse, including arts, business, creative arts, education, engineering, law, medical and health sciences, science and theology.

Of relevance to PACE-Net, UoA has over 100 Memoranda of Understanding (MOU) with research institutions around the world including those in the Pacific (ANU, Monash University, University of Melbourne, University of New South Wales, University of Queensland, University of Sydney, University of Western Australia, University of South Pacific and University of New Caledonia).

Of further interest to PACE-Net, are the following facilities of UoA:

Centre for Pacific Studies is UoA's hub for research, activities, initiatives and academic courses to promote an understanding of the Pacific islands and issues of concerns to Pacific Islanders. Research expertise of the Centre includes Pacific-focused development, ethnicity, education, ethnomusicology, indigenous knowledge, linguistics, music and dance, and sociology. Active in external research projects funded by various government ministries and district health boards, their findings provides a sound base for all of Centre's teaching activities and informs the actions of politicians and policy advisors.

Pacific Health Section of UoA is an academic body with three core functions: learning and teaching, research, and community service. The Pacific Health Section is actively involved in research and activities in the wider Pacific region. Its research priorities are: development of methodological issues in Pacific health research; sociological, economic and political factors that affect Pacific peoples' health; Sudden Unexpected Death in Infancy (SUDI) epidemiology and prevention; health service utilisation; the evaluation of provision, organisation and delivery of health services, particularly to Pacific peoples; child health; and social, cultural and economic determinants of disease.

3.2.7 University of Guam (UoG)

The University of Guam (*Unibetsedat Guahan*; UoG) is a United States accredited, regional Land-Grant Institution. UoG's institutional mission addresses three primary foci: teaching, research and outreach pertinent to the western Pacific region. The University exists to service its learners and the communities of Guam, Micronesia and the neighboring regions of the Pacific and Asia by providing the opportunity to acquire knowledge, skills, attitudes and abilities through the core curriculum, degree programmes, research and outreach.

UoG offers 15 masters degree programmes, 34 bachelors degree programmes and one associate degree programme in nursing. These programmes are available in the College of Liberal Arts and Social Science, the College of Natural and Applied Sciences, the School of Business and Public Administration, the School of Education and the School of Nursing and Health Services. In addition, continuing education unit classes, professional development training and English as Second Language (ESL) training are offered.

Of interest to PACE-Net, the research units of UoG and their S&T research themes are described below:

Richard F. Taitano Micronesian Area Research Center - anthropology, archaeology, history, education, political science, economics, and sociology.

Marine Laboratory - ichthyology and fisheries biology, evolutionary ecology, molecular genetics, photo biology, invertebrate zoology, coral physiology and larval ecology, chemical ecology of reef organisms and natural products chemistry, community ecology, and species interaction, coral bleaching, introduced species, and pollution research.

Institute for Micronesian Health and Aging Studies - health and aging research.

Micronesian Language Institute - enlarge understanding of the indigenous languages of Micronesia.

Water and Environmental Research Institute of the Western Pacific - undertakes multidisciplinary water and environmental research that includes areas of engineering, biology, microbiology, chemistry, geology, physics, economics, law, anthropology, etc. The Institute serves as the designated water research center for Guam the Federated States of Micronesia, and the Commonwealth of the Northern Marianas Islands.

Western Pacific Tropical Research Center - soils, horticulture, entomology, plant pathology, animal nutrition, turf grass, human nutrition, agricultural engineering, agricultural economics, marketing, aquaculture and forestry. The Centre concentrates on applied research that directly impacts agriculture in Guam, as well as in other tropical areas. Current areas of specialization are

Cancer Research Center - biology, health sciences and social sciences. The Centre is involved in a number of research project designed to address cancer health disparities

with particular emphasis on aspects of particular relevance for the people of Hawaii and the Pacific.
Of further interest to PACE-Net, in 2011, UoG and the Secretariat of the Pacific Community (SPC) have signed a MOU to enhance their collaboration. The MOU seeks to maximize the combined impact of the work of SPC and UoG and outcomes in scientific research, socio-economic development and health. The MOU identifies eight programme themes on which SPC and UOG will pursue cooperation over the coming years. These eight themes, which reflect both existing and new opportunities for collaboration, are: ***(1)*** communication for behaviour and social change; ***(2)*** higher education; ***(3)*** biosecurity (invasive species ecology); ***(4)*** diagnostic laboratory assistance; ***(5)*** biomedical sciences; ***(6)*** natural resource ecology, including soils, forestry, agriculture and watershed restoration; ***(7)*** regional health communications and telecommunications; and ***(8)*** workforce development.

3.2.8 University of Hawaii System (UH)

The University of Hawaii System (UH), formally the University of Hawaii, is a public, co-educational college and university system that confers associate, bachelor, master and doctoral degrees through its three university campuses (Mānoa, Hilo and West Oahu), seven community colleges and community-based learning centers and various other research facilities distributed across six islands throughout the state of Hawaii.

Established in 1907 as the College of Agriculture and Mechanic Arts in Honolulu, UH's mission is to: ***(1)*** provide college and university education and training; ***(2)*** create knowledge through research and scholarship; ***(3)*** provide service through extension, technical assistance, and training; ***(4)*** contribute to the cultural heritage of the community; and ***(5)*** to respond to state needs. A total of 616 programs are offered throughout the University with 123 devoted for bachelor's degrees, 92 for master's degrees, 53 for doctoral degrees, 3 for first professional degrees, 4 for post baccalaureate degrees, 115 for associate's degrees and various other certifications.

Manoa campus of UH is the largest and the oldest campus that has strong research emphasis and is known for its pioneering research in such fields as oceanography, astronomy, Pacific islands and Asian area studies, linguistics, cancer research, and genetics. The University of Hawaii at Mānoa (UHM) has a long history of excellence in research and teaching activities concerning the Pacific islands. Of interest to PACE-Net the UHM has a number of research institutes, centers, facilities and units. These facilities and their S&T research areas include, but are not limited to:

Cancer Research Center of Hawaii - causes, prevention and treatment of cancer across the disciplines of epidemiology, natural products and cancer biology, prevention and control and thoracic oncology.

Hawaii Institute of Geophysics and Planetology - airborne hyperspectral remote sensing, high pressure mineral physics, meteoritics and cosmoschemicsty, small satellites, atmospheric research, infrasound, paleomagnetism, terrestrial remote sensing and satellite data retrieval, global tectonics and marine geology/geophysics, instrument development, planets and moon, volcanology, global positioning system (GPS), geodesy and geophysics, marine remote sensing and seafloor mapping, and seismology.

Hawaii Institute of Marine Biology - coral ecology, biogeochemistry, and evolutionary genetics. In addition, the Faculty is a recognized authority in marine diseases, neuroendocrinology, microbial organisms, and sensory systems of marine mammals and elasmobranchs.

Hawaii Natural Energy Institute - undertakes and coordinates research and development of the island's renewable energy resources (biocarbons, biomass, biotechnology, battery and vehicle testing, fuel cells, Hawaii Hydrogen Power Park, hydrogen, ocean resources, and solar-hydrogen, photovoltaics and imaging). It has broadened its expertise to encompass the development of technologies to tap the oceans for energy, food, minerals, and other resources. The Institute conducts and supports basic research, managing and investigates the social, environmental, and financial impact of energy- and marine-related activities.

Institute for Astronomy - sun, solar system, stars and interstellar matter, galaxies, cosmology and technology (telescope, instruments, detectors and adaptive optics).

Industrial Relations Center - labor-management relations and its areas of expertise include public sector collective bargaining, arbitration (grievance and interest) and workforce diversity.

Lyon Arboretum - tropical plants, native Hawaiian plants, conservation biology, and Hawaiian ethnobotany.

Pacific Biomedical Research Center - neurobiology, biotechnology, conservation of plant and animal species, marine and terrestrial ecosystem, biodiversity and the effects of human activity on the local marine environment, membrane biology, molecular endocrinology and native Hawaiian health research.

Sea Grant Programme or UH Sea Grant works - funds research that emphasises solution-based outcomes and applicability to pressing issues related to the health and well-being of coasts and coastal economies. It has five focus areas: ***(1)*** healthy coastal ecosystems; ***(2)*** sustainable coastal development; ***(3)*** safe and sustainable seafood supply; ***(4)*** hazard resilience in coastal communities; and ***(5)*** sustainable coastal tourism.

Waikiki Aquarium - aquatic life of Hawaii and the tropical Pacific. Research and conservation efforts focus on four areas; propagation of marine animals, chambered nautilus and cephalopod biology, physiology and thermoregulation of monk seals and impact of environmental stress and human activity on coral biology.

Water Resources Research Center - water and wastewater management problems and issues. It serves the state of Hawaii as well as other Pacific islands and elsewhere by researching water-related issues distinctive to these areas.

Hawaii Research Center for Future Studies conducts research and training for businesses, organizations, and agencies that wish to cultivate and integrate foresight and long-term thinking.

Center for Microbial Oceanography: Research and Education - microbial biodiversity, metabolism and C-N-P-energy flow, remote and continuous sensing and links to climate variability, and ecosystem modeling, simulation and prediction.

Hawaii Undersea Research Laboratory - deep water marine processes in the Pacific Ocean. Its Pacific-wide research projects focus on deep-sea geology and ecosystems and their contribution to global climatic and ecosystem changes. The projects include: geology and biology of emerging and subsiding islands; marine product and fishery assessments; processes of submarine mineral accumulations on seamounts, volcanoes, and islands; and baseline information on deep-sea marine ecosystems influenced by natural and man-induced processes.

International Pacific Research Center - focused on understanding climate variation and predictability in the Asia-Pacific region, including regional aspects of global environmental change. The Center's Asia-Pacific Data-Research Center provides easy access to climate data and products.

Joint Institute for Marine and Atmospheric Research - oceanic, atmospheric, and geophysical research, including climate and global change, equatorial oceanography, tsunamis, and fisheries oceanography. The research is concentrated in the following areas: tsunamis and other long period ocean waves; climate; equatorial oceanography; fisheries oceanography; tropical meteorology, and coastal research.

John A. Burns School of Medicine - undertakes basic, translational, clinical and health outcomes research oriented to the needs of the citizens of Hawaii. The key research areas include but not limited to tropical medicine and emerging infectious diseases, neuroscience, reproductive and developmental biology and health disparities.

3.2.9 Université de la Nouvelle Calédonie (UNC)

The University of New Caledonia (*Université de la Nouvelle-Calédonie*; UNC) is a public establishment for research, culture and education under the authority of the French Ministry of Higher Education and Research. The UNC was created in 1987 as one of the two centres of French University of the Pacific (*Université Française du Pacifique*). The other centre was based in French Polynesia. In 1997, a decision was taken to split the centres into two separate universities, and in 1999, UNC was formed.

It is organised into three departments of initial education (Law, Economy and Management; Science and Technology; Literature and Human Sciences), a department of continuing education, a School of Education (*Institut Universitaire de Formation des Maîtres*; IUFM) and a Doctoral School. The Doctoral School was conjointly created with the University of French Polynesia (UPF) and offers PhD students a multidisciplinary training in research with emphasis on themes related to the French Overseas Countries and Territories (OCTs) insular environment.

UNC is a strong actor in the New Caledonian development scene and its research strategy is oriented toward the major scientific issues, particularly concerning acquiring better knowledge on the physical, biological and social environment of New Caledonia and more generally of the South Pacific. UNC research activities have recently been

restructured to respond to the Quadrennial Contract 2008-2011 signed by the French State and the New Caledonian public authorities. These activities aim to respond to concerns of New Caledonia's sustainable development in terms of its territorial and marine biodiversity, its exploitation of nickel deposits and various associated issues. Consequently, research has been organised and undertaken by five research teams working in areas of chemistry, biology, geo-sciences, mathematics, information technology, economics, law, the humanities and social sciences including anthropology and literature.

These research teams and their areas of research are described below:

Centre of New Studies on the Pacific that supports two research programmes named "mining activity and development" and "Oceanian and French language: Acquired and traditional languages"

Research Unit on Information Technology and Mathematics undertakes research to create tools to convert raw data by modelling to relevant information to aid decision-makers in the field of the environment, biodiversity and mining.

Laboratory of Insular Life and Environment has four themes of research: ***(1)*** adaptive mechanisms of plants and symbionts to serpentine soils; ***(2)*** interactions between microorganisms and metals in ultramafic soils and response to organic amendments; ***(3)*** isolation, structural characterisation and pharmacology of natural products from plants of New Caledonia and the South Pacific and its role in adaptive mechanisms; and ***(4)*** adaptive mechanisms of fish and functional units of their population in coral reef-lagoon environments near urban areas.

Multidisciplinary Laboratory of Matter and Environment brings together competence in physic, geology and information technology and supports research on general issue of integrated management of coastal ecosystems. Its research is divided into three areas of work: ***(1)*** watershed and land-sea interface studies; ***(2)*** physical properties and characterisation of minerals and the process of interaction of minerals with living organisms; and ***(3)*** development of tools and models for data analysis and exploitation, and data mining and modelling, as well as information systems and services for interoperability to support the above research activities.

3.2.10 Université de la Polynésie Française (UPF)

Like UNC, the University of French Polynesia (*Université de la Polynésie Française;* UPF) was created in 1987 as a Centre of the French University of the Pacific. In 1999, this Centre became a separate entity of research, culture and higher education under the authority of the French Ministry of Higher Education and Research.

The campus of UPF is based on the island of Tahiti. It is organised into three departments of initial education (Law, Economy and Management; Humanities, Languages and Social Studies; and Science), a department of continuing education and a School of Education (IUFM).

UPF is committed to develop and promote research in line with the expectations of French Polynesia and, more generally, of the Pacific region, and to disseminate its research findings. In this respect, it contributes to S&T development policy in collaboration with French Polynesian national research institutions. It also carries out research and develops Polynesian heritage. Research in the UPF is undertaken by five laboratories working in the fields of chemistry, biology, geo-sciences, mathematics and the broad area of humanities and social sciences to enhance and develop the Polynesian heritage. The five laboratories and their research thematic areas or topics are:

Laboratory of Insular Governance and Development - institutions, governance and insularity, insular economic development strategies, peculiarities of law in French Polynesia and tourism and insularity.

Laboratory of Traditional Societies of the Pacific - archaeology, linguistics, anthropology, civilization, mythology, history, and geography.

Laboratory of Terrestrial and Marine Biodiversity - knowledge and enhancement of terrestrial and marine biodiversity for sustainable development in island environments *via* research in marine biology and chemistry.

Laboratory of Geoscience of the Pacific - geosciences for crustal deformation, erosion and subsidence and natural risks, remote sensing and applied image processing for identification of vegetation cover and land-use, development of web-geographic information system (GIS) and protection of information systems.

Laboratory of Algebraic Geometry and Application to Information Technology - improve transportation and control information systems through research topics concerning algorithms, error correcting codes, cryptology, and using mathematical tools based on the study of curves, modular forms.

3.2.11 University of Papua New Guinea (UPNG)

The University of Papua New Guinea (UPNG) was established in 1965 and today has more than 15 000 students annually in its Port Moresby campuses, five open campuses and 13 study centres. In July 2008, a new Open Campus was opened in Honiara representing the first UPNG campus in the Solomon Islands. UPNG offers programmes of study which provide the courses leading to a general degree in humanities and social sciences and in natural and physical sciences to specialised degrees in law, business, and medicine and health sciences.

UPNG offers undergraduate and graduate degrees, and diploma certificate programmes in more than 30 majors in the five schools of study: the School of Humanities and Social Sciences; School of Business Administration; School of Law; School of Medicine and Health Sciences; and the School of Natural and Physical Sciences. Coordinated by the Centre for Research and Postgraduate Studies, the postgraduate studies are offered in all schools of UPNG. Of particular interest for the PACE-Net project are the various UPNG Research Centres:

Centre for Biodiversity and Natural Products Research engages in interdisciplinary basic and applied research in biodiversity conservation and natural products development. Central to the University's and the nation's goals and aspirations, the Centre contributes to scientific knowledge on biodiversity and sustainable use of biological resources.

Motupore Island Research Centre is a multidisciplinary centre that provides research facilities in marine sciences and for general zoological, botanical, ecological, geographical, and archaeological instruction and research. General areas of research that the Centre is developing and contributing to are: marine and coastal management plans, policy and legislation; conflict management and resolution in coastal and marine estates; environmental assessment and waste management; fisheries management and restocking; habitat mapping and remote sensing; mariculture and hatchery technology; marine and coastal ecosystems, their structure and function; marine biodiversity and biotechnology; and renewable energies (both marine and island-based).

Centre for Disaster Reduction was established following the 1998 Aitape tsunami in Papua New Guinea. It promotes both teaching and research concerning natural disasters, including disaster preparedness, management and reduction.

Melanesian and Pacific Studies Research Centre is the multi- and inter-disciplinary research centre in the School of Humanities and Social Sciences. It develops and promotes the study of Melanesian and Pacific Islands within the School, as well as develops and strengthens regional cooperation in education, research and publishing. Its broad research areas are indigenous knowledge systems, language loss, governance and gender equality.

Centre for Distance Education Research is involved with both applied and action research in the field of teaching and learning through distance education modes. Research is undertaken in the techniques, methods and processes of development and production of course materials, delivery of courses, provision of student support and management of UPNG’s provincial centres.

UPNG Remote Sensing Centre established as a collaborative exercise between the UPNG, the Government of Papua New Guinea and the United Nations Development Programme (UNDP) is a research and teaching facility. The Centre also provides GIS and remote sensing services to the public and private sectors of Papua New Guinea. It is involved in research projects, notably on the impacts of logging industry on the forest as well as on other land-cover and land-use issues in Papua New Guinea.

Research in UPNG is also carried by the Centre for Public Health and Human Rights Centre.

3.2.12 University of the South Pacific (USP)

Established in 1968, the University of the South Pacific (USP) is the premier provider of tertiary education in the Pacific island region. An international centre for teaching, research consulting and training on all aspects of Pacific culture, environment and human resource development needs, USP comprises a vibrant and culturally diverse community of staff and students from its 12 member countries. (Table 3 in Annex

1). The academic schools, institutes and centres at USP are organised into three faculties; Faculty of Arts and Law; the Faculty of Business and Economics; and the Faculty of Science, Technology and Environment. Each of these faculties comprises of a number of schools which offer a wide range of academic programmes and courses at the undergraduate and postgraduate levels. The University also offers programmes through distance and flexible learning in a variety of modes and technologies throughout its 14 campuses.

In relation to the PACE-Net project and S&T research for development, USP through its Research Office under the Office of the Pro Vice-Chancellor (Research and Innovation), coordinates research effort and supports research-active staff and students to conduct quality research that meets the needs and aspiration of the University's member countries and other stakeholders.

USP undertakes research that recognizes the uniqueness of Pacific island environments and society and which will assist the social, cultural and economic advancement of the countries and peoples of this region. Its research mission is "*to conduct theoretical, applied and comparative research to assist Pacific island peoples meet their needs and aspirations and, at the same time, achieve international recognition in those areas that reflect the University's unique geographical location and multicultural contexts*". According to the USP Research Strategy 2010-2012, the University has established the following generalised priority areas of research: governance, law, security; sustaniable economies; culture and societies; and environmental sustainability. USP considers that these four areas of research as those which combine global research priorities, particularly when applied to the Pacific region, with the key challenges faced by its member countries. In relation to the present Study, the thematic areas in which different faculties of USP undertake research are described below:

Faculty of Science, Technology and Environment - biodiversity and conservation, environmental and climate change science, renewable energy, natural resources and food science, ICT, sustainable development and livelihoods, and open or formal research.

Faculty of Arts and Law - linguistic and cultural heritage, social and political environments, history, regional development, law and governance issues, tourism, commerce and human resource development.

Faculty of Business and Economics – poverty, labour market, trade and finance, foreign direct investment, disciplines of accounting and relevant policy implications, general and public sector management, international business and marketing, human resources management and employment relations, tourism and hospitality, growth, migration, population and health care, agricultural economics, extension and education, animal science, crop science, soil science and agricultural engineering, and Pacific business environment, monetary, environment and energy policy, governance.

Based at the Tonga Campus, the Institute of Education is one of the several institutes established by the USP in 1976. Its mission is "*to support Pacific peoples and their communities in providing quality, relevant, sound and effective advice, research, training and publications to meet their educational needs, challenges and aspirations"*. The Institute's activities comprise four areas of focus: advice; research; training; and

publication. The Institute has close links with the Faculty of Arts and Law, regional education ministries, teacher training colleges and other educational organisations.

The Institute of Research, Extension and Training in Agriculture embodies USP's mandate to address the needs and challenges facing agriculture development in the Pacific. The Institute was established in 1980 and is based in Samoa. Its mission statement is to contribute to the sustainable growth and development of the PIC by responding appropriately to their needs for research, extension and training in agriculture. The Institute's research activities prioritise topics in the following clusters: ***(1)*** explore technologies for adaptation to climate change bearing in mind the issues relating to vulnerability and building resilience; ***(2)*** explore agricultural systems and technologies that will enhance sustainable food production without adverse effects on the environment; and ***(3)*** explore activities that would enhance food production, processing, generate employment and increase trade and market opportunities.

USP's Institute of Applied Sciences is the consulting arm of the Faculty of Science & Technology. As a laboratory-based Institute, it makes its resources available to other schools, institutes and individual departments within the University, and to regional organisations, governments, business, and the people of the region. The Institute of Applied Sciences was established in 1977 (under the name of Institute of Natural Resources) at the Suva campus of USP. The Institute focuses on five main project areas, environment, food, water quality, marine natural products and community based resource management. It has facilities and expertise in laboratory-based research in a range of areas, including tissue culture, microbiology, animal physiology, plant physiology and electrophoresis and is perfectly placed for field studies of tropical terrestrial, freshwater and marine systems. It also houses the South Pacific Herbarium.

The Pacific Centre for Environment and Sustainable Development (PACE-SD) has its origin in the 1999 Strategic Plan of USP. In recognition of the need for the University to develop a more focused and collaborative approach to environmental education, research, consultancy and capacity building for sustainable development in the Pacific island region, PACE-SD was inaugurated in 2001. The Centre has been the forefront of a variety of Pacific environmental issues and is designed to work with all other relevant sections of the University, and with regional and international environmental organizations, regional governments and NGOs to promote environmentally sustainable development. PACE-SD endeavors to promote targeted and integrated work on environment and natural resource issues with a view to promoting sustainable development. The major activities of PACE-SD focus on climate change, however, PACE-SD also works on other aspects of sustainable development including renewable energy, biodiversity and waste management.

3.3 Science Institutions

3.3.1 Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)

The French Agricultural Research Centre for International Development (*Centre de Coopération Internationale en Recherche Agronomique pour le Développement*; CIRAD) is

a research institute working with developing countries to tackle international agricultural and development issues. Created in 1984, CIRAD is under the joint authority of the French Ministry of Higher Education and Research and the Ministry of Foreign and European Affairs.

It works with the whole range of developing countries to: ***(1)*** generate and pass on new knowledge; ***(2)*** support agricultural development; and ***(3)*** to fuel the debate on the main global issues concerning agriculture to bring sustainable development in these countries. CIRAD works hand-in-hand with local people and the local environment, on complex, ever-changing issues related to agriculture. The Centre contributes to development through research and trials, training, dissemination of information, innovation and appraisal activities.

Its expertise spans over the life sciences, social sciences and engineering sciences and their application to agriculture and food, natural resource management and society and rural development. CIRAD's operations centre on six priority lines of research: ecological intensification; biomass energy; food security; animal health and emerging disease; public policies; and rural areas. It primarily works through joint research platforms. CIRAD has a global network of partners and 12 regional offices, from which it conducts joint operations with more than 90 countries, including countries of the Pacific (Vanuatu and New Caledonia). With partners in developing countries as well as on national, European and international levels, CIRAD works to set up appropriate structures for scientific partnerships, dialogue and exchanges.

3.3.2 Centre de Recherches Insulaires et Observatoire de l'Environnement (CRIOBE)

The Insular Research Center and Environment Observatory (*Centre de Recherches Insulaires et Observatoire de l'Environnement*; CRIOBE) is a field station located in Moorea, French Polynesia for French and international researchers. CRIOBE is attached to the *Ecole Pratique des Hautes Etudes* (EPHE), a French institution of higher learning that established this field station in 1971. Today, CRIOBE is administrated by EPHE and the French National Centre of Scientific Research (*Centre National de la Recherche Scientifique;* CNRS).

CRIOBE's mission is to contribute to the education and advancement of scientific knowledge through basic research and applied research. Its research is mostly focused on the Polynesian coralline ecosystem. Over the years, CRIOBE has been involved in several international projects, notably: genetic bar coding of Moorea's living organism; the inventory and tracking of Polynesian insular aquatic habitat biodiversity; sustainable pearl development in French Polynesia; the Moorea Coral Reef Long Term Ecological Research; and Coral Reef Initiative of the South Pacific (CRISP).

3.3.3 Commonwealth Scientific and Industrial Research Organisation (CSIRO)

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) was established in 1926 as an Australian government agency to undertake scientific research to assist primary or secondary industries in Australia. CSIRO carries out research and development in fields of economic, social and environmental importance. These include:

agriculture and food security; environment; climate change; urbanisation; sustainable development; fisheries; forestry; water; ICT; health; advanced materials and manufacturing; minerals; energy; and transport and infrastructure.

CSIRO is actively engaged in international science collaboration and the global innovation system. The majority of CSIRO's international engagements are with the major centers for research and innovation – North America, Europe and East Asia, however, CSIRO also has significant involvement in developing countries, and with partners in Australia's near-neighbour region including New Zealand and Indo-Pacific island states.

CSIRO has a clear strategy for enhancing international engagement, as part of its Strategic Plan 2007-11. Of relevance to PACE-Net, this international strategy to advance Australia's national interest in helping developing countries to reduce poverty and achieve sustainable development seeks to enhance CSIRO's "research for development" role, particularly in the Asia-Pacific region and Africa. It also uses its expertise to deliver solutions to its regional neighbours, and to build capacity in developing countries by focusing on issues which are identified in the MDGs. As such CSIRO has delivered projects in: economic development; people living quality lives; sustaining the environment; wise and healthy agriculture and sustainable mining and exploration.

CSIRO's local relationships with Australian Centre of International Agricultural Research (ACIAR) and Australian Agency for International Development (AusAID) are also a high priority in contributing to and generating new science knowledge through development research. The Strategic Partnership Agreement between AusAID and CSIRO outlines how both organisations are working together to help developing country partners in the areas of climate change, food security, water resource management and sustainable urban development. The CSIRO-AusAID Research for Development Alliance is a an example of this Strategic Partnership. It provides an opportunity to introduce scientific approaches to international aid delivery that better responds to the relationship between poverty and the environment in developing countries. Alliance projects aims to achieve impact through influencing AusAID's development policies, investments and projects, as well as informing international stakeholder policies and decisions.

3.3.4 GNS Science

GNS Science (*Te Pu Ao*) is the Crown-owned science company that meets New Zealand's needs to discover and understand the earth processes and materials that underpin geological resources, environmental and industrial isotopes and geological hazards. Its purpose is to enhance New Zealand's security and wealth: ***(1)*** from energy, mineral and water resources; ***(2)*** mitigation of economic and social effects of geological hazards; and ***(3)*** development of new technologies such as nano-scale devices and non-invasive scanning. It focuses on the following area of work: energy and resources; environment and climate; natural hazards; and material and forensics.

GNS Science has a long history working in the Pacific. It sees work in Pacific as a natural extension of their work in New Zealand and as a natural way to support New Zealand's diplomatic efforts in the region. The areas of research in which GNS Science encompasses the Pacific island region include: modeling tsunami and developing

warning systems; global environment change; and geological mapping and origin research. It also provides natural hazards advice and training to the region.

3.3.5 Institut Agronomique néo-Calédonien (IAC)

The Institute of New Caledonian Agriculture (*Institut Agronomique néo-Calédonien*; IAC) is a public establishment for industry and commerce under the joint authority of the Government and the three Provinces of New Caledonia, the New Caledonian Chamber of Agriculture, the French State, and CIRAD. IAC's mandate is to promote rural development by undertaking research activities in the domain of agriculture, forestry and livestock and to advise the Government, the Provinces and other public and professional institutions of New Caledonia on the implementation of rural development policies.

Of relevance to PACE-Net, IAC research activities are organised into three components: ***(1)*** knowledge and development of agro-ecosystems; ***(2)*** biological and functional diversity of terrestrial ecosystems; and ***(3)*** rural and public policy.

3.3.6 Institute Louis Malardé (ILM)

Established in 1949, the Louis Malardé Institute (*Institut Louis Malardé*; ILM) is the only research centre under the authority of the Government of French Polynesia. ILM is mandated to contribute to the preservation of health, public health and the natural environment of French Polynesia. Its mission revolves around 2 areas, namely public health and scientific research. Originally the Institute, known as the Institute of Medical Research (*Institut de Recherches Médicales*), was involved in public health activities concerning infectious diseases such as filariosis, tuberculoses, dengue and meningitis. However, over the years, the Institute turned towards scientific research to have an integrated public health approach.

Within the scientific research area, ILM runs biomedical programmes to respond to the health policy of the Government of French Polynesia. It is also involved in research on the environmental protection of French Polynesia's natural heritage with a view to promoting the country's economic sustainable development. ILM supports six medical research laboratories: Laboratory of Medical Entomology; Laboratory of Medical Parasitologie; Laboratory of Medical Virology; Laboratory of Toxic Microalgae; Laboratory of Natural Products; and Laboratory of Non Communicable Diseases. As such, the expertise that ILM has developed in relation to the PACE-Net are in the areas of: communicable diseases (dengue fever and filariasis); NCDs; micro-algal blooms (ciguatera); bio-ecology of insect vectors and impacts on human health; and identification of natural substances used in traditional Polynesian pharmacopoeia.

3.3.7 Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)

The French Research Institute for Exploitation of the Sea (*Institut Français de Recherche pour l'Exploitation de la Mer*; IFREMER) is a public institute of an industrial and commercial nature established in 1984 and operates under the joint supervision of the French Ministries in charge of Higher Education and Research, of Agriculture and Fisheries, and of Ecology, Energy, Sustainable Development and Planning.

IFREMER's mission is to: ***(1)*** improve knowledge of the oceans and their resources; ***(2)*** monitor the marine and coastal environment; and ***(3)*** to promote the sustainable development of maritime activities.

In 1972, IFREMER established the Pacific Oceanographic Centre (*Centre Océanologique du Pacifique*; COP) in French Polynesia. The Centre manages two field stations; one in French Polynesia and the other in New Caledonia, whose activities focus on tropical pearls, prawns and fish aquaculture. These field stations are involved in applied research in aquacultural development, and provided technical support and scientific expertise in aquacultural production sectors.

The social and economic importance of pearl farming in French Polynesia has led IFREMER to give priority to research focusing on the cultivation of pearl oysters and the production of black pearls. However, it is also developing, in parallel, actions to increase the production of farmed prawns and to create new businesses based on batfish breeding, a lagoon fish locally prized by Polynesians. This research is conducted in collaboration with the Government of French Polynesia's Service of Pearl Culture and of Fisheries. Other fields of expertise of IFREMER in French Polynesia include marine biodiversity and renewable energies.

In New Caledonia, IFREMER is involved in implementing various research activities concerning prawn farming as defined in the Sustainable Development of Prawn, Information Processing and Monitoring System in New Caledonia project. This project consists of the following two components: ***(1)*** research and development to address the causes and solutions to the abnormal mortality that the prawn aquaculture industry of New Caledonia suffers during the warm and cold seasons; and ***(2)*** monitoring to observe the evolution of the industry from a technical, public health and hygiene perspective. IFREMER in New Caledonia is also expanding its activities through participating in other initiatives such as: ***(1)*** integrated management of coastal environment, resources and uses by promoting operational tools of coastal oceanography under the initiative Integrated Coastal Zone Management; ***(2)*** enhancing the value of natural substances from the sea for pharmaceutical purpose, a project financed by FP 6 grant; ***(3)*** marine geosciences and the assessment of potential mineral resources of the exclusive economic zone (EEZ) under the *Zone Economique de Nouvelle-Calédonie* (ZoNéCo) programme; and ***(4)*** the *Centre National de Recherche Technologique* (CRNT) Nickel and its environment to study the impact of nickel mining on the lagoon of New Caledonia.

3.3.8 Institut Pasteur de Nouvelle-Calédonie (IPNC)

The Pasteur Institute of New Caledonia (*Institut Pasteur de Nouvelle-Calédonie*; IPNC) is a member of the international network of the Pasteur Institute (*Institut Pasteur*). Pasteur Institute, a French, non-for-profit, private foundation created in 1887 and named after its founder the famous Louis Pasteur, prioritises on the fight against infectious diseases (viral, bacterial and parasitic) *via* three fields of activity – research, education and public health. The researchers of the Institute also study certain types of cancer, genetic diseases, neurodegenerative diseases and allergies.

The Institut Pasteur International Network (IPIN) is a network of 32 establishments of Institut Pasteur located in Africa, America, Latin America, Europe, Asia and Pacific. IPNC based in New Caledonia is the only member of this network that is located in the Pacific region. Created almost a century ago, in 1913, IPNC was then known as the *Institute de Microbiologie*. The Institute shares the same vision as that of its parent Institute, primarily working to fight against infectious diseases *via* three approaches, namely scientific research, education and public health. Like the other member institutes of the IPIN, IPNC adheres to the Declaration of Scientific Cooperation which aims to provide scientific solidarity in response to the national and regional needs and involvement in the issues of the global public health concerns.

Of relevance to the PACE-Net project, IPNC undertakes multidisciplinary applied research on local and regional public health issues, such as the current projects on leptospirosis, severe pneumopathologies in children and on dengue. It also works in close collaboration with the New Caledonian Directorate of Health and Social Affairs on the local and emerging endemics and epidemics surveillance activities. The virology laboratory of IPNC is one of 112 World Health Organisation (WHO)-recognised national centres of reference on influenza. It also participates in the Pacific Public Health Surveillance Network (PPHSN), a voluntary network set up to monitor target diseases including dengue, measles, rubella, influenza, leptospirosis, typhoid fever, cholera, SARS and HIV/STIs in 22 PICTs.

3.3.9 Institut de Recherche pour le Développement (IRD)

The Institute of Research for Development (*Institut de Recherche pour le Développement*; IRD) is a pre-eminent French S&T research organisation. It is the only European research institution whose mission is to conduct scientific research for the development in, for and with countries in the southern hemisphere. IRD was originally founded in 1944 and was previously known as ORSTOM (*Office de la Recherche Scientifique et Technique Outre-Mer*). Since 1984, IRD is a non-for-profit, public institute under the joint authority of the French Ministries in charge of Research and Overseas Development, of Higher Education and Research, and of Ecology and Sustainable Development.

The principal role of IRD is to work in close cooperation with its numerous partner countries of the tropics and Mediterranean with a view to assisting the economic, social and cultural development of these countries. The scientific programmes of IRD revolve around the association between humans and their environment, particularly in relation to societies and health, environment and the living resources. It is in this framework that IRD carries its main missions of research, training, consultancies and science capacity building.

The scientific activity of IRD covers six priority interdisciplinary topics for the countries of the southern hemisphere: ***(1)*** climate change and natural hazards; ***(2)*** sustainable management of southern hemisphere ecosystems; ***(3)*** natural resource studies and access to water; ***(4)*** food security in the southern hemisphere; ***(5)*** public health and health policy; and ***(6)*** development and globalisation.

Of interest to PACE-Net, the scientific activities of IRD in the Pacific are focused on New Caledonia, French Polynesia and Vanuatu and coordinated by the Noumea IRD Centre

based in New Caledonia. This Centre was established in 1946 and is the largest of the five French OCTs' Centres. IRD in the Pacific leads research in the following seven key themes: ***(1)*** climate variability and impact – climate variability in relation to *El Nino* phenomenon and its impact in the tropical zones of the Pacific; ***(2)*** continental, littoral and marine ecosystems – studies on the role of biology and the effect of the environment on the exploited oceanic and littoral resources; ***(3)*** geodynamics, natural disasters and paleoclimatic archives – mineral resources, evolution of terrestrial crests, natural disasters and paleoclimatology; ***(4)*** biodiversity and terrestrial environment – studies on flora (revegetation, tropical dry forests), fauna (invasive species) and natural substances from plants; ***(5)*** aquatic and oceanic ecology – collecting scientific knowledge on tropical, marine flora and fauna, typology of coral reef ecosystems and their uses in the Pacific, and tropical fish genome/population/environment interaction; ***(6)*** identities and representation – human adaptation to tropical environment during the Holocene period; and ***(7)*** health and endemics – pharmacochemistry of natural substances.

3.3.10 Landcare Research

Landcare Research (Manaaki Whenua) is New Zealand's Crown Research Institute for terrestrial environmental research and consultancy. Established in 1992, it is responsible to drive innovation in New Zealand's management of terrestrial biodiversity and land resources in order to both protect and enhance the terrestrial environment and grow New Zealand's prosperity. Its research focuses on the protection and restoration of biodiversity, sustainable land environments, and sustainable business and living which encompasses the economic, social and cultural impacts of resource use and underpins three cross-cutting themes: climate change mitigation and adaptation; sustainable Maori futures; and weeds, pests and diseases.

Landcare Research recognises that the Pacific is strategic to New Zealand and believes it has a role to play in Pacific science and research, especially in climate change, biodiversity, biocontrol, land use management, and sustainable tourism. It has more than 30 years experience working with peers in the Pacific to deliver a range of services such as scientific research, surveys, training and consultancy in many areas of resource management to effect outcomes for sustainable development and conservation. It also sees information technology as having an important role in linking NZ science providers with PICs, including hosting of websites that PICs can access for data held in NZ e.g. herbarium Pacific plants database.

Through a New Zealand Government's International Aid and Development Agency (NZAID)-funded project, USP and Landcare Research are developing and sharing capacity in the botanical collections and databases held at USP's South Pacific Regional Herbarium. In 2009, to support further their science collaboration and to develop a high-level science-based strategic partnership, USP and Landcare Research signed a MOU. A scoping study on science and development commissioned in 2007 by the New Zealand's Ministry of Science and Innovation (MSI - formerly known as the Ministry of Research, Science and Technology; MORST) and NZAID recommended increased science partnership between New Zealand and Pacific countries and regional group. The MOU demonstrates Landcare Research's commitment to this Vision. Through this partnership, Landcare Research will contribute to the scientific values and objectives of USP and will

mutually strengthen the effectiveness and relevance of its own scientific activities in the region.

3.3.11 National Institute of Water and Atmospheric Research (NIWA)

The National Institute of Water and Atmospheric Research (*Taihoro Nukurangi*; NIWA) is a Crown Research Institute of New Zealand established in 1992. NIWA conducts commercial and non commercial research across a broad range of disciplines in the environmental sciences with the mission to enable the sustainable management of natural resources for New Zealand and the planet.

It conducts activities to: ***(1)*** enhance the economic value and sustainable management of New Zealand's aquatic resources and environments; ***(2)*** provide understanding of climate and the atmosphere; and ***(3)*** to increase resilience to weather and climate hazards to improve the safety and wellbeing of New Zealanders. NIWA fulfils this purpose through the provision of research and transfer of technology and knowledge in partnership with key stakeholders from all sectors of the society.

NIWA focuses on atmospheric, marine and freshwater research – extending from the deep ocean to the upper atmosphere – in New Zealand, as well as in the Pacific, Southern and Antarctica regions. It delivers its science services by its 13 national centers that each conducts research in the following area: aquaculture and biotechnology; aquatic biodiversity and biosecurity; atmospheres; climate, coasts; energy solutions; environment information; fisheries; freshwater; natural hazards; oceans; Pacific Rim; and Maori Environmental Research Group.

NIWA has a long history of providing applied science and environmental consultancy services to support international development activities. These international activities are largely focused on the Pacific, South East Asia and Australia. NIWA has been working in the Pacific for 30 years. It has wide Pacific linkages and relationships with regional organisations (South Pacific Applied Geoscience Commission - SOPAC, South Pacific Regional Environment Programme - SPREP), science organisations (IRD, USP), government departments and agencies, NGOs and private sectors. NIWA aims to leverage its research for benefit of the PICs and to align its research with New Zealand government and PIC development programmes and strategies (e.g. Sustainable Water Programme of Action in PICs). Of relevance to PACE-Net, NIWA recognises that Pacific research is not a large revenue or profit generator but feels it has a corporate commitment to do research in PICs to assist these countries with wealth creation and risk reduction. As such, NIWA works on PICs' need-based projects and works with PIC staff so that they can take ownership of projects.

Furthermore, much of NIWA's New Zealand-based research is of direct relevance to the wider Pacific region. Some of the common types of work that NIWA have been involved with in the Pacific include climate and climate change; water resources; natural hazards; water quality; coastal and marine resources and energy. NIWA places particular corporate emphasis on its work to increase the resilience of South-West Pacific islands as well as that of New Zealand to tsunami and weather and climate hazards, including drought, floods and sea level change.

3.3.12 National Research Institute of Papua New Guinea (NRI)

The National Research Institute (NRI) is Papua New Guinea's leading think tank on public policy and development-related issues and trends. The Institute advocates the need for research-based information to form the basis for policy debates and discussions.

NRI was established and mandated to conduct research and policy analysis in legal, political, economic, education, social, environmental, and population issues to influence public policy. The Institute is an independent government statutory authority and focuses on generating research information and providing expert advice on a range of policy considerations to its stakeholders, which include: the national government, provincial governments, donor agencies, private sector, and the civil society.

NRI also analyses data and carries out research on issues of national importance, and provides briefs to the Government of Papua New Guinea and the parliamentary-selected committees. The Institute's research findings are disseminated through seminars, workshops and conferences, and published through the NRI in-house publication series and regular newspaper columns and articles.

The research programmes of NRI have been structured into three thematic pillars: ***(1)*** wealth creation pillar **-** land research programme, reducing the cost of living programme and economics policy programme; ***(2)*** people pillar **-** universal basic education programme and HIV and public health programme; and ***(3)*** institutional strengthening pillar **-** improving governance programme, community and people project and institutional arrangements programme

This design has been influenced by the *PNG Vision 2050*, *Medium Term Development Plans*, and the *PNG Development Strategic Plan*. The Institute intends to develop a new Corporate Plan 2012-2016 to identify and align policy research issues consistent with the Papua New Guinea's National Development Vision and Objectives.

3.3.13 Pacific Health Research and Education Institute (PHREI)

Pacific Health Research and Education Institute (PHREI) is a non-for-profit, health research institution in Hawaii providing the State with the needed technical and administrative infrastructure to successfully obtain and conduct health research and education programmes. PHREI conducts health research and education that improves the health and well-being of veterans and all population in Hawaii, the Pacific region, and throughout the United States PHREI researchers conduct research on various projects focusing on a range of health issues, including Post-Traumatic Stress Disorder (PTSD), neurodegenerative diseases, cancer, diabetes, aging, obesity, cardiovascular disease, women's health, environmental health, telehealth and healthcare delivery.

3.3.14 Pacific Institute of Public Policy (PiPP)

The Pacific Institute of Public Policy (PiPP) is the independent, non-partisan and not-for-profit think tank serving the Pacific islands community. Established in 2007 and based in Vanuatu, the Institute exists to stimulate and support informed policy debate in the Pacific. The objective of PiPP is to increase their capacity and contribution to the development process in the Pacific. The Institute aims to delivers an inclusive forum for public debate and engagement in national and regional development issues in the Pacific. Of interest to PACE-Net, PiPP's research activities span the areas of: decentralization, economic growth, rural development, fiscal reform, trade, environment, and public-private partnerships. It also works on issues such as climate change, infrastructure and civic engagement. Furthermore, PiPP engages and connects principal stakeholders, promoting fraternity between the PICs and its regional neighbours such as New Zealand and Australia. .

3.3.15 Pacific Islands Fisheries Science Center (PIFSC)

The Pacific Islands Fisheries Science Center (PIFSC) of the National Marine Fisheries Service (NMFS) is part of NOAA. The Center is headquartered in Hawaii and takes a leading role in marine research on ecosystems, both in the insular and pelagic environments. It administers scientific research and monitoring programmes that support the domestic and international conservation and management of living marine resources. Its activities include: resource surveys and stock assessments; fishery monitoring; economic and sociological studies; oceanographic research and monitoring; critical habitat evaluation; life history and ecology studies; and advanced oceanographic and ecosystem modeling and simulations. PIFSC is also implementing a multidisciplinary research strategy including an ecosystem observation system and scientific analysis to support ecosystem approaches to management and restoration of living marine resources.

Of relevance to the current Study, the key research topics of PFISC include: fishery interactions with protected species; marine mammal abundance and behavior; highly migratory species stock assessments for international and domestic fisheries management; coral reef ecosystems; recreational and other small boat fisheries; socioeconomic and cultural understanding of living marine resource use and appreciation; mitigating by-catch; health and disease in protected species; connectivity of resources between islands and within archipelagos; and ecosystem considerations of exploited and protected resources.

3.3.16 Palau International Coral Reef Center (PICRC)

The mission of the Palau International Coral Reef Center (PICRC) is to be a self-sustaining center of excellence whose assets and facilities are directed toward scientific research, education and training that enhance capacity building, promote marine conservation and that are locally and internationally relevant. The Center's objectives are to: ***(1)*** conduct research that enhances knowledge and conservation of coral reef ecosystem and their associated marine environments; ***(2)*** to educate the public about

the ecological, economic and cultural importance of coral reefs, and to provide a visitor's attraction where both resident and visitors can expand their knowledge of Palau's diverse and unique ecosystems.

Of relevance to PACE-Net, PICRC opened its research facilities in 2001 and its major research programmes include: the impact of sedimentation from watersheds; marine protected areas; effectiveness and evaluation; essential fish habitat for commercially important species; grouper spawning and migration; coral reef monitoring; sea grass monitoring; algal phenology; coral reproduction and recruitment; and coral reef recovery. Moreover, the Center as a research institute plays a major role in capacity building for marine resource management in Palau and throughout Micronesia.

3.3.17 New Guinea Binatang Research Center

The New Guinea Binatang Research Center is a non-for-profit Papua New Guinean organisation devoted to: ***(1)*** training Papua New Guineans in biology on all levels – from field technician through paraecologist to postgraduate students; ***(2)*** advancing biodiversity research in Papua New Guinea; and ***(3)*** to developing educational and nature conservation programmes targeting grassroots audiences.

Documenting biodiversity in Papua New Guinea is one of the core activities of the Center as the Center considers that biological research is an important prerequisite for preserving and wisely exploiting the wealth of the biodiversity in the country. The Center demonstrates that joint effort of parabiologist, students and researchers could be one strategy to quickly inventory the biodiversity in tropical countries such as the Papua New Guinea, using local expertise. The Center is particularly active in large-scale surveys of plant-insects food webs in the forest of Papua New Guinea while some of the studies also focus on vertebrates.

3.3.18 Papua New Guinea Institute of Medical Research (PNGIMR)

The Papua New Guinea Institute of Medical Research (PGNIMR) was established in 1968 as a Statutory Body of the Government of Papua New Guinea, responsible to the Minister for Health. The activities of the Institute have been directed towards the primary goal of conducting research into the health problems of the people of Papua New Guinea. Of relevance to PACE-Net, major research programmes have been established in respiratory diseases, malaria, malnutrition, enteric diseases, sexual health and women's health, thus addressing the biggest health problems of Papua New Guinea. The ultimate aim of the Institute's research programme is to provide effective interventions, leading to improvements in people's health and the control and prevention of disease. PNGIMR considers that the basis for achieving this aim is greater understanding of the disease process and constraints to change, and that, in part, this understanding comes from knowledge of the external causative agents of disease and in part from examining the host factors involved.

Examples of research projects undertaken by the PNGIMR include: ***(1)*** neonatal immunization with pneumococcal conjugate vaccine in Papua New Guinea; ***(2)*** impact of environmental pollution due to subsistence transition on health in Papua New Guinea; ***(3)*** differences in neonatal immune regulation in the 'developing' and 'developed' world;

(4) severe malaria and severe childhood illness study; ***(5)*** malaria vaccine baseline and immuno-epidemiology cohort study; ***(6)*** the social impacts of antiretroviral therapy for people living with HIV on treatment in Papua New Guinea; ***(7)*** evaluation of best practices in addressing violence against women and girls in Melanesia and East Timor; and ***(8)*** human trial studies on intermittent preventative treatment of malaria and anaemia in infants.

3.3.19 Papua New Guinea National Agricultural Research Institute (NARI)

The National Agricultural Research Institute (NARI) of Papua New Guinea was established by an act of national parliament of Papua New Guinea in 1996 as a public-funded, statutory research organisation. It has three specialised, operational programmes: ***(1)*** research; ***(2)*** technical advice; and ***(3)*** information and outreach programme.

NARI research projects are listed under the following ten thematic categories: food crops management and improvement; crop protection; emerging crops; livestock; post harvest and processing; natural resource management and development; genetic resources; technology validation and commercialisation; technology transfer and adaptation; and technical and advisory services.

3.3.20 Richard B. Gump South Pacific Research Station

Administrated by the University of California, Berkeley, the Richard B. Gump South Pacific Research Station is situated in French Polynesia. Established in 1985, the Gump Station welcomes researchers and students worldwide to carry out their research programmes. The focus of the Gump Station is field-based scientific research and advanced training. The research programmes cover many fields including but not limited to: marine biology; oceanography; biodiversity; evolution; ecology; genetics; microbial ecology; anthropology; architecture; engineering; computer science; ICT; environmental design; renewable energies; public health; and business administration.

3.3.21 The Dolphin Institute (TDI)

The Dolphin Institute (TDI) is a Hawaii-based not-for-profit organisation dedicated to the study and preservation of dolphins, whales, and other marine mammals, and to the education of people whose attitudes and activities affect the survival and well-being of these animals. TDI's mission is to: ***(1)*** map-out the sensory skills, cognitive abilities, and communication abilities of dolphins; ***(2)*** describe the behavior and biology of North Pacific humpback whales; and ***(3)*** to educate people at all levels about these animals so that they may come to appreciate them and protect their fragile marine habitats.

TDI's researchers have conducted ground-breaking scientific studies on humpback whale behavior and biology (distribution, demographics, migration, social behavior, reproductive strategies, habitat use, and communication) and dolphin sensory perception, cognition, and communication for over 30 years. TDI researchers pioneered the scientific study on humpback whales in Hawaiian waters in 1975 and have since continued this research every year, establishing one of the longest ongoing scientific

studies of humpback whales by any organisation. These studies are vital to insuring the protection of this endangered species, an important Hawaii natural resource.

3.4 Other Institutions

3.4.1 Bishop Museum

Bishop Museum designated the Hawaii State Museum of Natural and Cultural History, was founded in 1889. It is the largest museum in the state and the premier natural and cultural history institution in the Pacific, recognized throughout the world for its cultural collections, research projects, and public educational programs. It also has one of the largest natural history specimen collections in the world.

Of relevance to the present Study, on the campus of Bishop Museum is Jhamandas Watumull Planetarium, an educational and research facility devoted to the astronomical sciences and Gressitt Center for Research in Entomology, an active research facility which houses some 14 million prepared specimens of insects and related arthropods. The Pacific Science Association (PSA), an independent regional, non governmental, scholarly organisation that seeks to advance S&T in support of sustainable development in Asia and the Pacific region, is also based at Bishop Museum since its establishment in 1920.

3.4.2 Centre for Asia Pacific Social Transformation Studies (CAPSTRAN)

The Centre for Asia Pacific Social Transformation Studies (CAPSTRANS), based at the University of Wollongong, was established in 1999. A joint venture of the University of Wollongong and the University of Newcastle, CAPSTRAN is one of Australia's pre-eminent research centers for the intensive focus on social, cultural, economic, political and historical transformations in Asia and the Pacific region. It aims to enhance understanding of social change in the countries that make up Asia and the Pacific region, contributing to one of Australia's national research priorities: *'Understanding our region and the world'*. The region under examination includes countries of East, South, and Southeast Asia and the Pacific, including Asia Pacific Economic Cooperation (APEC) nations such as Australia and other nations of the Pacific Rim.

Of relevance to PACE-Net, through a combination of in-depth country specific, comparative and regional studies, CAPSTRANS research efforts are organised under three key research programmes: Australia-Asia-Pacific studies; social determinants of health; and indigenous affairs. The research undertaken is interdisciplinary combining theories and methods from political science, economics, management studies, legal studies, sociology, anthropology, media and cultural studies, history, language and literature studies, education and the creative arts.

3.4.3 Forest Research Institute of Papua New Guinea (PNGFRI)

The Forest Research Institute of Papua New Guinea (PNGFRI) is the scientific research division of the Papua New Guinea Forest Authority. Among other things, PNGFRI is mandated to conduct forest research in line with the 1990 National Forest Policy. Its main responsibility to provide forest-related research services based on collaboration

with users in government, industry and communities and with other research providers for the sustainable management of forest resources in Papua New Guinea.

In relation to PACE-Net and S&T research, the Institute has four programme areas namely: natural forest management; planted forest; forest biology; and forest products. PNGFRI's goals are to: ***(1)*** establish and maintain user-driven research planning and priority setting processes; ***(2)*** improve germplasm of tree species for increased productivity and profitability; ***(3)*** aim for sustainable management of new and existing plantations for supply of certified quality timber for domestic and international markets; ***(4)*** explore and develop financial benefits of Non Timber Forest Products for rural communities; ***(5)*** conserve the unique biodiversity of Papua New Guinea; ***(6)*** promote utilisation of plantation and lesser used species; ***(7)*** ensure efficiency of small to medium scale wood processing mills; ***(8)*** enhance economic, social and environmental benefits of natural forests on a sustainable basis; ***(9)*** improve productive value of land and supply of environmental services; ***(10)*** strengthen communications and build long-term relationships with stakeholders in government, industry and the community; and ***(11)*** to improve efficiency and effectiveness of internal business processes.

3.4.4 Health Research Council of New Zealand (HRC)

The Health Research Council of New Zealand (HRC) is a Crown agency responsible for managing the government's investment in health research for the public good. Established in 1990, HRC is New Zealand's primary funder of fundamental, strategic and applied research in the fields of biomedical, public health, health services, Maori health and Pacific health research. The statutory functions of the HRC include: ***(1)*** advising the Minister of Health and administering funds in relation to national health research policy; ***(2)*** initiating and supporting health research and ensuring the development and application of appropriate health research proposal assessment; ***(3)*** supporting those engaged in health research in New Zealand (recruitment, education, training and retention); ***(4)*** undertaking consultation to establish priorities in health research; and ***(5)*** promoting and disseminating the results of health research.

HRC has a special interest in and is commitment to Pacific health research. It promotes Pacific health research activities by providing funding opportunities for research that is strongly linked to improving health outcomes for Pacific peoples, and by developing workforce to build the capacity and capability of Pacific researchers and critical mass of Pacific researchers to discover Pacific health solutions through research. It is also responsible for Pacific health research policy development.

HRC partners with the Wellcome Trust and Australia's National Health and Medical Research Council to provide a NZD 20 million fund for collaborative research programmes with Pacific island nations. Research project funded by this initiative include: ***(1)*** traffic-related injury in the Pacific project in Fiji; and ***(2)*** Pacific OPIC study – a four country study of obesity prevention in communities. Another example of a Pacific partnership initiative is the "Pacific Victims of Crime" research project, funded through a joint venture between the Ministry of Justice and the HRC.

3.4.5 Nossal Institute for Global Health

The Nossal Institute for Global Health is committed to improving global health through research, education, inclusive development practice, and training of future leaders. A not-for-profit organisation whose approach is based on the principles of social equity and the capacity development of local partners, Nossal Institute is the University of Melbourne's new global health institute based in Australia. Established in 2006 (and incorporating all the work and activities of the Australian International Health Institute which was established in 1998), the Nossal Institute focuses its global health activity on priority areas within the Asia Pacific region and Southern Africa, working mainly in India, Indonesia, Cambodia, Vietnam, Laos, Papua New Guinea and Mozambique. The institute has a combined focus on development assistance, research and teaching. It believes that research is critical for providing the evidence base for improved global health and there is a need to identify better ways of applying what is already known. A key goal of the Nossal Institute is to conduct quantitative and qualitative research to strengthen development programs with relevant evidence, recognising that advances in global health needs input not only from traditional biomedical research, but also from social sciences, law, arts, and public policy.

The Nossal Institute works in partnership with other organisations who share its vision of improving health where health is at its poorest. The Institute strongly endorses the global responsibility to work together to reach the Millennium Development Goals. Its work is organised through the following units: ***(1)*** disease prevention and health promotion (HIV prevention, treatment and care, prevention of non-communicable diseases, adolescent health, mental health, climate change and health, health and security, including nuclear disarmament, public health leadership); ***(2)*** health systems strengthening (policy development, managing resources and implementing policy, developing expertise, analysis and knowledge generation, knowledge hub in health policy and finance); ***(3)*** education and learning; ***(4)*** tropical health and infectious diseases (malaria, tuberculosis, the epidemiology of infectious diseases, and the use of low-cost technology for health); and ***(5)*** inclusive development practice (disability, gender, rights and participation, and development practice and project management).

The current Nossal Institute projects in the Pacific islands are provision of technical advice on immunisation activities in Pacific island countries for AusAID, UNICEF and Pacific island country Departments of Health and development and delivery of UN training module on HIV/AIDS and sex work.

3.4.6 WorldFish Centre

The WorldFish Centre is an international, non-for-profit, NGO working in partnership with a wide range of government and non-governmental agencies at regional, national and local levels in the developing world, and with advanced research institutions worldwide. The WorldFish Centre is located in eight countries across Asia, Africa and the Pacific, and works in more than 25 countries with more than 200 partners representing 50 countries.

In the Pacific, the WorldFish Centre is currently situated in the Solomon Islands. It works in partnership with communities, national government and local research organisations to assist PICs to achieve sustainable management of coastal marine resources; including

supplementary livelihood options through participatory adaptive management approaches and through the development of suitable aquaculture techniques. The WorldFish Centre's key competencies are in: policy, economics and social sciences; natural resource management; and aquaculture and genetic improvement. This inter-linked set of disciplines work together to provide a wide range of research and analysis, which are summarized below:

Policy, Economics, and Social Sciences - connecting the fisheries and aquaculture sector to poverty reduction initiatives; social and economic analysis of the aquaculture and fisheries sectors; policy and institutional analysis for the improved governance of aquatic resources; assessing the potential impacts of climate change on fisheries, and adaptive measures that can be taken; human health consequences of fisheries, reducing risks, and fisheries options that benefit health-impaired populations (HIV/AIDS and malaria); and working with communities to manage fisheries.
Natural Resources Management - integrated assessment and management of small-scale fisheries; design and management of global information systems on aquatic resources (FishBase, ReefBase); post-disaster livelihood recovery in fisheries-dependent regions; assessment of impacts of built structures on aquatic resources in river basins; and analysis of external drivers such as climate change on livelihoods of fishery-dependent households.
Aquaculture and Genetic Improvement - methods for breeding improved fish strains for aquaculture; aquaculture technologies for the poor, including women and the landless; integrating aquaculture with terrestrial small-scale agriculture; strategies and options for aquaculture production and national action plans; connecting small-scale producers to markets; and technologies that improve water productivity while protecting environmental flows.

3.5 Synthesis

The Table 2 below compiles 37 priority themes that appear in the research programmes of the 39 academic and science organisations covered in this Study.

The most frequently mentioned themes include:
- environment (appears in 20 programmes), health (19), biodiversity (18), cultural, social and human sciences (18), fisheries and aquaculture (14), agriculture and forestry (13), and climate change (11).

The most frequently mentioned cross cutting issues include:
- governance and policy (17), sustainable development (14), and economic development (13).

Other frequent themes were:
- food security, and water and sanitation.

Other frequent cross cutting issues were:
- education, and human resource development

The less frequently mentioned themes include:
- disaster management, earth sciences, ICT, energy, mineral resources, technology transfer and innovation, transport, and waste and pollution management.

The less frequently mentioned cross cutting issues include:
- disabilities, civil society involvement, gender equality, human security, indigenous knowledge system, infrastructure development, labour mobility, media studies, private sector development and integration, poverty alleviation, rural development, social development, sustainable development, tourism and trade.

The themes that have a direct link to S&T and appear as top priorities include:
- environment;
- biodiversity;
- cultural, social and human sciences;
- health;
- agriculture and forestry;
- fisheries and aquaculture; and
- climate change.

The cross-cutting issues most mentioned that may have present S&T opportunities include:
- governance and policy;
- economic development; and
- sustainable development.

Table 2: Linking S&T to research programmes of academic and science institutions for the Pacific islands

Themes and cross cutting issues / Academic and science institutions	1. Australian National University	2. Bishop Museum	3. Centre for Asia Pacific Social Transformation Studies	4. Centre de Coopération Internationale en Recherche Agronomique pour le Développement	5. Centre de Recherches et Insulaires	6. Commonwealth Scientific and Industrial Research Organisation	7. East-West Center	8. Fiji School of Medicine	9. Forest Research Institute of Papua New Guinea	10. GNS Science	11. Hawaii Pacific University	12. Health Research Council of New Zealand	13. Institut Agronomique néo-Calédonien	14. Institute Louis Malardé	15. Institut Français de Recherche pour l'Exploitation de la Mer	16. Institut Pasteur de Nouvelle-Calédonie	17. Institut de Recherche pour le Développement	18. Landcare Research	19. National Institute of Water and Atmospheric Research	20. National Research Institute of Papua New Guinea	21. National University of Samoa	22. New Guinea Binatang Research Center	23. Nossal Institute for Global Health	24. Pacific Health Research and Education Institute	25. Pacific Institute of Public Policy	26. Pacific Islands Fisheries Science Center	27. Palau International Coral Reef Center	28. Papua New Guinea Institute of Medical Research	29. Papua New Guinea National Agricultural Research Institute	30. Richard B. Gump South Pacific Research Station	31. The Dolphine Institute	32. University of Auckland	33. University of Guam	34. University of Hawaii System	35. Université de la Nouvelle Calédonie	36. University of Papua New Guinea	37. Université de la Polynésie Française	38. University of the South Pacific	**39. WorldFish Cente**	**Total**	Rank
1. Agriculture and Forestry				√		√			√				√				√	√		√	√								√				√	√	√		13	9
2. Biodiversity		√			√				√				√	√	√		√	√				√				√			√	√		√	√	√		18	3
3. Civil Society Involvement																									√												1	33
4. Climate Change		√		√		√	√			√							√	√	√													√			√	√	11	
5. Crime Management & Terrorism																																								
6. Culture, Social & Human Sciences	√	√	√	√			√	√									√				√		√			√				√		√	√	√	√	√	√		18	3
7. Disabilities										√													√															1	33
8. Disaster Management										√							√		√														√		√	√		7	12
9. Earth Sciences										√																							√	√		√			4	21
10. Economic Development		√	√				√		√						√					√	√				√	√			√				√		√	√	√	14	6
11. Education			√					√												√	√												√			√		7	12
12. Energy				√															√												√			√		√		6	16
13. Environment	√	√			√	√			√					√	√		√	√			√	√			√		√	√		√		√	√	√	√			20	1
14. Fisheries & Aquaculture					√						√				√		√		√		√					√						√	√	√	√	√	√	√	14	6
15. Food Security						√	√								√		√													√				√			√		7	12
16. Gender Equality	√																						√					√						√				√	5	18
17. Governance & Policy	√	√	√	√			√	√				√	√							√	√		√		√					√		√	√	√	√	√	√	18	3
18. Health		√					√	√				√		√		√				√	√		√	√				√		√		√	√	√		√	√	19	2

Key: S&T themes with highest scores cross cutting issues with highest scores

Academic and science institutions / Themes and cross cutting issues	1. Australian National University	2. Bishop Museum	3. Centre for Asia Pacific Social Transformation Studies	4. Centre de Coopération Internationale en Recherche Agronomique pour le Développement	5. Centre de Recherches Insulaires et	6. Commonwealth Scientific and Industrial Research Organisation	7. East-West Center	8. Fiji School of Medicine	9. Forest Research Institute of Papua New Guinea	10. GNS Science	11. Hawaii Pacific University	12. Health Research Council of New Zealand	13. Institut Agronomique néo-Calédonien	14. Institute Louis Malardé	15. Institut Français de Recherche pour l'Exploitation de la Mer	16. Institut Pasteur de Nouvelle-Calédonie	17. Institut de Recherche pour le Développement	18. Landcare Research	19. National Institute of Water and Atmospheric Research	20. National Research Institute of Papua New Guinea	21. National University of Samoa	22. New Guinea Binatang Research Center	23. Nossal Institute for Global Health	24. Pacific Health Research and Education Institute	25. Pacific Institute of Public Policy	26. Pacific Islands Fisheries Science Center	27. Palau International Coral Reef Center	28. Papua New Guinea Institute of Medical Research	29. Papua New Guinea National Agricultural Research Institute	30. Richard B. Gump South Pacific Research Station	31. The Dolphine Institute	32. University of Auckland	33. University of Guam	34. University of Hawaii System	35. Université de la Nouvelle Calédonie	36. University of Papua New Guinea	37. Université de la Polynésie Française	38. University of the South Pacific	**39. WorldFish Cente**	**Total**	Rank
19. Human Resource Development												√								√					√								√	√	√		√		8	11
20. Human Security							√																√													√		3	26
21. ICT																			√												√			√		√		5	18
22. Indigenous Knowledge Systems																																√			√	√			√	4	21
23. Industrial Sector Development																																									
24. Infrastructure Development																				√																		√	2	29
25. Institutional Capacity Building																																						√	1	33
26. Labour Mobility																																	√			√		2	29
27. Media Studies																																		√				1	33
28. Mineral Resource						√									√		√															√	√	√				6	17
29. Microfinancing & Investment																																								
30. Private Sector Development & Integration																																						√	√	2	29
31. Poverty Alleviation																																						√	√	2	29
32. Rural Development				√									√												√												√	4	21
33. Social Development				√																√																√	√	4	21
34. Sustainable Development						√			√				√		√		√					√					√		√				√	√	√	√	√	14	6
35. Technology Transfer & Innovation																																	√				√	√	3	26
36. Tourism																		√															√			√		4	21
37. Trade																						√			√											√		3	26
38. Transport																																				√				1	33
39. Waste & Pollution Management						√											√															√		√	√		√		5	18
40. Water & Sanitation						√													√									√						√	√	√		√		7	12

Key: ■ S&T themes with highest scores ■ cross cutting issues with highest scores

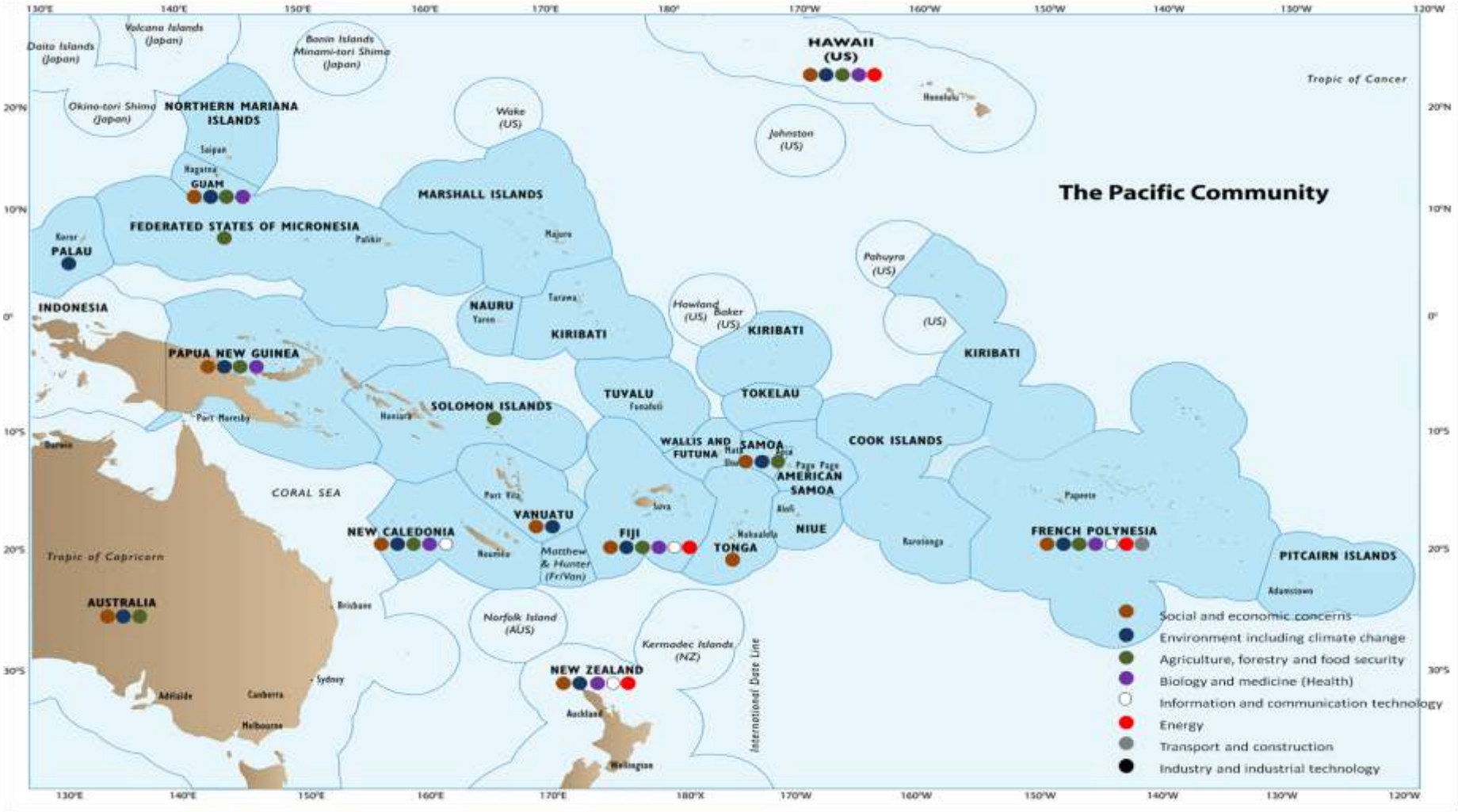

Fig. 1: Geographical distribution of S&T sectors in which academic and science organisations provide research to the Pacific island region

4. Linking Science and Technology to Development Programmes of Inter-Governmental Agencies for the Pacific islands

4.1 Introduction

There are a number of regional development organisations that are engaged with research projects that produce outputs on which extension service recommendations are based as part of their programmes of technical assistance to the Pacific islands. There are also a number of international development agencies that either due to their location or mandate provide support for research in S&T for development specifically targeting the Pacific region. A description of these organisations and their programme relating to S&T appear below.

4.2 Regional Agencies

The regional organisations involved with development programmes in the Pacific region predominantly provide technical assistance to the PICTs according to their mandate. The inter-governmental development agencies of the Pacific islands form the Council of Regional Organisations in the Pacific (CROP). Up until January 2010 there were ten major regional agencies that were CROP members (Table 3 in Annex 1). Due to Pacific Leaders' recommendations relating to rationalising the number of CROP agencies, some restructuring has occurred and will continue until the end of 2010. The list of CROP agencies below describes seven of these Pacific regional agencies[3], as well as development assistance they provide, their mandates and roles relevant to S&T for development.

4.2.1 Forum Fisheries Agency (FFA)

The Forum Fisheries Agency (FFA), based in Solomon Islands was founded in 1979 to help PICs manage their fishery resources that fall within their EEZ. FFA is an advisory body providing expertise, technical assistance and other support to its 17 members who make sovereign decisions about their tuna resources and participate in regional decision making on tuna management.

The Agency focuses its work on: ***(1)*** fisheries management - involving the provision of policy and legal frameworks for the sustainable management of tuna resources; ***(2)*** fisheries development - including developing the capacity of members to sustainably harvest, process and market tuna to create livelihoods; and ***(3)*** on fisheries operations - involving supporting monitoring, control and surveillance of Pacific fisheries as well as treaty administration, information technology and vessel registration and monitoring. It has operational links with the Western and Central Pacific Fisheries Commission (WCPFC) based Federated States of Micronesia, the Parties to the Nauru Agreement based in Republic of the Marshall Islands, and the SPC with headquarters based in New Caledonia.

Of interest to PACE-Net, FFA undertakes research activities related to fisheries and its impact on development, the economy and on the society. For example, a research project

[3] The University of the South Pacific and the Fiji School of Medicine are also CROP agencies. Their role in S&T research for development has been discussed in the previous chapter.

that FFA has been involved with is the Global Environment Facility (GEF)-funded Pacific Island Fisheries Management project. This project includes a scientific assessment and monitoring enhancement component in order to provide improved scientific information and knowledge on the oceanic trans-boundary fish stocks and related ecosystem.

4.2.2 Pacific Islands Development Programme (PIDP)

Established in 1980 within the EWC, the Pacific Islands Development Programme (PIDP) conducts a broad range of activities to enhance the quality of life in its 17 member PICTs (Table 3 in Annex I) by assisting its Leaders advance their collective efforts to achieve and sustain equitable social and economic development consistent with the goals of the Pacific islands region's people. PIDP began as a forum through which island Leaders could discuss critical issues of development with a wide spectrum of interested countries, donors, NGOs, and the private sector. Today, PIDP's role as a regional organization has expanded to include five major activity areas: ***(1)*** secretariat of the Pacific Islands Conference of Leaders; ***(2)*** secretariat for the United States and Pacific Island Nations Joint Commercial Commission; ***(3)*** research and dialogue; ***(4)*** education and training; and ***(5)*** the Pacific Island News, an internet service providing a range of news items from around the Pacific region.

Of particular interest to PACE-Net are the research activities supported by the PIDP, via the EWC's multidisciplinary research programme. This programme addresses issues of contemporary policy significance in a comparative context, focusing on challenges of common concern to the Pacific region. Research themes focus on the four areas of study: economics; environmental change, vulnerability and governance; politics, governance and security; and population and health.

4.2.3 *Pacific Islands Forum Secretariat (PIFS)*

The Pacific Islands Forum Secretariat (PIFS), established in 1972 as a trade bureau is the administrative arm of the PIF. Situated in Fiji, PIFS nowadays undertakes a broad range of programmes and activities that support, or implement, decisions by the PIF Leaders, as well as chairs the CROP. Composed of 13 Pacific island member states (Table 3 in Annex 1), current PIFS programmes are aimed at promoting regional cooperation among member states through trade, investment, economic development, and political and international affairs, particularly in relation to policy development, capacity building and increasingly by means of technical assistance.

PIFS has a major role in ensuring that the Pacific Plan, endorsed by Pacific Leaders in 2005 as a vehicle to stimulate economic growth, sustainable development, good governance and security for PICs through regionalism is being implemented and monitored. Additionally, as part of its contribution to assisting PICs implement sustainable development activities, PIFS has staff working to support the achievement of the MDGs and monitoring the Cairns Compact on Strengthening Development Coordination in the Pacific. Sectors and development themes of interest to PIFS include treaties, trade, the private sector, transport, ICTs, energy, climate change, social policy, disabilities, education, gender equality, governance, aid effectiveness, facilitating the EDF programmes and supporting economic growth initiatives.

Although PIFS is not involved in S&T research for development, they do have some research capacity as some staff are engaged in research as part of their job description and produce research papers on specific regional/international issues. For example, some PIFS staff has undertaken specific research on themes relating to emerging issues in trade and labour mobility, HIV and AIDS and climate change. Others research the MDGs, gender equity and Pacific Plan issues. The other role that PIFS undertakes in relation to research is to commission studies, reports and reviews that address issues identified by Pacific Leaders. For example, PIFS has commissioned external consultants to undertake research relating to, *'Developing a More Facilitating Environment for Women's Political Participation in Nauru'*, a *'Social Impact Assessment of Peace Restoration Initiatives in the Solomon Islands'*, a *'Pacific Regional Digital Strategy'*, and a *'Pacific Regional Strategy on Disability 2010-2015'*.

4.2.4 South Pacific Applied Geoscience Commission (SOPAC)

The South Pacific Applied Geoscience Commission (SOPAC), based in Fiji, is an inter-governmental, Pacific regional organisation with a membership of 17 PICTs (Table 3 in Annex 1). Its mandate is to: contribute to sustainable development; reduce poverty; and to enhance resilience for the people of the Pacific. To fulfil this, SOPAC focuses on three key programme areas: ***(1)*** Oceans and Islands, a programme which supports research, development and management of non-living resources in oceans and island systems and addresses issues relating to seabed resources, energy, maritime boundary delimitation, and monitoring of ocean processes; ***(2)*** Community Lifelines, a diversified programme that strengthens national capacities in energy, water and sanitation, and ICT for sustainable livelihoods; and ***(3)*** Community Risk, a comprehensive programme that aims to improve disaster risk management practices to build safer and more resilient communities.

SOPAC's primary scientific role is to support high precision geodetic and geophysical measurements using GPS satellites, particularly for the study of earthquake hazards, tectonic plate motion, plate boundary deformation, and meteorological processes. SOPAC investigators also conduct research on the implementation, operation and scientific applications of continuously monitoring GPS arrays and Synthetic Aperture Radar (SAR) interferometry. SOPAC's S&T research for development activities of relevance to the PACE-Net project are reflected in its three scientific work programmes, which cover onshore, coastal and offshore environments and include development of natural resources; reduction of environmental vulnerability; support of sustainable development; development of potable water supplies; protecting coral reef environments; and basic investigations of local weather, climatology, biology, geology, geophysics and oceanography.

Also of relevance to PACE-Net is SOPAC's Science, Technology and Resources Network (STAR) that actively seeks individuals, academic and research organisations, foundations, private industry, governmental agencies and professional societies to ensure SOPAC's work programme are influenced by international S&T that is both excellent and relevant to the region. At the end of 2010, as part of the new Pacific Regional Institutional Framework (RIF), SOPAC programmes, with the exception of the meteorology projects, will merge with the SPC.

4.2.5 South Pacific Board for Educational Assessment (SPBEA)

The South Pacific Board for Educational Assessment (SPBEA) is an inter-governmental, regional organisation set up in 1980 in Fiji to assist the region and its member countries to develop assessment procedures towards national or regional education certificates. SPBEA administers two regional senior secondary school qualifications, the Pacific Senior Secondary Certificate (PSSC) and the South Pacific Form Seven Certificate (SPFSC). It has a membership of 9 PICs (Table 3 in Annex 1). In January 2010, SPBEA merged with the SPC as part of the restructured Pacific RIF. In recent years, SPBEA has increased its mandate to assisting countries to improve the quality of education through the use of good assessment practice and procedures.

SPBEA activities of interest to PACE-Net include promoting research-based educational assessment initiatives to assist decision-making. The following two questions are currently being researched: ***(1)*** evidence that the growth in SPBEA-administrated PSSC enrolments may have had influence on the pattern of grade achievements awarded to the group of pioneer schools; and ***(2)*** evidence of gender performance differences, (and/or change in gender performance differences) across the range of PSSC subjects, as evidenced by the examination raw-scores of male and female candidates during the period 1989 to 2009. Other topics to be researched in future include: ***(1)*** historical PSSC data indicating that there has been a change in the level of mathematical competency required to secure a particular PSSC grade award; ***(2)*** evidence that the provision of the exemplar booklets has had desirable impact upon teachers, when applying the marking scheme to student work; ***(3)*** evidence of significant educational advantage for pupils attending school in an urban centre, as compared with attending school on an outer island; ***(4)*** evidence that particular PSSC subjects present greater difficulty for teachers in securing Internal Assessment (IA) programme approval; and if so, is it possible to identify the causes; and ***(5)*** evidence that particular schools are exhibiting particular widespread difficulty in securing IA programme approval?

4.2.6 South Pacific Regional Environment Programme (SPREP)

The South Pacific Regional Environment Programme (SPREP) is a regional organisation established by the governments and administrations of the Pacific region and charged with: promoting cooperation; supporting protection and improvement of the Pacific islands environment; and ensuring its sustainable development. Based in Samoa, SPREP has 21 PICT members (Table 3 in Annex 1). In the past, SPREP's main activities concerned natural resources management; pollution prevention; climate change and variability; and economic development. In 2010, SPREP refined its operational priorities and four strategic priorities, validated by its member countries and territories, emerged. These include: ***(1)*** climate change; ***(2)*** biodiversity and ecosystem management; ***(3)*** waste management and pollution control; and ***(4)*** environmental monitoring and governance.

The Secretariat manages two programmes. The Island Ecosystem programme focuses on developing capacities of PICTs to sustainably manage and conserve terrestrial, coastal and marine ecosystems. It also focuses efforts to priority threatened species. The Pacific Futures programme aims to secure a healthy environment for future generations in the Pacific islands through promotion of good governance. Climate change, climate

variability, sea-level rise, pollution, waste and other land-based sources of pollution are central to this programme. The activities include assisting PICTs through institutional capacity building to plan and respond to the threats and pressures on island and ocean systems.

Of relevance to PACE-Net is the activity of SPREP to promote research to protect the atmosphere, ecosystems and species. Under the axe climate change and atmosphere, SPREP member countries have specially recommended that research needs to be undertaken to understand the climate variability and change, and sea level phenomena as well as to identify and assess vulnerabilities and impacts due to these phenomena. Examples of their work in these areas include dolphin research in the Solomon Islands.

4.2.7 Secretariat of the Pacific Community (SPC)

The Secretariat of the Pacific Community (SPC) was established in 1947 as the South Pacific Commission. The headquarters of SPC is located in New Caledonia. It is a regional, bilingual (English and French), technical development agency that works in partnership with its 22 PICT members (Table 3 in Annex I) to provide technical and policy advice and assistance, training and research services at both national and region levels to benefit PICTs. SPC works in key development sectors such as health, agriculture, economic development and fisheries to achieve three development outcomes: sustainable economic development; sustainable natural resource management and development; and sustainable human and social development. The broad scope of SPC's work comes under five divisions: land, fisheries, economic development, public health and social resources.

The Land Resources Division (LRD) has two objectives: ***(1)*** sustainable management of forest and agriculture systems; and ***(2)*** biosecurity and trade facilitation. It provides advice, expertise, technical support and training to member countries and undertakes research in all aspects of agriculture and forestry, including: crop diversification; plant and animal health; biosecurity and trade; crop and animal production; post-harvest technology; and animal and plant genetic resources. Also of interest to PACE-Net, LRD houses the Centre for Pacific Crops and Trees (CePACT) and is actually implementing an EU-funded pilot project, Facilitating Agricultural Commodity Trade (FACT). This project aims to support selected commercial ventures and producer groups in becoming export-oriented market-driven enterprises with competitive, value-added agricultural and forestry products. The FACT is involved in various adaptive research and development projects, for example, evaluation of cyanide levels in cassava varieties and evaluation of Virgin coconut oil properties produced by different processes CePACT aims is to assist PICTs to conserve the region's genetic resources; with priority given to the region's staple crops: taro, yam, sweet potato, banana, cassava and breadfruit. Conservation is the core business of the Centre, however, it also has a strong research programme. Currently research activities of CePACT include: development of micropropagation protocols for sandalwood and pandanus; cryopreservation of aroids; salt tolerance studies on swamp taro; and taro virus research.

The Fisheries, Aquaculture and Marine Ecosystems (FAME) Division includes coastal and oceanic fisheries programmes of SPC. FAME support development and management of regional and national fisheries and assist governments to establish sustainable

aquaculture systems. To support these activities on scientific evidence, the FAME scientists conduct research to monitor the stock of oceanic and reef fisheries, and to understand the research biological parameters and environmental processes that influence the productivity tuna fisheries population and vulnerability of these resources to climate change. It also undertakes research in the aquaculture sector.

The Economic Development Division was established in 2010. Of relevance to PACE-Net, the key drivers of economic development – energy, transport, infrastructure and communication – form the four pillars of the division.

The Public Health Division (PHD) goal is to assist PICTs to achieve improved health outcomes and to assist Pacific island people respond effectively to current and future health challenges and make informed decisions to improve their health status. PHD has established four thematic clusters: health protection; health information and systems; health promotion and grant management quality assurance and performance. Of interest to PACE-Net, PHD coordinates the PPHSN on communicable diseases including dengue, measles, rubella, influenza, leptospirosis, typhoid fever, cholera, SARS and HIV/STIs and is also involved in some research work in HIV and STI surveillance and tuberculosis control.

The Social Resources Division (SRD) includes SPC's statistics and demography programme, human development (culture, women, youth and community education) programme, the Regional Media Centre and the Pacific Regional (human) Rights Resource Team. Activities include giving member countries and territories practical assistance and training to collect and analyse population data, including: support and training for censuses; advocating for gender and youth issues in regional and national policies and strategies; providing media training; providing governance and human rights technical assistance and training; and supporting legal protection of traditional knowledge and expressions of culture. Of relevance to PACE-Net, SRD has carried out research on gender-base violence.

4.3 Other Agencies

4.3.1 Alliance of Small Island States (AOSIS)

The Alliance of Small Island States (AOSIS) is an inter-governmental organisation of low-lying coastal and small island countries that share similar development challenges and concerns about the environment, especially their vulnerability to the adverse effects of global climate change. Established in 1990, the main purpose of the Alliance is to consolidate the voices of SIDS to address global warming. AOSIS has a membership of 42 States and observers, drawn from all oceans and regions of the world: Africa, Caribbean, Indian Ocean, Mediterranean, Pacific and South China Sea. AOSIS has been very active from its inception, putting forward the first draft text in the Kyoto Protocol negotiations as early as 1994.

4.3.2 Western and Central Pacific Fisheries Commission (WCPFC)

A regional fisheries management organisation, the Western and Central Pacific Fisheries Commission (WCPFC) was established by the Convention for the Conservation and

Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Located in Federated States of Micronesia and established to conserve and manage tuna and other highly migratory fish stocks across the western and central areas of the Pacific Ocean, WCPFC commenced its operations in late 2005. The Convention, also known as the WCPF Convention, entered into force in 2004 and commits the Commission to undertaking both an ecosystem and a precautionary approach to fishery management. The WCPF Convention is the second regional fisheries management agreement negotiated since the conclusion of the 1995 UN Straddling Fish Stocks Agreement. It draws on many of the provisions of the UN Fish Stocks Agreement while, at the same time, reflecting the special political, socio-economic, geographical and environmental characteristics of the Western and Central Pacific Ocean (WCPO) region.

The WCPF Convention seeks to address problems in the management of high seas fisheries resulting from unregulated fishing, over-capitalization, excessive fleet capacity, vessel re-flagging to escape controls, insufficiently selective gear, unreliable databases and insufficient multilateral cooperation in respect to conservation and management of highly migratory fish stocks. The Commission supports three subsidiary bodies: ***(1)*** the scientific committee; ***(2)*** technical and compliance committee; and ***(3)*** the northern committee, that each meets once during each year.

Of relevance to PACE-Net, the scientific committee provides advice regarding the status of tuna stocks and by-catch species in tropical and South Pacific waters. Provision of scientific data continues to be a priority issue for the Commission as it recognizes that without sufficient and accurate data on fishing operations, the task of the Commission becomes increasingly difficult and conservation and management measures may be less effective. It gives increasing attention to the biological attributes (natural mortality, growth, and reproductive biology) of target species and species taken incidentally. The Commission also recognizes that there is a need to better characterize the dynamics of fishing fleets operating in the WCPO that have changed significantly in the last decade due to technological developments and improved vessel design and, which in turn, has changed the fishing efficiency. Additional information on how the fishing fleets behave will help scientists better target their research efforts and resources, including prioritizing the type and frequency of stock assessments required. The Commission also requires regular scientific review of its conservation and management measures that are aimed at reducing the mortality rate of key species, as well as those taken incidentally, such as sharks.

4.4 Synthesis

The Table 3 below compiles 29 priority themes that appear in the development programmes of the 9 key inter-governmental agencies covered in this Study.

The most frequently mentioned themes include:
- fisheries and aquaculture (4), climate change (4), health (3), environment (3), culture, social and human sciences (3), energy (2), ICT (2), agriculture and forestry (2), disaster management (2), waste & pollution management (2), and water and sanitation (2).

The most frequently mentioned cross cutting issues include:
- sustainable development (appear in 8 programmes), economic development (4), governance and policy (3), education (2), trade (2), and gender equality (2).

The less frequently mentioned themes include:
- biodiversity, earth science, food security, mineral resources, technology transfer and innovation, and transport.

The less frequently mentioned cross cutting issues include:
- disabilities, human resource development, human security, labour mobility, private sector development and integration, and social development.

The themes that have a direct link to S&T and appear as top priorities include:
- fisheries and aquaculture;
- climate change;
- health;
- environment;
- culture, social and human sciences;
- energy;
- ICT;
- agriculture and forestry;
- disaster management;
- waste and pollution management; and
- water and sanitation.

The cross-cutting issues most mentioned that may have present S&T opportunities include:
- sustainable development;
- economic development;
- governance and policy;
- education;
- trade; and
- gender equality.

Table 3: Linking S&T to development programmes of inter-governmental agencies for the Pacific islands

Themes and cross cutting issues / Inter-governmental agencies	1. Alliance of Small Island States	2. Forum Fisheries Agency	3. Pacific Islands Development Programme	4. Pacific Island Forum Secretariat	5. South Pacific Applied Geoscience Commission	6. South Pacific Board for Educational Assessment	7. South Pacific Regional Environment Programme	8. Secretariat of the Pacific Community	9. Western and Central Pacific Fisheries Commission	**Total**	Rank
1. Agriculture and Forestry					√			√		2	9
2. Biodiversity							√			1	18
3. Civil Society Involvement											
4. Climate Change	√		√	√	√					4	2
5. Crime Management & Terrorism											
6. Culture, Social & Human Sciences		√		√				√		3	5
7. Disabilities				√						1	18
8. Disaster Management					√		√			2	9
9. Earth Sciences					√					1	18
10. Economic Development		√	√	√			√			4	2
11. Education				√		√				2	9
12. Energy				√	√					2	9
13. Environment	√		√				√			3	5
14. Fisheries & Aquaculture		√					√	√	√	4	2
15. Food Security								√		1	18
16. Gender Equality				√				√		2	9
17. Governance & Policy			√	√				√		3	5
18. Health			√	√				√		3	5
19. Human Resource Development								√		1	18
20. Human Security			√							1	18
21. ICT				√				√		2	9
22. Indigenous Knowledge Systems											
23. Industrial Sector Development											
24. Infrastructure Development											
25. Institutional Capacity Building											
26. Labour Mobility				√						1	18
27. Media Studies											
28. Mineral Resource					√					1	18
29. Microfinancing & Investment											
30. Private Sector Development & Integration				√						1	18
31. Poverty Alleviation											
32. Rural Development											
33. Social Development								√		1	18
34. Sustainable Development		√	√	√	√	√	√	√	√	8	1
35. Technology Transfer & Innovation								√		1	18
36. Tourism											
37. Trade				√				√		2	9
38. Transport								√		1	18
39. Waste & Pollution Management					√		√			2	9
40. Water & Sanitation					√		√			2	9

Key: S&T themes with highest scores; cross cutting issues with highest scores

5. Linking Science and Technology to Programmes and Initiatives of Civil Society Organisations for the Pacific islands

5.1 Introduction

Civil society organisations has important role to play in development and policy implementation. Several civil society organisations in the Pacific islands are actively participating to various process of development including S&T research. The major civil society organisations that work in the Pacific island region and their contribution to S&T for development are described below.

5.2 Regional Organisations

5.2.1 Foundation of the Peoples of the South Pacific International (FSPI)

The Foundation of the Peoples of the South Pacific International (FSPI) is the regional secretariat for a network of ten independent community-based organisations working in the Pacific to foster self-reliance and sustainable development. It is secular civil society organisation in the Pacific, with network partners in Fiji, Kiribati, Palau, Papua New Guinea, Samoa, the Solomon Islands, Tonga, Tuvalu, Vanuatu and Timor-Leste, and metropolitan partners in Australia and the United States.

FSPI's mission is to work with the Pacific communities through people-centred programmes that help to foster self-reliance within a changing world. FSPI does this by developing projects based on the needs identified by member organisations and their constituencies to improve quality of life. FSPI designs, coordinates, supports and monitors the implementation of these regional network projects. These projects are carried out through FSPI's five signature programmes which are: ***(1)*** Governance; ***(2)*** Communities and Coasts; ***(3)*** Health; ***(4)*** Mainstreaming of rural development innovations; and ***(5)*** Community-based disaster risk reduction and management.

Of interest to PACE-Net, certain programmes of FSPI promote applied research activities. In particular, the Community and Coasts programme that works to promote research on the technical and socio-economic aspects of Pacific island coastal resource use. The programme recognizes the need for applied research to support some aspects of community-based activities such as development of coral reef restoration techniques and sustainable coral mari-culture methods and analysis of the financial viability of cultured coral for the aquarium trade in the Solomon Islands and Fiji. The Health programme runs the Youth and Mental Health project that involves youth and mental health-related research to define the existing issues, services and possible routes of effective action for sustainable work in the mental health area.

5.2.2 Hawaii Agriculture Research Center (HARC)

Founded in 1895 as the Hawaiian Sugar Planters' Association, dedicated to improving the sugar industry in Hawaii, the Hawaii Agriculture Research Center (HARC) changed name in 1996 to reflect its expanding scope to encompass research in forestry, coffee,

forage, vegetable crops, tropical fruits, and many other diversified crops in addition to sugarcane.

A private, non-for-profit organisation, HARC specializes in horticultural crop research including: agronomy and plant nutrition; plant physiology; breeding; genetic engineering and tissue culture; and control of diseases and pests through integrated pest management. HARC also performs pesticide registration work; training in areas such as pesticide application and environmental compliance; ground water monitoring; and technical literature searches.

5.2.3 Hawaii Association for Marine Education and Research (HAMER)

The Hawaii Association for Marine Education and Research, Inc., also known as HAMER is a not-for-profit organisation dedicated to understanding and protecting Hawaii's marine resources. HAMER's research mission goes hand in hand with its conservation mission. In order to provide new and valuable information to further the protection of Hawaii's marine resources, HAMER is dedicated to conducting and assisting ethical and productive scientific research.

Of interest to PACE-Net, HAMER offers the scientific expertise to conduct field research (population sizes, population demographics, social behavior, habitat range, and habitat needs) on Hawaii's marine wildlife, notably on false killer whales, bottlenose dolphins, manta rays, humpback whales, and turtles, and carries out surveys on reefs. It also offers training and education lectures on marine mammals, field research techniques, conservation, and current research findings to raise public awareness and change attitudes, and ultimately behavior.

5.2.4 Hawaii Clinical Research Center (HCRC)

The Hawaii Clinical Research Center (HCRC) was established in 1989 as an independent, free-standing research site which specialized in conducting clinical trials with new investigation medications. Specialising in Phase I-IV clinical studies in the diverse ethnic populations of Hawaii, the Center has since then conducted close to 300 Phase I, II, III and IV studies with compounds covering a wide range of physical and mental health indications. Although HCRC has predominantly focused upon trials with centre nervous system or psychotropic compounds, it now has the capacity to direct research addressing the full spectrum of pharmacological agents, covering inpatient and outpatient trials.

HCRC is currently embarking on an expansion programme to become a major international "East meets West" clinical research organisation and Phase I research site for the Pacific Rim. HCRC will also inaugurate Valden, a unique contract research organisation to collaborate with pharmaceutical sponsors and clinical research sites in the discovery and development of breakthrough compounds with Pacific Rim and of global relevance.

5.2.5 Hawaii Whale Research Foundation

The Hawaii Whale Research Foundation is a small non-for-profit group of dedicated volunteers conducting field research on marine mammals with emphasis on humpback whale social affiliation, behavior and communication in the belief that, if the needs of these animals are more fully understood, better recommendations can be offered to protect and preserve them. Five winter months of data collection and photo-documentation in Hawaii are augmented by year-round analysis, frequent scientific publications, public service seminars and educational presentations. When funding opportunities are available, surveys in Alaska are also conducted.

5.2.6 L'Observatoire de l'Environnement en Nouvelle-Calédonie (ŒIL)

The Observatory of Environment in New Caledonia (*L'Observatoire de l'Environnement en Nouvelle-Calédonie*; ŒIL) was created in response to the growing impact of human, industrial and mining activities in New Caledonia on its environment. Its mission is to assess the state of the environment, in view of the growing anthropogenic activities. Primarily a scientific entity, ŒIL aims to be a tool for policy-makers. It has three activities: ***(1)*** monitoring by regular collection, management and interpretation of environmental data and thus the assessment of the state of the environment and its evolution; ***(2)*** communication of measurement results presented in the form of indicators and other analysis to the public and policy-makers; and ***(3)*** research to develop and optimize the tools to allow a better environmental monitoring *via* establishment of indicators (land, sea, air, physico-chemical and biological).

5.2.7 Papua New Guinea Cocoa and Coconut Research Institute (CCRI)

The Papua New Guinea Cocoa and Coconut Research Institute (CCRI), established in 1986, is the research arm of the cocoa and coconut industries in Papua New Guinea. Of relevance to PACE-Net, CCRI conducts breeding and evaluation studies, as well as agronomy and entomology research. CIRAD has played an important role in the establishment of this research centre providing staff, training, technical assistance and funding.

5.2.8 Papua New Guinea Institute of Biological Research (PNGIBR)

The Papua New Guinea Institute of Biological Research (PNGIBR), founded in 2008, is not-for-profit association formed to ensure a biologically sustainable future for Papua New Guinea. PNGIBR's goals are to: ***(1)*** conduct ecological and biological research; ***(2)*** train biologists and conservationists; ***(3)*** ensure information is shared with policy-makers, landowners and the community; and ***(4)*** to integrate traditional knowledge and customs with modern concepts of conservation. PNGIBR studies Papua New Guinea's unique flora and fauna through long-term research and international collaboration.

5.2.9 Papua New Guinea Oil Palm Research Association Inc. (OPRA)

The Papua New Guinea Oil Palm Research Association (OPRA) is the research arm of the oil palm industry in Papua New Guinea. Formed in 1980 by the government, plantation companies and the smallholder sector, its objective is to fulfill the research requirements and solve the technical needs of its members. In relation to PACE-Net, OPRA carries out research in the fields of agronomy (particularly in soil chemistry and plant nutrition), entomology, plant pathology and socio-economic with its main focus on low-input intervention to improve productivity in the smallholder sector. Furthermore, research underpins OPRA's major role in developing new technologies and farm management techniques to improve oil palm production. The Association also provides technical support and training to smallholders, extension officers and plantation company officers. OPRA is financed by a smallholder and plantation crop levy, some government funding and many of its research projects are funded by external (largely overseas) research grants.

5.2.10 Research and Conservation Foundation of Papua New Guinea (RCF)

The Research and Conservation Foundation of Papua New Papua (RCF) is a not-for-profit conservation organisation based in Goroka, Eastern Highlands Province of Papua New Guinea. Founded in 1986, RCF is one of the oldest conservation NGO in the country and is one of the first and largest dedicated to the environment, conservation and education.

RCF's mission is to: ***(1)*** promote and preserve the unique flora and fauna of Papua New Guinea for its people and the world; ***(2)*** educate the people of Papua New Guinea to sustainably use their natural resources to assure the conservation of their biodiversity; and ***(3)*** to encourage, finance, assist in and undertake research into the flora and fauna of Papua New Guinea and to cooperate with institutions and persons with similar aims.

RCF evolved out of shared concern between researchers and the Crater Mountain landowners about the declining population of unique and rare species that are endemic to the area including other fauna and flora as well as the rich biodiversity. In doing so; they established what is known now as the Crater Mountain Wildlife Management Area which has been in operation for the last 20 years.

5.2.11 Société d'Ornithologie de la Polynésie 'Manu'

The Ornithological Society of Polynesia "Manu" (*Société d'Ornithologie de Polynésie "Manu"*), founded in 1990 by a few enthusiasts of birds of French Polynesia, aims to protect birds, their habitats and biodiversity by working with the population through sustainable management of natural resources. A non-for-profit association, "Manu" is affiliated with BirdLife International, a worldwide federation of associations working for the conservation of birds.

Of interest to PACE-Net, the association "Manu" works to protect and to contribute to the studies of the bird population of French Polynesia and their natural habitats. It also promotes and diffuses information to public concerning the protection and research activities it undertakes. In doing so, the association "Manu": ***(1)*** contacts and works with international scientific organisations; ***(2)*** organises field excursions (observation, bird call recordings, photographies, etc); ***(3)*** provides logistic support to visiting bird

scientists to French Polynesia; ***(4)*** elaborates project proposals to respond to calls of protection programme in order to finance and implement monitoring and protection actions of endangered species; and ***(5)*** is actively involved in public awareness campaigns (publications, conferences, etc), research of scientific information and creation of data banks.

5.2.12 Te mana o te moana

Te mana o te moana is non-for-profit association that was founded in 2004 in French Polynesia. This association strives to protect the marine environment of French Polynesia through research, conservation and communication and educational activities. Of relevance to PACE-Net, the research activities of the Association is carried out in partnership with other associations and universities involved in studies and research projects pertaining to Polynesian marine fauna and flora and island ecosystems.

5.3 International Organisations

5.3.1 Conservational International (CI)

Founded in 1987, Conservation International (CI) is a non-for-profit organisation that is committed to helping societies adopt a more sustainable approach to development – one that considers and values nature at every turn. Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature for the well-being of humanity. CI works closely with governments, multilateral organisations and NGOs as well as with corporations. It has offices in more than 30 countries and projects in many more. In the Pacific, the CI offices are based in Australia, Fiji, New Caledonia, Papua New Guinea and Samoa.

Of relevance to S&T themes, CI focuses on both marine and land-based issues within six key initiatives: ***(1)*** working to secure a stable global climate; ***(2)*** understanding and protecting the sources and flows of fresh water; ***(3)*** ensuring nature's ability to provide food for human needs; ***(4)*** minimizing environmental pressures on human health; ***(5)*** valuing the role of nature in human cultures; and ***(6)*** safeguarding the ability of species and biodiversity

5.3.2 The Nature Conservancy

The Nature Conservancy is a leading conservation organisation that works around the world to protect lands and waters that are ecologically important to the nature and the people. An United States charitable environmental organisation, the Nature Conservancy works with all sectors of society including businesses, individuals, communities, partner organisations, and government agencies to achieve its goals. Founded in 1951, the Nature Conservancy works in all 50 states of the United States and in over than 30 countries around the world including countries of the Pacific islands.

Of interest to PACE-Net, the Nature Conservancy has Pacific field offices in Palau, Federated States of Micronesia, Solomon Islands, and Papua New Guinea. Furthermore, the Nature Conservancy takes a scientific approach to conservation, applying analytical

methods (global habitat assessments and eco-regional assessments) to select the areas it seeks to preserve. It shares its science-based and collaborative methods works with the local governments, communities and partner organisations in to ensure that each region's need — for people and for nature — are best met.

5.3.3 WorldWide Fund for Nature (WWF)

The World Wide Fund for Nature (WWF), formerly named the World Wildlife Fund, is an international NGO working on issues regarding the conservation, research and restoration of the environment. Much of its work focuses on the conservation of three biomes that contain most of the world's biodiversity: forest; freshwater ecosystems; and oceans and coasts. Among other issues, it is also concerned with endangered species, pollution and climate change. WWF through its network carries out conservation activities in more than 90 countries, ranging from practical field projects and scientific research to advising on environmental policy, promotion of environmental education, and raising public understanding of environmental issues. WWF works with a large number of different groups to achieve its goals, including other NGOs, governments, business, investment banks, scientists, fishers, farmers and local communities. It also undertakes public campaigns to influence decision-makers, and seeks to educate people on how to live in a more environmentally friendly manner.

All conservation work at WWF is grounded in science. Using the best available scientific knowledge and advancing that knowledge where possible, WWF works at every level – from local to global - to preserve the diversity and abundance of life on Earth and the health of ecological systems by: ***(1)*** protecting natural areas and wild populations of plants and animals, including endangered species; ***(2)*** promoting sustainable approaches to the use of renewable natural resources; and ***(3)*** promoting more efficient use of resources and energy and the maximum reduction of pollution.

WWF South Pacific has been working, since 1995, with the governments and people of the Pacific on conservation and natural resource management programmes and projects. WWF South Pacific is managed from a regional base located in Fiji, and organises its conservation field projects, policy reviews, and campaigns in many countries in the region. WWF South Pacific works on the following issues in the region:

Climate Change **-** Climate Witness is a global programme that works to capture and provide information in relation to indigenous knowledge regarding climate change as well as to raise awareness and resilience to the adverse impacts of climate change.
Coastal management - Coastal Management and Inshore Fisheries is WWF South Pacific's largest conservation programme. It aims to support local community livelihoods and to encourage policy development in the areas of ecosystem-based management, community-based management, sustainable fisheries management and climate change adaptation. The programme's main goal is to secure the sustainability and conservation of critical habitats and species.
Coral Triangle **-** through the Coral Triangle Programme, WWF is working to safeguard the health of the region's valuable resources and to secure the millions of livelihoods that depend upon them by: building a sustainable live reef fish trade; promoting sustainable tuna fisheries; financing marine protected areas; protecting marine turtles and reducing their by-catch; and reducing the impacts of climate change.

Marine Species **-** WWF South Pacific works with two flagship marine species – whales and turtles to ensure that traditional harvesting is done sustainably and to reduce commercial harvesting and accidental fatalities. It also promotes the conservation of whales by helping to establish whale sanctuaries and by researching the status of their populations in the Pacific and the processes that threaten them.
Offshore Fisheries –Sustainable Fisheries Futures project aims to: promote fisheries certification; raise consumer awareness of fishery conservation issues and to promote the practice of sustainable sourcing by major purchasers; and to secure a commitment to a sustainable seafood sourcing policy from major retailers.

5.4 Synthesis

The Table 4 below compiles 19 priority themes that appear in the development programmes and initiatives of the 15 major civil society organisations covered in this Study.

The most frequently mentioned themes include:
– biodiversity (appears in 9 programmes), environment (6), health (4), and climate change (2).
The most frequently mentioned cross cutting issues include:
- economic development (2), and indigenous knowledge system (2).

The less frequently mentioned themes include:
- agriculture and forestry, culture, social and human science, disaster management, energy, fisheries and aquaculture, food security, technology transfer and innovation, waste and pollution management, and water and sanitation.
The less frequently mentioned cross cutting issues include:
- education, governance and policy, private sector development, and sustainable development.

The themes that have a direct link to S&T and appear as top priorities include:
- biodiversity;
- environment;
- health; and
- climate change.

The cross-cutting issues most mentioned that may have present S&T opportunities include:
- economic development; and
- indigenous knowledge system.

Table 4 Linking S&T to development programmes and initiatives of civil society organisations for the Pacific islands

Civil society organisations / Themes and cross cutting issues	1. Conservational International	2. Foundation of the Peoples of the South Pacific International	3. Hawaii Agriculture Research Center	4. Hawaii Association for Marine Education and Research	5. Hawaii Clinical Research Center	6. Hawaii Whale Research Foundation	7. L'Observatoire de l'Environnement en Nouvelle-Calédonie	8. Papua New Guinea Cocoa and Coconut Research Institute	9. Papua New Guinea Institute of Biological Research	10. Papua New Guinea Oil Palm Research Association Inc.	11. Research and Conservation Foundation of Papua New Guinea	12. Société d'Ornithologie de la Polynésie 'Manu'	13. Te mana o te moana	14. The Nature Conservancy	15. WorldWide Fund for Nature	**Total**	Rank
1. Agriculture and Forestry			√													1	7
2. Biodiversity	√			√		√			√		√	√	√	√	√	9	1
3. Civil Society Involvement																	
4. Climate Change	√														√	2	4
5. Crime Management & Terrorism																	
6. Culture, Social & Human Sciences	√															1	7
7. Disabilities																	
8. Disaster Management		√														1	7
9. Earth Sciences																	
10. Economic Development			√					√								2	4
11. Education		√														1	7
12. Energy															√	1	7
13. Environment	√			√			√				√			√	√	6	2
14. Fisheries & Aquaculture															√	1	7
15. Food Security	√															1	7
16. Gender Equality																	
17. Governance & Policy		√													√	2	4
18. Health	√	√			√			√								4	3
19. Human Resource Development																	
20. Human Security																	
21. ICT																	
22. Indigenous Knowledge Systems									√						√	2	4
23. Industrial Sector Development																	
24. Infrastructure Development																	
25. Institutional Capacity Building																	
26. Labour Mobility																	
27. Media Studies																	
28. Mineral Resource																	
29. Microfinancing & Investment																	
30. Private Sector Development & Integration										√						1	7
31. Poverty Alleviation																	
32. Rural Development																	
33. Social Development																	
34. Sustainable Development															√	1	7
35. Technology Transfer & Innovation								√								1	7
36. Tourism																	
37. Trade																	
38. Transport																	
39. Waste & Pollution Management															√	1	7
40. Water & Sanitation	√															1	7

Key: ▒ S&T themes with highest scores ▒ cross cutting issues with highest scores

6. Linking Science and Technology to Divers Development Programmes and Initiatives for the Pacific islands

6.1 Introduction

There are a number of research programmes, special programmes of assistance and initiatives that are dedicated to assisting Pacific islands. Some of these are linked to specific organisations located in the Pacific region, whilst others are managed by agencies outside the region. Some have a specific sector focus, such as mining or marine conservation, whilst others provide funding for a broad range of development sectors such as health, agriculture, fisheries, culture and forestry. A description of the most significant programmes and initiatives that provide support for development of S&T research in the region is outlined below.

6.2 Regional Programmes and Initiatives

6.2.1 Centre National de Recherche Technologique (CNRT) "Nickel and its Environnent"

The National Centre for Technological Research (*Centre National de Recherche Technologique*; CRNT) on Nickel and its Environment is a public interest group venture that was implemented within the framework of the 2006-2010 Development Contract between the French State and the New Caledonian local authorities. The overall objective of this initiative is to pool and manage the knowledge achieved through research programmes and technological development for the sustainable exploitation of nickel resources compatible with the conservation and enhancement of the natural and human environment of New Caledonia. CNRT Nickel and its Environment was established in 2007 as a result of the association of 15 co-founding members. These members are the French State, and the New Caledonian territorial public authorities, relevant research organisations (IRD, UNC, IAC, IFREMER and *Bureau de Recherche Géologiques et Minières*) and professionals from the mining and metallurgical sectors.

Of relevance to S&T research for development, CRNT Nickel and its Environment provides support to basic and applied research related to nickel mining activities in New Caledonia by supporting research programmes and acting as a funding agency. To achieve its goal three thematic components have been defined and on which calls for projects are based. These components are: ***(1)*** nickel and technology; ***(2)*** nickel and society; and ***(3)*** nickel and the natural environment.

6.2.2 Grand Observatoire de l'environnement et de la biodiversité terrestre et marine du Pacifique Sud (GOPS)

To consolidate the French position in the Pacific region that constitutes one of the large reservoirs of biodiversity on the planet, a protocol was signed in 2009 to launch the project to implement an Observatory in the South Pacific for the environment and terrestrial and marine biodiversity (*Grand Observatoire de l'environnement et de la biodiversité terrestre et marine du Pacifique Sud*; GOPS). The founding members of GOPS are the New Caledonia and French Polynesia-based (IRD, IFREMER, IAC, UNC and UPF),

and France-based (University of Pierre and Marie Curie, University of Perpignan, EPHE, CNRS and National Museum of Natural History) academic and science institutions. Later on in the year 2009, ILM and the University of Montpellier also joined the initiative.

Focusing on the theme of terrestrial and marine ecosystems and biodiversity that are affected by the global change and the regional and local anthropic activities, the role of GOPS will be to promote and monitor environmental research in the Pacific, provide training and support environmental surveillance and monitoring networks. Of relevance to PACE-Net, four scientific components of GOPS have been identified. These include observation of ***(1)*** marine systems; ***(2)*** insular terrestrial biodiversity; ***(3)*** climate variability and change; and ***(4)*** evolution and transformation of mode of use and governance of natural resources in the South Pacific.

6.2.3 Hawaii Initiative for Childhood Obesity Research and Education (HICORE)

The Hawaii Initiative for Childhood Obesity Research and Education (HICORE) provides collaborative and multi-disciplinary leadership in research and education on childhood obesity, physical activity and nutrition in Hawaii. HICORE is a collaborative effort of academic and community partners in Hawaii and is based at UH's John A. Burns School of Medicine. Of interest to this Study, HICORE priority areas of research include: ***(1)*** primary and secondary prevention of childhood obesity; ***(2)*** healthcare and health services research related to childhood obesity and nutrition; and ***(3)*** important gaps in evidence about childhood and adolescent obesity.

6.2.4 Micronesia Challenge

The Micronesia Challenge is a regional inter-governmental initiative in the Western Pacific region between Federated States of Micronesia, Marshall Islands, Palau, Guam, and the Commonwealth of the Northern Marianas Islands that aims to facilitate more effective conservation of marine and forest resources in Micronesia. These Pacific island nations have agreed to preserve the natural resources that are crucial to the survival of Pacific traditions, cultures and livelihoods. The overall goal of the Challenge is to effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020, which far exceeds current goals set by international conventions and treaties, which call for countries to conserve 10% of terrestrial and marine resources by 2010 and 2012, respectively.

6.2.5 Pacific Island Roundtables

The Pacific Island Roundtable for Nature Conservation is the Pacific's largest cross-sectoral coalition of organisations working to increase effective conservation action in the region. Formed in 1997 on request from PICTs for stronger collaboration and coordination in conservation initiatives and activities, the PICTs involved in the Roundtable include American Samoa, Cook Islands, Federated State of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna. This partnership mechanism provides a forum in which key stakeholders come together to discuss and develop new ways to address the main issues of nature conservation facing the Pacific islands. The

Roundtable exists as the coordination mechanism of organisations and governments that have a role in implementing the *Action Strategy for Nature Conservation in the Pacific Islands Region 2008 – 2012*.

The Pacific Climate Change Roundtable (PCCR) is a regional climate change forum held once every two years. It is a forum for PICTs, regional and international development agencies and partners; civil society and NGOs, academic and science institutions, and various groups and individuals that are supporting PICTs in responding to climate change issues in the region. The main aim of the Roundtable is to facilitate regional coordination, collaboration and coherence in the implementations of PICTs climate change priorities consistent with PIFACC. PCCR is also the mechanism for monitoring and evaluation of national and regional progress towards the implementation of PIFACC.

6.2.6 Zone Economique de Nouvelle-Caledonie (ZoNéCo)

The Economic Zone of New Caledonia (*Zone Economique de Nouvelle-Caledonie*; ZoNéCo) is a programme that was established in 1991 by the French State, the Government of New Caledonia and its three Provinces, IFREMER and IRD. It aims to study the marine environment in order to consider a rational and sustainable exploitation of New Caledonian marine resources. Today, partner numbers have grown to include the Meteorological Station of New Caledonia (*Météo-France Nouvelle-Caledonia*), UNC, Aquarium of Noumea (*Aquarium de Nouméa*), and the Marine Hydrography and Oceanography Service (*Service Hydrographique et Océanographique de la Marine*; SHOM).

The main objectives of the work conducted under this programme are to: ***(1)*** provide the necessary information to contribute towards sustainable exploitation of living and non-living marine resources in New Caledonian waters and formulation of adequate recommendations to ensure sustainable exploitation of these resources; ***(2)*** assess new possible avenues for economic development in New Caledonia; and ***(3)*** to transfer this know-how to neighboring countries in the Pacific. Of relevance to PACE-Net, ZoNéCo has become a tool for promotion of research activities and development of regional and international co-operation. It calls upon many scientific disciplines, ranging from geology, geophysics, physical oceanography, marine biology and fishery science. For deep-sea research, ZoNéCo calls on French research vessels *L'Atalante* and *Alis*, or foreign ships such the *Tangaroa*. On land, the programme is fully computer equipped for processing and archiving data and for presenting this data in formats that can be readily accessed by development actors and scientists.

6.3 International Programmes and Initiatives

6.3.1 Australian Association for the Advancement of Pacific Studies (AAAPS)

The Australia Association for the Advancement of Pacific Studies (AAAPS) was initiated at a national meeting at ANU in 2004 and was formally established at Queensland University of Technology in 2006 to provide a peak body for all Australian Pacific scholars. The intensity and diversity of Pacific research in Australia was showcased at the association's inaugural conference in Brisbane in January 2006.

AAAPS aims are to: ***(1)*** promote the international excellence of Australian research and teaching in Pacific Studies; ***(2)*** play an advocacy role with the Government, NGOs, schools, business, media and universities of Australia; ***(3)*** promote Pacific Studies and its component disciplines at the undergraduate and postgraduate level; ***(4)*** enhance role of Australian repositories in the collection, preservation and access to Pacific island research, cultural and historical materials; ***(5)*** encourage excellence in the teaching of Pacific Studies through professional development programs for university teachers and specifically the study of Australia-Pacific island relations; and ***(6)*** to establish and maintain links with Pacific communities in Australia and with cognate organisations overseas.

In 2009, AAAPS launched *A National Strategy for the Study of the Pacific*. In this document, AAAPS states that Australia needs a national strategy with funding and coordination to revitalise and develop its understanding and engagement with the region. The document goes on to lay out a blueprint on how to develop more effective regional relationships, and one of its key recommendations is to create an Australia-Papua New Guinea Institute.

6.3.2 Australian and Pacific Science Foundation (APSF)

The Australia and Pacific Science Foundation (APSF) was established initially to sponsor science activities within Australia and was managed by Australian entities. In 2005, sponsorship and management was extended to include projects with components within the Southwest Pacific. In relation to the current Study, APSF encourages high-quality research in activities that seem likely to lead to improved systems of managing land, water, plants, and animals. The ultimate aim is to conserve the natural environment, preserve biodiversity, avoid pollution of soils and water, and enhance human health and welfare.

The Foundation makes seed grants in the biological and biophysical sciences in Australia and the Southwest Pacific region, and supports specific components of large projects financed primarily by other agencies. Grants are awarded to institutions within Australia or other countries of the South West Pacific region for activities within those countries. ASPF also encourages capacity building in the biological sciences in developing countries within the Pacific regions.

6.3.3 Coral Reef Initiatives for the Pacific Programme (CRISP)

The Coral Reef Initiatives for the Pacific (CRISP) is part of the SPC's FAME division and aims to: ***(1)*** improve knowledge of the biodiversity, status and functioning of coral ecosystems; ***(2)*** protect and manage coral ecosystems on a significant scale; ***(3)*** develop the economic potential represented by the use values and biodiversity of coral ecosystems; and ***(4)*** to disseminate information and knowledge, build capacity and leadership with local, national and international network. Established in 2002, CRISP was initially funded by the French government and has subsequently been supported by a number of other donors (*Agence Française de Développement* -AFD, *Fond Français pour l'Environnement Mondial*-FFEM, CI, WWF, United Nations Foundation, IRD and IFRECOR). Designed to facilitate interaction and integration between developed

countries (Australia, New Zealand, Japan and USA), French OCTs and the developing PICs, CRISP comprises the three major components: ***(1)*** marine protected areas and watershed management; ***(2)*** development of coral ecosystems; and ***(3)*** programme coordination and development.

CRISP's major focus is on development rather than research but research is carried out in the development of coral ecosystems component. Of interest to PACE-Net, this component supports knowledge, monitoring and management activities on coral reef ecosystems, reef rehabilitation, bio-prospection and marine active substances, and development of regional data base. A substantial number of research projects have been supported under the CRISP.

6.3.4 Coral Reef Research Foundation (CRRF)

The Coral Reef Research Foundation (CRRF) is a non-for-profit organisation incorporated in the State of California and in Palau. Its purpose is to increase knowledge of coral reefs and other tropical marine environments to allow intelligent conservation and management decisions. CRRF was founded in 1991 by a group of marine biologists as a vehicle to increase understanding of the species, dynamics and inter-relationships of marine environments and their relationship to man. As such CRRF supports both basic and applied marine research with special emphasis on species diversity work, collection for biomedical screening, environmental monitoring, reef fish spawning biology and innovative development of new techniques for marine research work.

CRRF's research laboratory in Palau is the base for research projects of both resident staff and visiting scientists. Of relevance to PACE-Net, CRRF's research programmes are oriented towards the following areas: ***(1)*** dynamics of the marine environment as it relates to conservation decision; ***(2)*** limits of species diversity, community distribution and biogeography; and ***(3)*** monitoring with respect to short to long-term environmental and climate changes.

6.3.5 Coral Triangle Initiative on coral reefs, fisheries and food security (CTI)

The Coral Triangle Initiative on coral reefs, fisheries and food security (CTI) is centered on high-level political commitments and pro-active implementation by governments of the Coral Triangle area. In 2007, the President of Indonesia wrote to other coral triangle Leaders and proposed the creation of CTI as a new multi-lateral partnership to safeguard the region's marine and coastal biological resources. The six countries (Indonesia, Philippines, Malaysia, Timor Leste, Papua New Guinea and Solomon Islands) choose to accept this Initiative and to address in partnership the management, conservation and adaptation to climate change of the tuna fisheries and coral ecosystems in their region. CTI is supported by multilateral and bi-lateral agencies, NGOs, and private sector partners.

In 2009, CTI adopted a 10-year Plan of Action to avert the growing threats to the region's coral reefs, fish, mangroves, vulnerable species and other vital marine and coastal living resources. Within this Plan of Action, there are five overall goals: ***(1)*** designation of priority seascapes and their effective management; ***(2)*** ecosystem approach to managing fisheries and other marine resources; ***(3)*** marine protected areas;

(4) climate change adaptation; and ***(5)*** threatened species. Of interest to PACE-Net, the goals 1, 2, 4 and 5 will include work programme that will cover a wide range of activities including research. More specific research components have been mentioned to develop effective measures in place to help ensure exploitation of shared tuna stocks is sustainable.

6.3.6 Fond Français pour l'Environnement Mondial (FFEM)

The French Facility for the Environment (*Fond Français pour l'Environnement*; FFEM) is a French funding mechanism equivalent to GEF. FFEM was created in 1994 following the Rio Summit as French government's own bi-lateral funding instrument, in addition to its participation to GEF, to help protect the global environment in developing countries and economies in transition. FFEM is mandated to co-finance development projects with strong environmental component in the areas of: biodiversity; greenhouse effect; international waters; land degradation and desertification; and persistent organic pollutants (POPs); and stratospheric ozone layer. In order to develop projects with significant and lasting impact on either of the above-mentioned components of the global environment, FFEM contributes in the form of grants. Running over four-year period with fund of €67 M for each phase, FFEM was provided with €70 M for the fourth period 2007-2010. Since its inception in 1994, FFEM has committed to 193 projects totaling €210 M of direct financing. In the Pacific, FFEM has co-financed CRISP as well as projects like conservation of humpback whale (*Opération Cétacés*), teaching kit on the conservation of turtles of the Pacific (*Te manao te moana*) and agro-biodiversity of root crops and tubercles of Vanuatu.

6.3.7 Fonds Pacifique

The Pacific Fund (*Fonds Pacifique*), also known as the Fund for economic, social and cultural co-operation for the Pacific, was created in 1986 by the French Ministry of Foreign and European Affairs. Administered by the Permanent Secretariat for the Pacific located in New Caledonia, the French Pacific Fund promotes social, economic, scientific and cultural development and regional integration of the three French Pacific OCTs in the Pacific. The themes promoted by the Pacific Fund are: health; sustainable development and the environment; agriculture; good governance; Pacific island culture and heritage; fisheries resources; and regional economic integration. These themes are inspired by the main guidelines set out by the French Ministry of Foreign Affairs for relations with the Pacific. However, they also reflect the priorities of the French Pacific OCTs and those of the Pacific Plan. The Fund usually requires co-funding for all operations and seek to strengthen co-operation with others donors such as the EU, Australia or New Zealand, that are very active in this part of the world. Also, the Pacific Fund gives preference to projects that involve establishments of the French Pacific OCTs such as enterprises, research centres and universities as well as the organisations that have regional influence.

Of interest to PACE-Net, during the period 2007 to 2009, the French Pacific Fund supported a number of projects involving S&T research for development. Examples of these project supported in the past include: ***(1)*** a Pacific medical entomology study; ***(2)*** diabetes trials in Wallis and Futuna; ***(3)*** research to reduce maternal and neonatal mortality in rural areas of Vanuatu; ***(4)*** conservation of Pacific banana genetic material;

(5) regional tuna tagging research; ***(6)*** investigating adaption to climate change and ensuring food security through crop genetic diversity research ***(7)*** a study to prevent and manage of little fire ants; and ***(8)*** fish waste processing trial in New Caledonia.

6.3.8 Global Climate Change Alliance (GCCA)

The Global Climate Change Alliance (GCCA) is an initiative of the EU set up in 2007. Its overall objective is to build a new alliance on climate change between the countries of EU and the poor developing countries that are most affected and that have the least capacity to deal with this phenomenon. GCCA works through the EC's established channels for political dialogue and cooperation at national and international level. The criteria to beneficiary countries builds on the Bali Action Plan (2007) that emphasises the need for enhanced action on adaptation, in particular with Least Developed Countries (LCDs), SIDS and countries of Africa that are affected by drought, desertification and flooding. Therefore, the primary target groups of GCCA, are LDCs and SIDS, the underlying assumption being that these are the countries which are most vulnerable to the impacts of climate change, and which have the least resources, both human and financial, to address those challenges.

GCCA regional dialogue has resulted in Joint Declarations on climate change between: the EU and Asia (2010); EU and the Caribbean (2008); EU and the Pacific (2008); EU and Africa (2008); and EU and ACP countries (2009). Assistance provided under this Initiative focuses on five thematic areas: ***(1)*** adaptation that require in-depth research on the likely effects of climate change and reliable climate observation and translation of this information for use by policy and decision makers; ***(2)*** reducing emissions from deforestation and degradation by creating incentives for forest protection, while preserving livelihoods and ecosystems depending on forests; ***(3)*** helping poor countries take advantage from the global carbon market; ***(4)*** helping poor countries to be better prepared for natural disasters; and ***(5)*** integrating climate change into development cooperation and poverty reduction strategies. The first four themes carry relevance to PACE-Net.

6.3.9 Global Island Partnership (GLISPA)

The Global Island Partnership (GLISPA) assists islands in addressing one of the world's greatest challenges; to conserve and utilise sustainably the insular natural resources that support people, cultures, and livelihoods of island nations around the world. This Initiative brings together island nations and nations with islands to: ***(1)*** mobilise leadership; ***(2)*** increase resources; and ***(3)*** to share skills, knowledge, technologies and innovations in a cost-effective and sustainable way that will catalyze action for conservation and sustainable livelihoods on islands. Since its inception in 2005, GLISPA has engaged Leaders from all over the world. More than 60 governments of SIDS, large island countries, countries with islands, overseas territories, as well as multi- and bi-lateral agencies, and international, national and regional organisations have worked with GLISPA to advance high-level commitments and on the ground action for island conservation and sustainable use of natural resources. Without formal structure or dedicated staffing, GLISPA has helped catalyse more than USD70 M in commitments to island conservation. GLISPA also concentrates on adding value to existing networks and initiatives.

GLISPA is officially recognised by the Convention on Biological Diversity (CBD) as one of the mechanisms to implement its Island Biodiversity Programme of Work. It has also been included within the GEF Biodiversity Strategy to help address high priority issues in island states, such as marine protected areas and invasive alien species. Of interest to S&T themes of PACE-Net, GLISPA recognizes that the most urgent environmental issues on islands include: destruction of coral reefs and mangroves, land degradation, invasive species, climate change and sea-level rise, endangered species, waste disposal and air and water pollution.

6.3.10 Initiative Française pour les Récifs Coralliens (IFRECOR)

The French Coral Reef Initiative (*Initiative Française pour les Récifs Coralliens*; IFRECOR) is a French national initiative for its OCTs with coral reefs (New Caledonia, French Polynesia and Wallis and Futuna). This Initiative was created in 1999 to encourage a sustainable development *via* the protection and sustainable management of coral reefs. IFRECOR encompasses all actions and measures concerning the protection and sustainable management of coral reefs of French OCTs.

IFRECOR's Plans of Action, which follow the Framework for Action of the International Coral Reef Initiative (ICRI), is divided into 6 components; one of which is to develop research, monitoring and decision-making tools on sustainable management of coral reef. Internationally, the Initiative serves to promote French expertise on coral reef sustainable management research and encourages international research collaboration in the field.

6.3.11 International Climate Change Adaptation Initiative (ICCAI)

In 2008, the Australian government launched the International Climate Change Adaptation Initiative (ICCAI) to meet high-priority adaptation needs of vulnerable countries in the Asia and the Pacific region, especially PICs (Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) and East Timor. This Initiative comprises four inter-related components to deliver a coordinated package of development assistance; one of which is improved scientific information and understanding on climate change impacts on the natural and socio-economic systems of PICs. The Pacific Climate Change Science Programme (PCCSP) is a key activity of ICCAI in the Pacific that supports this component.

PCCSP is working with partner countries to: ***(1)*** track and analyse recent climate trends; **(2)** investigate regional climate drivers; ***(3)*** investigate past and future changes in ocean processes, ocean acidification, regional sea level rise and extreme sea level events; and ***(4)*** prepare regional and national climate projection for 2030, 2055 and 2090. This research is being conducted through a partnership between Australian science agencies, principally the Bureau of Meteorology, the CSIRO and the Centre for Australian Weather and Climate Research. The programme also works in close co-operation with regional Pacific organisations including SPREP, SPC, SOPAC and USP.

Of further relevance to PACE-Net, PCCSP is assisting the Pacific region address two of the key principles of PIFACC 2006-2016.The first is to improve the understanding of climate change, *i.e.* how the climate and oceans have change and how they may change in the future and second is to provide education, training and awareness on the issue.

6.3.12 International Coral Reef Initiative (ICRI)

The International Coral Reef Initiative (ICRI) is a unique partnership among countries and organisations seeking to implement Chapter 17 of Agenda 21 (and other international conventions and agreements) for the benefit of coral reefs and related ecosystems. It brings all the stakeholders together with the objective of sustainable use and conservation of coral reefs for future generation.

ICRI's Call for Action and Framework for Action, elaborated in 1995, was adopted by more than 80 countries out of over 100 that have coral reefs. In the Pacific, PICs that are or were involved in this Initiative include Fiji, Samoa and Palau, while three Pacific OCTs (New Caledonia, French Polynesia and Wallis and Futuna) represented by the membership of France have each implemented ICRI at national-level, known as IFRECOR.

Of relevance to PACE-Net is the research and monitoring component of ICRI. This component identified as essential to managing coral reef ecosystems for the benefit of humankind supports research and monitoring programmes, projects or activities as well coordination and cooperation activities amongst research programmes and networks.

6.3.13 Joint Pacific-Europe Initiative on Climate Change

In the 2010, PIF and EU launched the Joint Pacific-EU Imitative on Climate Change through signature of a MOU. This Joint Initiative is intended to enhance and take forward the partnership between the Pacific ACP countries and the EC, building on and further complementing and strengthening the 2008 Joint Declaration on Climate Change and GCCA. The scope of this Initiative includes to: build stronger political dialogue on climate change; contribute to making Pacific-EU cooperation on climate change more effective; and to mobilise and support the effective coordination of international efforts on climate change around the Pacific.

Under more effective co-operation between the Pacific and the EU and of interest to PACE-Net, the Joint Initiative is intended to: ***(1)*** support efforts to reduce risks resulting from climate-charge-related natural disasters and to adapt to climate change in the region, aiming in particular at increasing local capacities in these areas; ***(2)*** support, where appropriate, mitigation efforts and strengthen efforts to implement appropriate sustainable climate change adaptation programmes in agriculture, environment, fisheries, forestry, human health, human settlements planning, education, water supply and sanitation, infrastructure and climate change statistics and indicators, to safeguard and enhance food security, ecosystem resilience and use of ecosystems to ensure a sustainable livelihood at national and regional levels; ***(3)*** address the special needs of Pacific SIDS, and low-lying atoll islands of larger Pacific ACP countries; ***(4)*** strengthen regional capacities in the area of renewable energy and energy efficiency; ***(5)*** strengthen the voice of civil society and their active participation in addressing climate change

issues; ***(6)*** address climate change in a comprehensive and strategic manner and also with respect to security and potential conflicts linked to natural disasters and climate change; ***(7)*** strengthen research cooperation and technological development on climate change; and ***(8)*** to strengthen research and development and capacity building efforts to build human capital in Pacific ACP countries to address and sustain climate change programmes in the Pacific.

Of further relevance to the current Study, this Joint Initiative recognises the need for new and additional resources for action on climate change to help implement PIFACC 2006-2015 at national, regional and international levels with particular attention to the following immediate priorities to: ***(1)*** support Pacific ACP country-identified adaptation programmes; ***(2)*** improve conservation and management of natural resources and ecosystems; ***(3)*** support Pacific ACP countries to introduce and maintain renewable energy and energy efficiency measure; ***(4)*** assist the development of regional, national and local expertise for research and development on climate change; ***(5)*** build Pacific ACP countries' capacities to undertake mitigation of and adaptation to global climate change impacts; and ***(6)*** to ensure the sound and efficient management of such new and additional resources.

6.3.14 Pacific Environment Community (PEC) Fund

In May 2009, PIF Leaders met with the Government of Japan at the 5th Pacific Island Leaders Meeting (PALM 5) in Japan where the Islanders' Hokkaido Declaration was issued to reaffirm Leaders' commitment to collaborate and co-operate on a wide range of issues. A significant part of the Declaration included the launch of the Pacific Environment Community (PEC) Fund, under which Japan provided approximately USD66 M contribution to PIF countries to tackle environmental issues. This Fund is be used to support projects scoping from: climate change; water and sanitation; waste management & 3Rs (Reduce, Reuse, Recycle); biodiversity; and environmental education with a focus on projects in solar power generation systems and sea water desalination plants. A PEC project management unit has been set up at the PIFS tasked with administering and managing the Fund.

6.3.15 Pacific Invasive Initiative (PII)

The Pacific Invasive Initiative (PII), established in 2004, is a regional programme of the Cooperative Initiative on Invasive Alien Species on Islands ('The Cooperative Islands Initiative' or CII). CII is a global initiative that was launched by the Government of New Zealand and the Invasive Species Specialist Group (ISSG) of the International Union for Conservation of Nature (IUCN) at CBD's 6th Conference of the Parties in 2002 following calls from island countries and countries with islands for more efforts to manage invasive species. CII was then endorsed as a Type II Partnership at the WSSD in Johannesburg.

PII was established as the first regional programme of CII and was also the first formal invasive species partnership in the Pacific. Funded by NZAID, David and Lucile Packard Foundation and the Critical Ecosystem Partnership Fund (CEPF) and based at the University of Auckland, PII includes a multi-disciplinary team of invasive species specialists that works extensively with Pacific agencies and leverages New Zealand

expertise. Its mission is to strengthen the capacity of PICTs to effectively manage invasive species threats by providing technical support and advice, specialist assistance, peer review, planning assistance, training and skill sharing and information. PII works with various agencies of PICTs (government, NGO, community-base organisations and Pacific Invasive Learning Network teams) to develop or participate in programmes, projects or activities that contribute to achieve its objective.

6.3.16 Pacific Ocean 2020 Challenge

The Pacific Ocean 2020 Challenge is an initiative that was launched in 2008, a decade after the International Year of the Ocean, to re-invigorate attention to the Pacific Ocean. The target of the Challenge is to achieve a healthy, sustainable and productive Pacific Ocean by the year 2020.

Distinct from a number of regional initiatives such as the Pacific Island Oceanscapes, PIROP, CTI and the Micronesian Challenge, this Initiative utilises a trans-boundary approach, spanning geographic areas beyond the traditional 'Pacific region.' It calls on and brings together governments, development partners, NGOs and communities of all countries on the Pacific Ocean rim and the Pacific islands to: ***(1)*** commit to the sustainable management of the Pacific Ocean; ***(2)*** build on existing Pacific Ocean management and conservation efforts to develop a comprehensive governance framework to manage the Pacific Ocean; and to combine scientific research with economic valuation and governance reviews to produce comprehensive strategic actions towards fulfilling its mission. Endorsed by various Pacific islands and supported by various CROP agencies and key regional NGOs, the Challenge is facilitated by IUCN Oceania and includes Center for Ocean Solution, World Future Council and CI as key partners.

6.3.17 South Pacific Sea Level and Climate Monitoring Project (SPSLCMP)

The South Pacific Sea Level and Climate Monitoring Project (SPSLCMP) is an Australian government initiative, funded by AusAID. Developed in 1991 as an Australian government response to concerns raised by member countries of the South Pacific Forum (now PIF) over the potential impacts of human-induced global warming on climate and sea levels in the Pacific region, SPSLCMP aims to enable these island nations to better manage their own environments and to contribute to achieving sustainable development.

Its primary goal is to generate an accurate record of variance in long-term sea level for the South Pacific and to establish methods to make these data readily available and usable by PICs. The key partner agencies of the 12 PICs participating to the project include: national meteorological services, lands and survey organizations, environmental planning and management agencies, ports and harbour authorities, fisheries and agricultural departments and educational institutions.

Divided into four operational phases, the first two phases of the project (1991 - 2000) established sea level and meteorological monitoring stations at 11 sites (Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu and Samoa). During the third stage (2001–2005), another station was

established in the Federated States of Micronesia and continuous GPS were installed in many of the above locations to monitor the islands' vertical movements. Processed and analysed data has since been made available to partner countries and the international scientific community, and information products and training to assist with the interpretation of the data have been provided to targeted groups in PICs. In the fourth phase (2006–2010), managed and operated by the Australian Bureau of Meteorology in partnership with AusAID, SOPAC, Geosciences Australia and National Meteorological Services within PICs, data collection, analysis, storage, dissemination and training continued.

6.3.18 *Global Environment Facility (GEF)*

The Global Environment Facility (GEF) is an independent financial instrument that provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and POPs. Established in 1991, GEF is today the largest funder of projects to improve the global environment. It unites 182 member governments - in partnership with international institutions, NGOs, and the private sector. GEF also serves as financial mechanism for the following conventions: CBD; UN Framework Convention on Climate Change; Stockholm Convention on POPs; UN Convention to Combat Desertification; and supports implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer in countries with economies in transition.

GEF-funded projects benefit the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods. In the Pacific region, there are number of GEF-funded projects. To name a few: CTI; Prevention, control and management of invasive alien species in the Pacific islands; Implementing sustainable integrated water resource and wastewater management in PICs; Pacific adaptation to climate change project; p Pacific islands greenhouse gas abatement through renewable energy project; and the Oceanic fisheries management project that aims to achieve global environmental benefits by enhanced conservation and management of transboundary oceanic fishery resources in the Pacific islands region. These multi-million dollar, multi-year and multi-country projects all have a significant S&T research for development research component that contributes to the project's outcomes and is therefore consistent with PACE-Net aims and objectives.

6.3.19 Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)

The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) is a financial instrument that was established in 2002 to dramatically increase global financing for interventions against two pandemic diseases (AIDS and tuberculosis) and malaria an endemic disease of the tropics. The largest international funding agency, GFATM provides 67% and 20% of all international funding to combat, respectively malaria and tuberculosis, and HIV/AIDS. Commonly called "The Global Fund," it is a global public/private partnership between governments, civil society, private sector and affected communities dedicated to attracting, managing and disbursing additional resources to prevent and treat HIV/AIDS, tuberculosis and malaria in countries in need, and contributing to poverty reduction as part of the MDGs. The Global Fund also works

in close collaboration with other bi-lateral and multi-lateral organisations to supplement existing efforts dealing with these three diseases.

GFATM pursues an integrated and balanced approach covering prevention, treatment, and care and support in dealing with the three diseases. The Fund also supports operational research in the context of programme implementation.

In the Pacific region, the Global Fund has funded a number of projects. To name a few: Pacific Islands regional multi-country coordinated tuberculosis project; Pacific islands regional multi-country coordinated HIV/AIDS project; Pacific islands regional multi-country coordinated Malaria project; Pacific islands regional multi-country coordinated Tuberculosis project, Papua New Guinea country coordinating HIV mechanism; Multi country response to malaria in the Pacific; Multi-country consolidated programme to fight malaria; Multi-country consolidated programme to fight HIV/AIDS; and Multi-country consolidated programme to fight tuberculosis.

6.3.20 Island Biodiversity Programme of Work

At its 8th meeting in 2006, the Conference of the Parties to the CBD adopted the first-ever programme of work dedicated solely to the uniqueness and fragility of island biodiversity. This Programme of Work (PoW) recognizes that all islands, in particular, SIDS: rely on biodiversity for sustainable development; have close links between culture and environment; have special concerns and particular vulnerabilities; have limited land area; have high levels of endemism; and extensive coastal and marine biodiversity. Therefore, the Island Biodiversity PoW aims to reduce significantly the rate of island biodiversity loss by 2010 and beyond, as a contribution to poverty alleviation and the sustainable development of islands, particularly SIDS. Of relevance to PACE-Net the PoW The programme of work sets out 50 island-specific priority actions arranged under 11 goals, which are in turn organized under seven focal areas. These focal areas and goals are described below:

"Focal Area 1: Protect the component of biodiversity
Goal 1: Promote the conservation of the biological diversity of island ecosystems, habitats and biomes
Goal 2: Promote the conservation of island species diversity
Goal 3: Promote the conservation of island genetic diversity
Focal Area 2: Promote sustainable use
Goal 4: Promote sustainable use and consumption
Focal Area 3: Address threats to biodiversity
Goal 5: Pressures from habitat loss, land-use change and degradation, and sustainable water use, reduced on islands
Goal 6: Control threats to island biological diversity from invasive alien species
Goal 7: Address challenges to island biodiversity from climate change, and pollution
Focal Area 4: Maintain goods and services from biodiversity to support human well-being
Goal 8: Maintain capacity of island ecosystems to deliver goods and services and support livelihoods
Focal Area 5: Protect traditional knowledge and practices
Goal 9: Maintain socio-cultural diversity of indigenous and local communities on islands

Focal Area 6: Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources
Goal 10: Ensure the fair and equitable sharing of benefits arising out of island genetic resources
Focal Area 7: Ensure provision of adequate resources
Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention"

6.4 Synthesis

The Table 5 below compiles 22 priority themes that appear in the 26 divers development programmes and initiatives covered in this Study.

The most frequently mentioned themes include:
- biodiversity (appears in 18 programmes or initiatives), climate change (12), environment (10), fisheries and aquaculture (8), and agriculture and forestry (6).

The most frequently mentioned cross cutting issues include:
- sustainable development (12), governance and policy (7), and economic development (6).

Other frequent themes were:
- disaster management, energy, health, mineral resource, technology transfer and innovation, waste and pollution management, and water and sanitation.

Other frequent cross cutting issues were:
- human resource development, and social development.

The less frequently mentioned themes include:
- culture, social and human sciences, and food security.

The less frequently mentioned cross cutting issues include:
- indigenous knowledge systems, infrastructure development, and poverty alleviation.

The themes that have a direct link to S&T and appear as top priorities include:
- biodiversity;
- climate change
- environment;
- fisheries aquaculture; and
- agriculture and forestry.

The cross-cutting issues most mentioned that may have present S&T opportunities include:
- sustainable development;
- governance and policy; and
- economic development.

Table 5: Linking S&T to divers development programmes and initiatives for the Pacific islands

Themes and cross cutting issues \ Divers development programme and initiatives	1. Australian Association for the Advancement of Pacific Studies	2. Australian and Pacific Science Foundation	3. Centre National de Recherche Technologique "Nickel and its Environment"	4. Coral Reef Initiatives for the Pacific	5. Coral Reef Research Foundation	6. Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security	7. Fond Français pour l'Environnement Mondial	8. Fonds Pacifique	9. Global Climate Change Alliance	10. Global Island Partnership	11. Grand Observatoire de l'environnement et de la biodiversité terrestre et marine du Pacifique Sud	12. Hawaii Initiative for Childhood Obesity Research and Education	13. Initiative Française pour les Récifs Coralliens	14. International Climate Change Adaptation Initiative	15. International Coral Reef Initiative	16. Joint Pacific-Europe Initiative on Climate Change	17. Micronesia Challenge	18. Pacific Environment Community Fund	19. Pacific Invasive Initiative	20. Pacific Ocean 2020 Challenge	21. Pacific Island Roundtables	22. South Pacific Sea Level and Climate Monitoring Project	23. The Global Environment Facility	24. The Global Fund to Fight AIDS, Tuberculosis and Malaria	25. The Island Biodiversity Programme of Work	26. Zone Economique de Nouvelle-Calédonie	Total	Rank
1. Agriculture & Forestry		√			√		√		√	√			√			√											6	7
2. Biodiversity		√	√	√	√	√	√			√	√		√		√	√	√	√	√	√	√		√		√		18	1
3. Civil Society Involvement																													
4. Climate Change					√	√		√	√	√	√			√		√		√			√	√	√				12	2
5. Crime Management & Terrorism																													
6. Culture, Social and Human Sciences	√							√																			2	18
7. Disabilities																													
8. Disaster Management									√					√		√											3	12
9. Earth Sciences																													
10. Economic Dev.			√	√				√												√					√	√	6	7
11. Education																													
12. Energy																√		√						√			3	12
13. Environment		√	√	√	√		√	√		√	√					√		√									10	4
14. Fisheries & Aquaculture		√				√	√	√								√				√				√		√	8	5
15. Food Security								√								√											2	18
16. Gender Equality																													
17. Governance and Policy			√	√					√					√	√					√						√	7	6
18. Health		√						√				√				√									√		5	9

Key: ▭ S&T themes with highest scores ▭ cross cutting issues with highest scores

Divers development programme and initiatives / Themes and cross cutting issues	1. Australian Association for the Advancement of Pacific Studies	2. Australian and Pacific Science Foundation	3. Centre National de Recherche Technologique "Nickel and its Environnent"	4. Coral Reef Initiatives for the Pacific Programme	5. Coral Reef Research Foundation	6. Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security	7. Fond Français pour l'Environnement Mondial	8. Fonds Pacifique	9. Global Climate Change Alliance	10. Global Island Partnership	11. Grand Observatoire de l'environnement et de la biodiversité terrestre et marine du Pacifique Sud	12. Hawaii Initiative for Childhood Obesity Research and Education	13. Initiative Française pour les Récifs Coralliens	14. International Climate Change Adaptation Initiative	15. International Coral Reef Initiative	16. Joint Pacific-Europe Initiative on Climate Change	17. Micronesia Challenge	18. Pacific Environment Community Fund	19. Pacific Invasive Initiative	20. Pacific Ocean 2020 Challenge	21. Pacific Island Roundtables	22. South Pacific Sea Level and Climate Monitoring Project	23. The Global Environment Facility	24. The Global Fund to Fight AIDS, Tuberculosis and Malaria	25. The Island Biodiversity Programme of Work	26. Zone Economique de Nouvelle-Caledonie	Total	Rank
19. Human Resource Development		√															√									√		3	12
20. Human Security																													
21. ICT																													
22. Indigenous Knowledge Systems																										√		1	20
23. Industrial Sector Development																													
24. Infrastructure Development																	√											1	20
25. Institutional Capacity Building																													
26. Labour Mobility																													
27. Media Studies																													
28. Mineral Resource			√			√																					√	3	12
29. Microfinancing & Investment																													
30. Private Sector Development & Integration																													
31. Poverty Alleviation									√																			1	20
32. Rural Development																													
33. Social Development		√	√														√											3	12
34. Sustainable Development			√	√				√	√	√			√		√	√				√				√		√	√	12	2
35. Technology Transfer & Innovation			√		√											√												3	12
36. Tourism																													
37. Trade																													
38. Transport																													
39. Waste & Pollution Management		√	√							√						√							√				5	9
40. Water & Sanitation		√								√						√		√					√				5	9

Key: S&T themes with highest scores cross cutting issues with highest scores

7. Linking Science and Technology to Cooperation for Development Programmes of Donor Agencies for the Pacific islands

7.1 Introduction

Ever since their independence, PICs have been, on a per capita basis, among the world's top ten recipients of Official Development Assistance (ODA). On average, PICs receive levels of aid that are significantly higher than those of other countries in the world at similar levels of income. The large majority of this financing has been in the form of grants.

In recent years, a number of donor agencies have recognised the importance of S&T research in spurring creative and effective development solutions in developing countries, and have therefore incorporated this element in their strategies for cooperation. The purpose of this Chapter is to identify the S&T themes and activities that are supported by the major bilateral and multilateral donors in the Pacific and their relevance to the PACE-Net project.

7.2 Bi-lateral Aid Agencies

Bi-lateral aid agencies are organisations that the government of one country uses to channel funds for development assistance to the government of another country. In designing bi-lateral aid programmes for a specific country, normally the donor government aid agency works closely with the country's government and its communities in order to make sure that each bi-lateral programme reflects the recipient country's development priorities. Bi-lateral aid programmes can incorporate a wide range of short-term or multi-year activities, including small community-based projects to components of large regional development schemes. Typical bi-lateral aid programmes contain development assistance activities such as project aid, programme aid, budget support, sector-wide approaches (SWAPs), food aid, untied aid, tied aid, technical assistance and research grants. Bi-lateral aid agencies ensure that the kind of activities mentioned above reflect the donor country's aid policies and capacity to provide the assistance required.

In the Pacific, more than 85% of per capita ODA is bi-lateral, with Australia, New Zealand, France, United States and Japan as leading donors (Table 6). The bulk of United States' funding in the Pacific region goes to the Freely Associated States, such as the

Table 6: Top five ODA donors to Pacific countries and territories (Net disbursements in 2008)

Rank	Country	Amount (USD million)
1	Australia	724
2	United States	188
3	New Zealand	156
4	France	148
5	Japan	73

(Source: Organisation for Economic Co-operation and Development 2010)

Marshall Islands and the Federated States of Micronesia. Australian aid is directed primarily at Melanesian states, while New Zealand aid also flows to Polynesian

countries. In the past decade, France and Japan reportedly have increased their development assistance in the region, while Australia and New Zealand have added conditions on aid and United States has cut back on their programmes. Some sources estimate that China has become the third largest provider of foreign assistance in the region. However, China is not normally included in rankings of major aid donors because its aid differs fundamentally in purpose and character and generally lacks transparency. Furthermore, the Chinese government does not release foreign aid data.

As mentioned above, countries providing the majority of bi-lateral aid to the Pacific region include Australia, New Zealand and Japan. Below is a description of the agencies they support and their contribution to S&T research for development in the Pacific region.

7.2.1 Australia

The Australian government's overseas aid programme has a budget of AUD4.3 B worth of ODA over 2010 - 2011. From this budget, AUD1.08 B has been earmarked for PICs to continue to enhance Australia's engagement in the region, as outlined in the 2008 Port Moresby Declaration. The Australian aid programme is organised around four interlinked themes: ***(1)*** accelerating economic growth; ***(2)*** fostering functioning and effective states; ***(3)*** investing in people; and ***(4)*** promoting regional stability and cooperation. It supports the Pacific through both bi-lateral and regional programmes. Of the Australian agencies that administer these funds, AusAID and the Australian Centre for International Agricultural Research (ACIAR) manage the majority.

AusAID is the primary agency for the delivery of Australia's ODA in the Pacific region. It has offices in Fiji, Federated States of Micronesia, Nauru, Solomon Islands, Tonga, and Papua New Guinea. Its objective, in line with Australia's national interest, is to assist developing countries reduce poverty and achieve sustainable development through economic growth, strong governance and strong and sustainable communities. The priority areas for bi-lateral assistance programme are agreed with each government within a Partnership for Development that provides a framework for Australia to commit jointly with PICs to make more rapid progress towards the MDGs and their national development objectives. In this context, the Port Moresby Declaration suggests a wide range of possible inclusions within the Partnerships, including measures aimed at: ***(1)*** improving infrastructure and broad-based economic growth; ***(2)*** enhancing private sector development; ***(3)*** achieving quality universal basic education; ***(4)*** improving health outcomes; and ***(5)*** enhancing governance, and the role of civil society, and NGOs in basic service delivery.

AusAID is currently working with 11 PICs (Cook Islands, Fiji, Kiribati, Federated States of Micronesia, Palau, Nauru, Niue and Tokelau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) who have signed the Partnerships for Development and is providing assistance in the following key areas: health including maternal health, HIV and AIDS; education and training for human resource development; law and justice; private-sector-led growth; institutional strengthening; gender equality; improved infrastructure for water and sanitation, and transport; and environmental sustainability as well as emergency and humanitarian response.

Through its Pacific regional programme of aid, Australia is committed to building strong relationships with Pacific regional organisations and other multi-lateral development agencies that address the Pacific's development challenges. This programme supports the Government's Pacific Engagement Strategy as outlined in Port Moresby Declaration, and the Pacific Plan. The priorities addressed in the Pacific regional programme include: ***(1)*** reducing poverty and improving outcomes in areas such as health, education and gender; ***(2)*** improved transparency and accountability in government; ***(3)*** stronger broad-based growth through trade, infrastructure and private sector development; and ***(4)*** improved law and justice and security. Australia is also co-operating with the Pacific region to meet the challenges of climate change and sustainable management of resources *e.g.* PCCSP programme. Current areas of focus under the regional aid programmes include: governance; capacity building; land and fisheries resources; and disaster response.

In relation to S&T research for development and of relevance to PACE-Net, AusAID has a well defined development research strategy. It ensures increased funding for research across important thematic areas of the above aid programmes. Australia recognises that research is important to support the effectiveness of its aid programmes, inform AusAID's and partner countries' policies and programmes and to build capacity of researchers and research users. To this end, AusAID and CSIRO have recently formed the Research for Development Alliance. The Alliance unites AusAID's depth of experience in development assistance in the Pacific with CSIRO's strength in research. The three key initial focal areas for Alliance projects include: responding to climate change; integrated water management and sustainable urbanisation and energy; and food security issues

ACIAR is an Australian government statutory authority within the portfolio of the Department of Foreign Affairs and Trade. It contributes to the aid programme objectives of advancing Australia's national interest - poverty alleviation and sustainability - by achieving more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships. Research is not carried out by ACIAR itself; rather it plans, funds and manages projects which are carried out by public sector groups including universities, state departments and other research providers such as CSIRO, in partnership with their counterparts in developing countries. The 2010 - 2011 ACIAR budget is AUD68.3 M, of which AUD12.39 M is earmarked for the Pacific island region.

ACIAR's programme in the PICs concentrates on Solomon Islands, Samoa, Tonga, Vanuatu, Fiji and Kiribati, and works through regional organisations where appropriate. It recognises the need to address individual PIC priorities arising from differences in climate and soils, availability of natural resources, institutional capacity, infrastructure and potential for economic growth, while at the same time recognising that many challenges are common and best addressed through regional collaboration. In 2010, ACIAR supported 31 S&T research for development and capacity building projects in the Pacific region that address: ***(1)*** improved food and nutritional security; ***(2)*** integrated and sustainable agriculture, fisheries and forestry resources management and development; and ***(3)*** improved biosecurity and increased trade in agriculture, fisheries and forestry products.

7.2.2 France

The French government's international agency for development assistance is known as the Directorate-General for Development and International Co-operation (DGCID) which supports four main development assistance approaches: ***(1)*** development aid through co-operation; ***(2)*** promoting scientific and academic co-operation; ***(3)*** humanitarian action; and ***(4)*** fight against terrorism. While promoting scientific and technical exchanges, France is also keen to increase cultural exchanges and the use of the French language.

France is the only member of EU present in the Pacific island region through its OCTs – French Polynesia, New Caledonia and Wallis and Futuna. France maintains a steady dialogue with the 16 independent Pacific island states. Its bi-lateral contribution is through its financing of EDF, which stands at €26 M per year. It supports sustainable development in the region, focusing on the following main lines: management training/education, sound governance/security, the environment/natural resource management - in growing partnership with the 16 states of PIF, SPC and other regional technical organisations of the Pacific and with ongoing dialogue with Australia and New Zealand.

According to the Co-operation and Cultural Policy of the Embassy of France in Fiji, France assists with the development within the Pacific, from exchanges involving students, teachers and experts, from the numerous conferences, seminars, and research and development projects as well as the creation of new university and research centres thorough the Pacific Fund and postgraduate student scholarships. Of relevance to PACE-Net, the these development funds provide research grants to students and professionals of the Pacific island region in areas which contribute to the: ***(1)*** promotion of marine, island and coastal diversity, whether it involves protection of the environment or the better adaptation of human activities therein; ***(2)*** the development of prevention of sanitary risks and medical expertise as well as the training of engineers; and ***(3)*** the field of social and human sciences, economic sciences and management studies, political science studies and media studies.

The French Development Agency (*Agence Française de Développement*; AFD), established in 1941, is a bi-lateral development finance institution that works on behalf of the French government. It operates within a strategic framework defined by four French ministries that oversee its affairs: Foreign and European Affairs; Economy, Industry and Employment; Immigration, Integration, National Identity and Mutually-Supportive Development and Interior, Overseas and Territorial Collectivities. Its mission is to finance development according to France's Overseas Development Assistance policies. AFD's strategy addresses five priority sectors: health; education and vocational training; agriculture and food security; sustainable development and climate change; and support for economic growth.

AFD aims at reducing poverty and inequalities, promoting sustainable economic growth, and protecting "global public goods" of benefit to all humanity. Protecting global public goods includes: fight against climate change and pandemics; preservation of biodiversity; promotion of social and environmental responsibility; as well as aid to countries weakened by strife, war and natural disasters. Hence, it supports social, economic and environmental projects in diverse sectors as rural development, urban infrastructure, transportation, agriculture, education, banking and microfinance, energy,

health care, telecommunications, mining, housing, and eco-tourism. AFD's actions in favor of economic growth and preservation of the environment fall directly within the framework of UN's MDGs, that seeks to reduce global poverty by half by the year 2015.

AFD operates in more than 70 countries worldwide including Africa, Asia, and Mediterranean area, the Middle East, Latin America and the Caribbean as well as the French Pacific OCTs. It works hand-in-hand with many partners: national; regional and local governments; local authorities and municipalities; international agencies; NGOs; foundations; private companies; entrepreneurs; local banks; microfinance institutions and capital markets to achieve its goals. In 2009, AFD committed over €6.2 B to more than 60 developing countries. It uses a wide range of financial instruments to underwrite its activities; grants, subsidies, guarantees, loans, equity shareholdings, co-financing and local bank intermediation. In addition to leveraging financial assets, AFD leverages its intellectual assets and those of its partners. Through its activities, research and debates, AFD strives to increase French influence in the area of development assistance.

In the Pacific, AFD contributes to the sustainable development of the economies of the French OCTs, including New Caledonia, French Polynesia and Wallis and Futuna by financing core investments made by local authorities and supporting private sector growth and competitiveness. Beyond this role as a financier, AFD contributes to defining and implementing the economic, social or environmental strategies of the different local actors. The Agency also offers its expertise to local authorities of OCTs to finance their water and sanitation, waste management and energy-efficient urban development projects. In the rest of the region, AFD is giving more and more emphasis on the regional cooperation through initiatives concerning the environment, *e.g.* CRISP (a regional initiative of protection of coral reefs of several countries of the zone) and the Regional initiative for solid waste management in the Pacific co-prepared with United Nations Environmental Programme (UNEP). AFD also administrates the FFEM. Furthermore, under the Framework Partnership Document signed between Vanuatu and France that confirms France's commitment to Vanuatu's sustainable development and actions for the period 2006-2010 (Vanuatu is the only country in the South Pacific to benefit from this innovative instrument), AFD is responsible for implementing projects in selected priority sectors of education and agriculture.

7.2.3 Japan

The Japan International Co-operation Agency (JICA) is the main agency managing a large part of Japan's grant aid. It employs technical cooperation, ODA loans and grant aid to support: ***(1)*** policy and institutional improvements in developing countries; ***(2)*** human resources development and capacity building; and ***(3)*** improvements in infrastructure.

The Japanese assistance actions span from prevention of armed conflict and natural disasters to emergency aid following a conflict or disaster, assistance for prompt recovery and mid- to long-term development assistance. Of relevance to PACE-Net, they also support S&T research and knowledge-sharing through the JICA Research Institute. The objectives of this Institute are to: contribute to the policy-oriented research related to development issues in developing countries consistent with JICA's aid strategy; and to conduct empirical research that takes into consideration Japan's experience in

development cooperation. Its research themes encompass the four areas of: ***(1)*** peace and development; ***(2)*** growth and poverty reduction; ***(3)*** environment and development; and ***(4)*** aid strategy.

The Japanese aid programme provides substantial funding to the Pacific island region. The budget for the region for the period 2009-2011 is USD570 M. This aid will be implemented through bi-lateral and multi-lateral assistance schemes, with a major portion in the form of grants. This assistance is intended to strengthen partnerships with PICs in the three main areas of: ***(1)*** environment and climate change; ***(2)*** overcoming vulnerabilities and promoting human security; and ***(3)*** people to people exchange, under the theme of "We are islanders - towards an eco friendly and rich Pacific". The support that the Japanese aid programme provides to PICs relevant to S&T research for development covers a wide range of activities, including ICT, education, (including distance learning), economic development, environment, (including solid waste management and coral reef preservation), food security, maritime infrastructure, transportation, (including maritime transportation), infrastructure, disaster preparedness and disaster prevention.

7.2.4 Korea

The Korea International Co-operation Agency (KOICA) under the auspices of the Korean Ministry of Foreign Affairs and Trade implements grant aid and technical cooperation programme of the Government of the Republic of Korea.

Founded in 1991, KOICA's mission is to: ***(1)*** contribute to the enhancement of international co-operation in order to promote friendly cooperative relations and mutual exchanges between the Republic of Korea and developing countries; and ***(2)*** to support social and economic development of developing countries by performing various co-operation programmes. Its goals are to: assist the sustainable socio-economic development of developing countries; actively participate in alleviating poverty through the achievement of the MDGs; and to promote humanitarian assistance and human security. It does this by providing major support in seven sectors of education, health, governance, rural development, ICT, industry and energy and environment, and gender in which Korea have comparative advantage. It also provides aid in disaster relief and reconstruction and climate change.

Of interest to the Pacific region and to PACE-Net, KOICA has recently signed a USD2 M renewable energy project titled 'Renewable Energy Generation, Resource Assessment, and Capacity Building Programme for Sustainable Economic Development of the Pacific Island Countries', which will be implemented by the USP. Furthermore, KOICA has also recently signed a MOU with WHO to implement a USD 1.2 M project to strengthen the control of vector-borne diseases in order to lessen the impact of climate change in the western Pacific regions with focus on Cambodia, Mongolia and Papua New Guinea.

7.2.5 New Zealand

New Zealand government's overseas aid programme is administrated by NZAID, an agency within the Ministry of Foreign Affairs and Trade that manages New Zealand's ODA programme and provides policy advice on international development issues. NZAID's mission is to support sustainable development in developing countries in order to reduce poverty and to contribute to a more secure, equitable, and prosperous world.

The Pacific is NZAID's core focus with over half of New Zealand's total funding going to the region as country and regional aid. The *Pacific Strategic 2007 – 2015 Framework* guides the New Zealand's development work with Pacific governments, other donors and civil society. The Framework focuses on four outcomes central to development: ***(1)*** sustainable economic growth and improved livelihoods; ***(2)*** investing in people through health and education; ***(3)*** strengthened governance, through improving the skills and knowledge of leaders and stronger state institutions; and ***(4)*** reduced vulnerability, through safer and more resilient communities that are better prepared for natural disasters. The largest bi-lateral engagements of NZAID are with Papua New Guinea, Solomon Islands and Vanuatu. It also has major development relationship with five other countries – Fiji, Kiribati, Samoa, Tonga and Tuvalu, and provides assistance for people from the French Pacific OCTs to undertake vocational studies and training in New Zealand. In addition to these bi-lateral country programmes, New Zealand supports a range of regional initiatives consistent with the Pacific Plan to strengthen regional cooperation and integration and funds a number of regional agencies and organisations.

Of relevance to PACE-Net, there are a number of research programmes funded by NZAID. This includes the International Development Research Fund (IDRF) that focuses on research on advancing development policy and practices in regions, countries and sectors aligned to New Zealand's ODA priorities and the Post Graduate Field Research Awards for students undertaking Masters degree and Doctoral in fields related to international development. NZAID also commissions research directly or in partnership with other organisations and funds research projects of USP. It also supports the Development Network (DevNet) and the Oceanic Development Network (ODN) to connect academics, students and development practitioners.

7.2.6 United States of America

The United States foreign assistance has two-fold purpose of furthering America's foreign policy interests in expanding democracy and free markets while improving the lives of the citizens of the developing world.

The majority of the funding provided to the Pacific island region from the Government of United States comprise of grants to the Federated States of Micronesia, Marshall Islands and Palau under the economic provision of the Compact of Free Association. The remaining amount is devoted to the rest of the Pacific islands through programmes such as the Peace Corps, military assistance, counterterrorism, and child health. The United States also provides aid to the region *via* South Pacific Tuna Treaty and to Vanuatu *via* the Millennium Challenge Corporation (MCC). MCC is a bi-lateral development assistance

programme that supports projects in: agriculture and irrigation; transportation (roads, bridges, ports); water supply and sanitation; access to health; finance and enterprise development; anticorruption initiatives; land rights and access; and access to education.

The United States' Pacific regional budget also supports important programmes in the Pacific islands, such as the Pacific Islands Fund, a small grant programme that supports projects in 12 PICs. Projects of relevance to PACE-Net include integrated watershed and marine ecosystem management, coral reef protection, ecosystem-based fisheries, management and protection of threatened and endangered marine species, management of hazardous chemicals and ozone-depleting substances, HIV/AIDS and other emerging infectious diseases, bio-terrorism, using space-base technology for rapid response to natural and man-made diseases, sustainable development strategies, environmental law enforcement, good governance and transparency, and fresh water initiatives, including safe drinking water systems.

To revitalise United States' engagement in the Pacific, a regional environmental hub was established in Fiji to manage the environmental funding in the Pacific regional budget. Programme focus under this funding includes a wide range of activities from wildlife preservation to marine conservation. Furthermore, a regional public diplomacy operation that focuses on educational and cultural exchanges was re-established in Fiji and the United States Agency for International Development (USAID) hub will also soon be established with a budget of USD27.5 M specifically for climate change mitigation programmes.

7.2.7 Other significant bi-lateral S&T aid donors to the Pacific region

There are other bi-lateral aid donors to the Pacific island region that provide irregular, smaller amounts of development assistance, either based on specific projects or allocated as part of a competitive funding round. During 2008, according to Organisation for Economic Co-operation and Development (OECD) reports, the German government provided USD2.8 M to support specific aid projects in the region. Countries that have received this development assistance include Fiji, Federated States of Micronesia, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, and Vanuatu. The Papua New Guinea projects supported by the German government include several environmental and climate protection project components of the International Climate Initiative in Morobe Province. Assistance to the Solomon Islands and Vanuatu has been in the form of micro-projects, particularly in the education sector. Additionally, in Vanuatu and Tonga, the German government has provided support through the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ), ex-*Deutsche Gesellschaft für Technische Zusammenarbeit* (GTZ), for the promotion of sustainable forestry projects. GIZ is now, in collaboration with SPC, implementing Coping with climate change in the Pacific island region programme for environmental protection and resource conservation.

The Republic of China/Taiwan provides development assistance to PICs by means of annually allocated scholarship fund and an annually contested fund for regional projects, known as the Regional Development Assistance fund. Of relevance to PACE-Net, the sectors supported by the Regional Development Assistance fund include health, education, food security, aquaculture, fisheries, domestic water supply and sanitation, ICT, energy, and private sector development. Examples of projects funded by this fund

include a feasibility study on the promotion of viable domestic tuna industries, research fellowships for medical students, a pesticide residue on imported food study, tropical cyclone database development and tuna tagging research.

7.3 Multi-lateral Aid Agencies

Multi-lateral agencies are engaged in poverty reduction and sustainable development to complement and reinforce bi-lateral aid. Multi-lateral aid is given by the governments of many countries and distributed through international organisations, also known as multilateral organisations, such as UN, World Bank, Asian Development Bank (ADB) and the World Food Programme. The multi-lateral organisations pool donations from several countries' governments and then distribute them to the recipients. This aid is generally earmarked for large scale national or regional projects with very large budgets that individual donors prefer to contribute funds to multi-lateral agencies in order to support projects such as emergency relief and transnational issues such as global warming, pandemic disease control and large-scale infrastructure projects.

Multi-lateral aid agencies that provide the majority of multi-lateral aid to the Pacific island region include a wide range of UN agencies resident in Fiji, Samoa and Papua New Guinea, as well as ADB and the World Bank. Below is a description of these agencies their contribution to S&T research for development in the Pacific region.

7.3.1 Asian Development Bank (ADB)

The Asian Development Bank (ADB) is an international development finance institution whose mission is to help its developing member countries reduce poverty and improve the quality of life of their people. In the Pacific island region, ADB supports the countries that are ADB members (Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu) through its office in Fiji.

Under its *Strategy 2020*, ADB follows three complementary strategic agendas - inclusive growth; environmentally sustainable growth; and regional integration - and has five core areas of operation: ***(1)*** infrastructure; ***(2)*** environment, including climate change; ***(3)*** regional cooperation and integration; ***(4)*** finance sector development; and ***(5)*** education. It also operates on a more selective basis in the sectors of health, agriculture and disaster and emergency assistance. ADB's new strategy for the Pacific, entitled ADB's *Pacific Approach, 2010-2014* aims to improve the development effectiveness of ADB's operations in the Pacific by concentrating on demand and working through the political economy. ADB's relationship with the Pacific island region also includes the Country Partnership Strategy with each of PICs usually prepared once every five years to align with the country's development plans and poverty reduction goals and the Climate Change Implementation Plan for the Pacific, which gave member countries a framework for developing and implementing climate change investments and action plans to 2015.

ADB project themes in the Pacific island region relevant to PACE-Net include water supply and sanitation, land use planning, public sector reforms, climate and

environmental adaption plans, financial management, improving the private sector investment, environment, fisheries development, energy reforms, telecommunications services development for low income users, financial literacy and outreach programme, health improvement and HIV/AIDS prevention, micro-banking development, reef restoration strategies and approaches to sustainable community-based marine protected area development.

7.3.2 European Union

The European Union (EU) is the world's biggest aid donor. OECD reports that in 2008, EU provided USD14 B in development assistance to developing countries. In the Pacific, EU's relations with Australia and New Zealand are managed through the Directorate-General (DG) External Relations, while EC's new DG for EuropeAid Development and Co-operation (DEVCO) is in charge of relations with the other countries of the region. The DG DEVCO which is a merger of together two former DGs - DG Development and DG EuropeAid – is responsible for designing EU development policies and delivering aid through programmes and projects across the world including the ACP regions.

DG DEVCO delivers aid through a set of financial geographical and thematic instruments (Development Co-operation Instrument; DCI, European Neighbourhood and Partnership Instrument; ENPI, and EDF) in the following development fields: ***(1)*** governance and human rights; ***(2)*** human development; ***(3)*** food and natural resources; and ***(4)*** economy and trade. The priority themes for EU development assistance include poverty alleviation and addressing environmental degradation, promoting good governance and democracy, law and justice, economic development, clean water and good sanitation, energy, sustainable development, infrastructure, education, gender issues, food security, health and transport. It also makes significant contribution to the development objectives of UN's MDGs. All these themes are significant areas of concern to the promotion of S&T research for development under the PACE-Net project.

The decentralised EU strategy has seen the establishment of the Pacific EU headquarters located in Fiji, where the EDF and other EU-funded development assistance programmes are managed. The framework for EU development assistance in the Pacific region may be found in the *EU Strategy for the Pacific*, adopted in 2006 in response to the Pacific Plan and the deepening of regional cooperation between PICs and EU. This Strategy aims to: enhance political dialogue; make development more focused; and to improve the effectiveness of aid delivery. It defines EU's relationship with 15 ACP countries and the three French OCTs in the Pacific. Other elements of the Strategy include the GCCA, launched in 2007 and the integration of cross-cutting themes identified by EU to mainstream into its institutional practices and development cooperation. These cross-cutting themes include good governance, human rights, gender equality, environmental sustainability and combating HIV/AIDS. Additionally, the Strategy notes the importance of encouraging all sectors of civil society to participate in the development process, including interacting with the state.

Of interest to the current Study, EDF is EC's main instrument of aid for development cooperation in ACP countries as well as in OCTs. It is allocated in five-yearly cycles. The 10th EDF earmarks €95 M for the Pacific region over the period 2008 – 2013 and according to the EU's *10th EDF Regional Indicative Programme* (RIP) for the Pacific, aid

has allocated to three focal areas: ***(1)*** regional economic integration; ***(2)*** sustainable management of natural resources and the environment; and ***(3)*** organisational strengthening and civil society participation. Whilst the RIP does not attempt to define EU's approach S&T research in the Pacific region, many of the areas of support listed under the focal area – sustainable management of natural resources and the environment – underpin research needs of the Pacific. These include: ***(1)*** support regional capacity in renewable energy and energy efficiency technologies; ***(2)*** support sustainable management of water resources; ***(3)*** promote sustainable ecosystem, forest and land management; ***(4)*** promote initiatives to ensure food security and small-scale agricultural livelihoods; and ***(5)*** promote enhanced environmental monitoring and information management within sustainable development planning

Under this RIP, the 10th EDF is currently funding two projects in the Pacific - Scientific support for management of coastal and oceanic fisheries in the Pacific islands regions (SciCOFish) and Development of sustainable tuna fisheries in the Pacific ACP countries (DevFish) - that both include S&T research components. To help achieve MDGs objectives, some of the fund from the 10th EDF will also be channelled through sectoral facilities; ACP-EU Water Facility and ACP-EU Energy Facility. These Facilities serve to benefit regions, rather than individual countries. Also within the 10th EDF envelope and of direct relevance to PACE-Net, a new research programme for the ACP Caribbean and Pacific states has been recently implemented. This programme known as the ACP Caribbean and Pacific Research Programme for Sustainable Development is implemented by the ACP Secretariat and focuses on addressing research needs of these regions in the four following broad sectors and sub-categories:

Agriculture and post-harvest - ensuring food security in the context of climate change; preserving and exploiting genetic resources and moving away from monoculture crop production; improving market access for agricultural products; identifying competitive, value-added, processed agricultural products; supporting agricultural research that incorporates environmental, energy and water sectors issues.
Renewable and sustainable energy - overcoming barriers to domestic bio-fuel production; research to demonstrate how poverty can be reduced by local energy application; providing support for hybrid renewable technology research; identifying the right renewable energy mix; and improving energy efficiency and energy conservation techniques.
Water and sanitation - integrated and locally adapted water resource management; climate change adaptation in the water and sanitation sectors; addressing the health impacts of water and sanitation; and strengthening availability of data on water and sanitation.
Climate change - increased support for climate change modelling and forecasting targeted to the Pacific; support for detailed coastal mapping that can predict and assist adaptation to coastal erosion and ground- and surface water fluctuations resulting from climate change and natural disasters; finding and developing areas of land-based resource management that can serve as both adaptation and mitigation tools (e.g. forest and land management and agriculture);and addressing the impacts of climate change on water resource.

Furthermore, the ACP Science and Technology Programme is another ACP-EU co-operation programme in the field of S&T that is funded under the 9th EDF and is also

implemented by the ACP Secretariat. The overall objective of this programme is to support ACP countries in formulating and implementing S&T policies that can lead to sustainable development and to poverty reduction through economic growth and progressive integration in the world economy. The projects funded under this dispositive focus primarily on: ***(1)*** quality health care (traditional and biodiversity-dependent community medicines, biotechnology); ***(2)*** environmental research activities (climatic variability, loss of biodiversity, deforestation, desertification and rising sea levels, indigenous technology, use of foreign technology); ***(3)*** energy (renewable sources of energy); ***(4)*** transport (congesting; air pollution; accidents); ***(5)*** agriculture and agro-industry (food productivity and security, agro-products, farmers' participation in production and post-harvest management); and ***(6)*** sustainable trade (investments, private sector, trading capacity of ACP countries, socio-economic impact of international trade agreements and protocols).

7.3.3 United Nations (UN) Agencies

The United Nations (UN) development cooperation activities in the Pacific island region supports programmes of a range of UN's specialised agencies that put into effect these agencies' mandates and capabilities in support of policies and priorities of PICs. Development cooperation activities by the UN System represent a small but important share of the total of ODA in the region.

The UN System has three sub-regional offices in the Pacific located in Fiji, Samoa and Papua New Guinea. The UN Office in Fiji covers 10 PICs, the Samoa Office covers four, and Papua New Guinea has its own office. These UN sub-regional offices work together with UN country teams *i.e.* the heads or representatives of the different UN agencies in the Pacific to support the achievement of national development goals as reflected in the national development plans, the Pacific Plan and MDGs. They also assist PIC governments to respond to emergencies and national security issues.

The *UN Development Assistance Framework for the Pacific sub-region* (UNDAF) is the common planning framework for UN agencies in the Pacific, and will guide most of UN's work from 2008-2012. UNDAF represents the first region-wide response to UN operational reform process. It is a product of partnership between UN country teams in Fiji and Samoa and the 15 UN agencies, programmes and offices in the Pacific[4] and is driven by the needs and priorities of governments of 14 PICs (Cook Islands, Federated States of Micronesia, Fiji, Republic of the Marshall Islands, Niue, Palau, Vanuatu, Tokelau, Tuvalu, Tonga, Kiribati, Nauru, Samoa and the Solomon Islands). The inter-related priority areas for the Pacific islands that have emerged in the UNDAF include: equitable

[4] Food and Agriculture Organisation (FAO); International Labour Organization (ILO); Joint United Nations Programme on HIV/AIDS (UNAIDS); Office of the United Nations High Commissioner for Human Rights (OHCHR); Office of the United Nations High Commissioner for Refugees (UNHCR); United Nations Children's Fund (UNICEF); United Nations Development Fund for Women (UNIFEM); United Nations Development Programme (including the Pacific Centre; UNDP); United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP); United Nations Educational, Scientific and Cultural Organisation (UNESCO); United Nations Population Fund (UNFPA); United Nations Office for the Coordination of the Humanitarian Affairs (UNOCHA); United Nations Office for Project Services (UNOPS); World Health Organization (WHO); and World Meteorological Organization (WMO).
More UN agencies are expected to join the UN country teams in Fiji and Samoa, such as International Fund for Agricultural Development (IFAD) and United Nations Environment Programme (UNEP).

economic growth and poverty reduction; good governance and human rights; equitable social and protection services (education, health, water and environmental sanitation, nutrition, population, injuries and protection, gender equality); and sustainable environmental management (including energy). A description of ten of the agencies of the UN System mentioned above which support activities in the Pacific region relevant to the PACE-Net project are given below:

Food and Agriculture Organisation (FAO) - leads international efforts to defeat hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information and helps developing countries and countries in transition modernize and improve agriculture, forestry and fisheries practices and ensure good nutrition and food security for all. Working with governments, civil society and private sector, FAO undertakes many inter-related activities in support of food security, rural poverty alleviation, and institutional and human capacity building mainly through meetings, publications, and by serving regional technical commissions and FAO-sponsored regional bodies. The regional office also assists with the implementation of a large number of field projects at regional and national levels. In addition, FAO plays a major role as an agency for investment support and promotes technical cooperation among developing countries as a main thrust of its activities in the region.

Of interest to PACE-Net, in order to fulfill its vision and mission, a highly participatory process was used to translate FAO's corporate strategic objectives into five regional strategic priority areas: ***(1)*** strengthening food and nutritional security; ***(2)*** fostering agricultural production and rural development; ***(3)*** enhancing equitable, productive and sustainable natural resource management and utilization; ***(4)*** improving capacity to respond to food and agricultural threats and emergencies; and ***(5)*** coping with the impact of climate change on agriculture and food and nutritional security. FAO's regional office that assists Asia and the Pacific countries is based in Thailand. Its vision is a food-secure Asia and the Pacific region and it aims is to help member countries halve the number of undernourished people in the region by 2015 by raising agricultural productivity and alleviating poverty while protecting the region's natural resources base. In the Pacific, FAO works through its sub-regional office for the Pacific islands based in Samoa. Established in 1996, the member countries include Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Joint United Nations Programme on HIV/AIDS (UNAIDS) - established as an innovative partnership that leads and inspires the world in achieving universal access to HIV prevention, treatment, care and support. It focuses on the following five areas for a more effective global response to AIDS: ***(1)*** mobilising leadership and advocacy for effective action on the epidemic; ***(2)*** providing strategic information and policies to guide efforts in the AIDS response; ***(3)*** tracking, monitoring and evaluation of the epidemic; ***(4)*** engaging civil society and developing partnerships; and ***(5)*** mobilising financial, human, scientific and technical resources to support an effective response.

In the Pacific, UNAIDS works through its teams based in Fiji and in Samoa to provide technical and financial support to national bodies and NGOs working in the HIV/AIDS field to implement national HIV/AIDS policies and strategies. Of relevance to PACE-Net,

UNAIDS constituted an independent commission on AIDS in the Pacific that carried out a study "Turning the Tide: An OPEN Strategy for a Response to AIDS in the Pacific", which has recommended appropriate surveillance and social research on HIV to inform PICs on their HIV strategies, planning and programme.

United Nations Children's Fund (UNICEF) – has its Pacific office is based in Fiji, which assists the region with child-centred projects. UNICEF Pacific is taking major steps to improve the quality of lives of children in the island region through five different programmes: child protection; education; health and sanitation; HIV/AIDS; and policy advocacy planning and evaluation. In addition, UNICEF Pacific is working in four cross cutting areas essential to achieve results for children and their communities, including all children's rights, climate change, emergency preparedness and gender issues.

UNICEF's commitment to the region is currently covered by a 2008-2012 multi-country programme designed for 14 PICs (Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu). The goal of this programme is to support the governments of PICs in acknowledging children's rights and incorporating them into national development strategies. Project themes of relevance to PACE-Net include: ***(1)*** strengthening legal frameworks for the protection of children; ***(2)*** reducing childhood deaths due to vaccine-preventable diseases; ***(3)*** improving maternal, new born and child survival; ***(4)*** improving water and environmental sanitation so children suffer fewer incidences of diarrhoea and other water-related diseases; ***(5)*** behaviour development/change communication; ***(6)*** strengthening the health care system response to HIV; and ***(7)*** ensuring that the rights of children, youth and women are addressed in evidence-based social and economic policies.

United Nations Development Fund for Women (UNIFEM) – is dedicated to advancing women's rights and achieving gender equality. It provides financial and technical assistance to innovative programmes and strategies that foster women's empowerment. It focuses its activities on one overarching goal - to support the implementation at national level of existing international commitments to advance gender equality. In support of this goal, UNIFEM works in the following thematic areas: ***(1)*** enhancing women's economic security and rights; ***(2)*** ending violence against women; ***(3)*** reducing the prevalence of HIV and AIDS among women and girls; and ***(4)*** advancing gender justice in democratic governance in stable and fragile states.

Two international agreements frame UNIFEM's work - the Beijing Platform for Action resulting from the Fourth World Conference on Women in 1995; and the Committee on the Elimination of Discrimination against Women (CEDAW), also known as the Women's Bill of Rights. The spirit of these agreements has been affirmed by the eight MDGs. In the Pacific region, the 1994 Pacific Platform for Action was initiated by Pacific island women's agencies, including UNIFEM, and was subsequently endorsed by the Pacific Ministers. It identified violence against women as a critical area of concern and urged the Pacific to work towards eliminating violence against women and children. UNIFEM's Pacific sub-regional office is established in Fiji and its project themes in the Pacific island region relevant to PACE-Net include enhancing women's economic security and rights; reducing the prevalence of violence against women; reversing the spread of HIV/AIDS among women and girls; and advancing gender justice in democratic governance.

United Nations Development Programme (UNDP) – multi-country office of UNDP is located in Fiji and supports sustainable development for 10 PICs (Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Solomon Islands, Tonga, Tuvalu and Vanuatu). The specific thematic areas in which UNDP supports it projects for the Pacific islands include: private sector development and entrepreneurship development; strengthening parliaments and democratic institutions; peace building and conflict prevention; disaster risk reduction; environment and energy; HIV/AIDS; human security and justice; and human rights.

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) – is the regional development arm of the UN for the Asia and the Pacific region. UNESCAP was established in 1947 with headquarters in Thailand. Its overall objective is to promote inclusive and sustainable economic and social development in the Asia and the Pacific region, with priority accorded to the achievement of MDGs. UNESCAP pursues this objective by carrying out work, in close cooperation with other UN entities, inter-governmental organisations and donor governments in the region in the following areas: macroeconomic policy and development; statistics; sub-regional activities for development; trade and investment; transport; environment and sustainable development; ICT and disaster risk reduction; and social development.

The Pacific Operations Centre of UNESCAP (EPOC) was established in Fiji in 1984, covering Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, as well as American Samoa, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue and the Northern Mariana Islands. Its mission is to provide strong support to PICTs in their efforts to attain economic and social development goals. UNESCAP channels part of its assistance for the benefit of Pacific islands through the EPOC, and supplements them with activities implemented by divisions of the headquarter and the Statistical Institute for Asia and the Pacific in Tokyo. EPOC assists Pacific island developing countries by: ***(1)*** promoting regional cooperation and sharing knowledge and good practices; ***(2)*** providing regional advisory services on economic and social policies; ***(3)*** building institutional capacity through training workshops; ***(4)*** assisting policy implementation through pilot projects; and ***(5)*** conducting research on economic and social issues relevant to policy makers. Recently, the mission of the Centre was restated to focus on supporting Pacific island developing countries in their efforts to attain their MDGs through the implementation of the Mauritius Strategy.

United Nations Educational, Scientific and Cultural Organisation (UNESCO) – was established to contribute to peace building and poverty eradication efforts, sustainable development and intercultural dialogue through education, and promotion of sciences (natural, social and human), culture, communication and information. Located in Samoa, UNESCO's Pacific office provides services to Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Of direct significance to PACE-Net, UNESCO recognises that scientific knowledge is an essential driver for social and economic development in the Pacific and strongly advocates the involvement of research activities across its programmes. It is

participating as key partner agency for water science in all relevant freshwater-related projects and programmes, and enhances research-policy linkages within the Pacific and between the Pacific and other regions for the effective management of social issues facing the region. For the period 2008–2013, UNESCO's programmes in the Pacific will have an overarching focus on: ***(1)*** quality education for all; ***(2)*** sustainable management of natural resources in SIDS; ***(3)*** science communication; ***(4)*** disaster management preparedness; ***(5)*** social change management incorporating Pacific values; ***(6)*** quality information and infostructures; and ***(7)*** promotion and preservation of cultural diversity. UNESCO office in Samoa also manages three key inter-sectoral programmes; Education for sustainable development, Adapting to climate change and Sharing pacific knowledge and values.

United Nations Environment Programme (UNEP) - is the voice for the environment within the UN System. It assists developing countries in implementing environmentally-sound policies and practices. It has played a significant role in: ***(1)*** developing international environmental conventions; ***(2)*** promoting environmental science and information and illustrating the way those can work in conjunction with policy; ***(3)*** working on the development and implementation of policy with national governments and regional institution; and ***(4)*** working in conjunction with environmental NGOs. UNEP has also been active in funding and implementing environmentally related development projects. UNEP is one of the implementing agencies of GEF with the World Bank and UNDP. UNEP is represented across the globe by six regional offices. Its regional office for Asia and the Pacific is based in Thailand, which ensures that decisions of UNEP Governing Council are effectively implemented in the region and that the regional concerns and priorities are taken into account when developing UNEP's programmes.

Of relevance to PACE-Net, UNEP activities cover a wide range of issues regarding the atmosphere, marine and terrestrial ecosystems. Specific project themes that UNEP supports include: POPs; climate change; international waters; land degradation; biodiversity; and ozone depletion. Some examples of UNEP projects in the Pacific funded through GEF include Sustainable integrated water resources management (IWRM) and Pacific POPs release reduction through improved management of solid and hazardous wastes.

United Nations Population Fund (UNFPA) - is an international development agency that promotes the human rights to reduce poverty and achieve sustainable development through its three core areas of work: ***(1)*** population and development; ***(2)*** reproductive health and rights; and ***(3)*** gender, culture and human rights. It works to ensure that these issues are central to development policies, plans and strategies. Two frameworks serve to focus its efforts: Programme of Action adopted at the International Conference on Population and Development (ICPD) and MDGs. UNFPA's Pacific sub-regional office, part of UNFPA's Asia and Pacific regional office, is based in Fiji. It provides technical and programme assistance to 14 PICs (Cook Islands, Federated States of Micronesia, Fiji , Kiribati, Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu as well as to Papua New Guinea). Of relevance to PACE-Net is the 2008 – 2013 Asia and Pacific Regional Programme, which contribute to UNFPA's Strategic Plan. This regional programme underlies the need for research activities to contribute to: evidence-based policy development and programme implementation; and

to provide leadership in new knowledge and issues related to the three core areas of UNFPA's work.

World Health Organization (WHO) - directs and coordinates authority for health within the UN System. In the Pacific, it works through its South Pacific regional office which operates under the umbrella of Western Pacific regional office (WPRO). The role of WHO in the Pacific region is to support 22 PICTs (American Samoa, Cook Islands, Fiji, Federated States of Micronesia, French Polynesia, Guam, Kiribati, Republic of the Marshall Islands, New Caledonia, Commonwealth of the Mariana Islands, Nauru, Niue, Palau, Papua New Guinea, Pitcairn Islands, Solomon Islands, Samoa, Tokelau, Tonga, Tuvalu, Vanuatu and Wallis and Futuna) on health issues of public concern at all levels - from local to global - and on all fronts - medical, technical, socio-economic, culture, legal and political.

WPRO is committed to four major themes within which there are a number of focuses: ***(1)*** combating communicable diseases (expanded programme on immunization; malaria, other vector-borne and parasitic diseases; HIV/AIDS and STI; stop tuberculosis; and leprosy elimination); ***(2)*** health security and emergencies (communicable disease surveillance and response; and emergency and humanitarian action); ***(3)*** building healthy communities and population (environmental health; child and adolescent health; reproductive health; nutrition; NCDs; health promotion; mental health and injury prevention; and tobacco free initiatives); and ***(4)*** health sector development (health services development; health care financing and social protection; equity, social determinants, human rights, gender and health; human resources for health; traditional medicine; essential medicines and pharmaceutical policy; health technology and laboratory; and health information, evidence for policy and research). WPRO supports several Pacific initiatives like: the Pacific Open Learning Health Net (POLHN); Pacific programme to eliminate lymphatic filariasis; Climate change and health; Pandemic preparedness Plan; Western Pacific declaration on diabetes; People at the Centre of Care initiative; and PPHSN to name a few.

Of particular interest to PACE-Net is WPRO's co-funded "Joint small grants programme for operational research in communicable diseases" which is offered in collaboration with UNDP, World Bank and WHO's Special Programme for Research and Training in Tropical Diseases. This small grants programme aims to facilitate and strengthen control-oriented operational research in selected communicable diseases and to strengthen the research capacity of key individuals and institutions in countries of the western Pacific region. For the year 2010-2011, the programme will support research activities focused on the following communicable diseases: food-borne trematodiasis; cestodiasis; schistosomiasis; dengue; soil-transmitted helminthiasis; and yaws and leprosy. Areas of research encouraged in this call for application include: epidemiological studies; social mobilisation and behavioural impact studies; novel strategies in the prevention and control of communicable diseases; novel strategies to increase access to treatment, up-scale mass treatment and sustain mass treatment; impact assessments of preventive chemotherapy and other strategies in disease prevention, control and elimination efforts; economic impact and disease burden studies; innovative methods for promoting participation of the private sector in the disease prevention and control; and epidemiological studies to determine public health dimension of one or more target diseases.

7.4 Synthesis

The Table 7 below compiles 38 priority themes that appear in the co-operation for development programmes of 22 major bi-lateral and multi-lateral donors covered in this Study.

The most frequently mentioned themes include:
- environment (appears in 13 programmes), climate change (12), health (12), agriculture and forestry (10), disaster management (9), fisheries and aquaculture (9) and water and sanitation.

The most frequently mentioned cross cutting issues include:
- sustainable development (19), governance and policy (16), economic development (12), education (10), and poverty alleviation.

Other frequent themes were:
- biodiversity, culture, social and human sciences, energy, food security, ICT, transport, and waste and pollution management.

Other frequent cross cutting issues were:
- gender equality, human security, infrastructure development, and private sector development and integration.

The less frequently mentioned themes include:
- mineral resources, and technology transfer and innovation.

The less frequently mentioned cross cutting issues include:
- civil society involvement, crime management and terrorism, human resource development, indigenous knowledge systems, industrial sector development, institutional capacity building, labour mobility, media studies, microfinancing and investment, rural development, social development, tourism, and trade.

The themes that have a direct link to S&T and appear as top priorities include:
- environment;
- climate change;
- health;
- agriculture and forestry;
- disaster management;
- fisheries and aquaculture; and
- water and sanitation.

The cross-cutting issues most mentioned that may have present S&T opportunities include:
- sustainable development;
- governance and policy;
- economic development;
- education; and
- poverty alleviation.

Table 7: Linking S&T to co-operation for development programmes of donor agencies for the Pacific islands

Themes and cross cutting issues \ Donor agencies	1. Agence Française de Développement	2. Asian Development Bank	3. Australian Agency for International Development	4. Australian Centre for International Agriculture Research	5. Directorate-General for Development and International Co-operation	6. Economic and Social Commission for Asia and the Pacific	7. European Union	8. Food and Agriculture Organization	9. Japan International Cooperation Agency	10. Joint United Nations Programme on HIV/AIDS	11. Korea International Cooperation Agency	12. New Zealand Agency for International Development	13. Other significant bilateral aid donors	14. United Nations Children's Fund	15. United Nations Development Fund for Women	16. United Nations Development Programme	17. United Nations Educational, Scientific and Cultural Organisation	18. United Nation Environmental Programme	19. United Nations Population Fund	20. United States Agency for International Development	21. United States of America	22. World Health Organization	**Total**	Rank
1. Agriculture & Forestry	√	√	√	√			√	√					√				√	√			√		10	7
2. Biodiversity	√	√	√		√																√		5	22
3. Civil Society Involvement							√																1	33
4. Climate Change	√	√	√	√			√	√			√		√	√			√	√		√			12	4
5. Crime Management & Terrorism					√																√		2	27
6. Culture, Social & Human Sciences	√				√	√				√							√		√		√		7	13
7. Disabilities																								
8. Disaster Management	√		√			√			√			√	√	√		√	√						9	9
9. Earth Sciences																								
10. Economic Development	√	√	√	√		√	√	√	√		√	√				√					√		12	4
11. Education	√	√	√						√		√	√	√	√			√				√		10	7
12. Energy	√	√					√				√		√			√							6	16
13. Environment	√	√	√		√	√	√		√		√	√	√			√		√			√		13	3
14. Fisheries & Aquaculture		√	√	√			√	√					√				√	√			√		9	9
15. Food Security	√		√	√				√	√				√										6	16
16. Gender Equality			√				√	√			√			√	√				√				7	13
17. Governance & Policy		√	√			√	√		√	√	√	√		√	√	√	√	√	√		√	√	16	2
18. Health	√	√	√		√					√			√	√	√	√			√		√	√	12	4
19. Human Resource Development			√					√				√											3	25
20. Human Security			√		√						√					√	√				√		6	16

Key: S&T themes with highest scores cross cutting issues with highest scores

Themes and cross cutting issues \ Donor agencies	1. Agence Française de Développement	2. Asian Development Bank	3. Australian Agency for International Development	4. Australian Centre for International Agriculture Research	5. Directorate-General for Development and International Co-operation	6. Economic and Social Commission for Asia and the Pacific	7. European Union	8. Food and Agriculture Organization	9. Japan International Cooperation Agency	10. Joint United Nations Programme on HIV/AIDS	11. Korea International Cooperation Agency	12. New Zealand Agency for International Development	13. Other significant bilateral aid donors	14. United Nations Children's Fund	15. United Nations Development Fund for Women	16. United Nations Development Programme	17. United Nations Educational, Scientific and Cultural Organisation	18. United Nation Environmental Programme	19. United Nations Population Fund	20. United States Agency for International Development	21. United States of America	22. World Health Organization	**Total**	Rank
21. ICT	√	√				√			√		√		√										6	16
22. Indigenous Knowledge Systems							√										√						2	27
23. Industrial Sector Development											√												1	33
24. Infrastructure Development	√		√						√		√										√		5	22
25. Institutional Capacity Building									√				√										2	27
26. Labour Mobility		√																			√		2	27
27. Media Studies					√																		1	33
28. Mineral Resources	√																						1	33
29. Microfinancing & Investment	√	√					√														√		4	24
30. Private Sector Development & Integration		√	√			√							√			√					√		6	16
31. Poverty Alleviation		√	√	√	√			√	√		√	√					√						9	9
32. Rural Development	√																						1	33
33. Social Development		√										√											2	27
34. Sustainable Development	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√		√		√	√	19	1
35. Technology Transfer & Innovation							√														√		2	27
36. Tourism	√																						1	33
37. Trade			√	√		√																	3	25
38. Transport	√		√			√			√										√		√		6	16
39. Waste & Pollution Management	√	√					√		√								√	√			√		7	13
40. Water & Sanitation	√	√	√				√						√	√			√	√			√		9	9

Key: S&T themes with highest scores cross cutting issues with highest scores

8. Lessons Learnt and Recommendations

8.1 Lessons Learnt

The objective of this Study is to identify science programmes in the development agendas of the Pacific islands as well as cross-cutting issues for the PACE-Net project. Individual governments of the ACP countries in the Pacific tend not to have comprehensive and overarching S&T research national plans as such and only a very few of them make significant, if any, mention of the role of S&T research in their national policies as means to achieve their goals. On regional level, the Pacific island Leaders have endorsed the *Pacific Regional Digital Strategy for Information and Communication Technology*, *Pacific Islands Energy Policy and Plan, Pacific Regional Strategy on Disability*, and *Pacific Islands Framework for Action on Climate Change 2006-2015*, which contain some research component.

It should be noted that S&T is inherently cross-sectoral, implicating many segments of the society (research, political, civil and private sectors, etc). As such, in addition to the development commitments of the Pacific islands (Chapter 2), development programmes of several important research centres in the region, with both national and regional mandates as well as that of relevant Australian and New Zealand science institutions (Chapter 3), development programmes of inter-governmental bodies (Chapter 4), and civil society organisations (Chapter 5), other development initiatives in the region (Chapter 6) and co-operation for development programmes of international donors (Chapter 7) were also analysed for S&T relevance.

In total, 136 development commitments, programmes, and initiatives were analysed for focal areas in this Study. This includes 25 development agendas (Table 1), 39 research programmes of academic and science institutions (Table 2), 9 and 15 programmes, respectively, of inter-governmental agencies (Table 3) and civil society organisations (Table 4), 26 diverse Pacific island-relevant development initiatives (Table 5) and 22 bilateral and multilateral donors to Pacific islands (Table 7).

During the Study 40 themes have emerged. This includes themes are specific to S&T but also cross-cutting issues that may carry relevance, though indirect, to S&T (see Table 8). The 17 S&T themes include: agriculture and forestry; biodiversity; climate change; culture, social and human sciences; disaster management; earth sciences; energy; environment; fisheries and aquaculture; food security; health; ICT; mineral resources; transport; technology transfer and innovation; waste and pollution management; and water and sanitation. The 23 cross-cutting themes include: civil society involvement; crime management and terrorism; disabilities; economic development; education; gender equality; governance and policy; human resource development; human security; indigenous knowledge systems; industrial sector development; infrastructure development; institutional capacity building; labour mobility; media studies; microfinancing and investment; private sector development and integration; poverty alleviation; rural development; social development; sustainable development; tourism and trade.

The outcomes of the two complementary studies undertaken in parallel with the present Study are provided in the annex 3 and 4.

Table 8: Linking S&T to 136 development agendas reviewed in this Study

Development agendas (136) / Themes and cross cutting issues	1. Development Commitments (25 documents studied)	2. Academic and Science Institutions (39)	3. Inter-governmental Agencies (9)	4. Civil Society Organisations (15)	5. Divers Development Programmes and Initiatives (26)	6. Donor Agencies (22)	**Total (136)**	Rank
1. Agriculture and Forestry	9	13	2	1	6	10	41	9
2. Biodiversity	5	18	1	9	18	5	56	4
3. Civil Society Involvement	2	1				1	4	38
4. Climate Change	15	11	4	2	12	12	56	4
5. Crime Management & Terrorism	2					2	4	38
6. Culture, Social & Human Sciences	6	18	3	1	2	7	37	10
7. Disabilities	6	1	1				8	31
8. Disaster Management	8	7	2	1	3	9	30	12
9. Earth Sciences		4	1				5	37
10. Economic Development	13	14	4	2	6	12	51	6
11. Education	12	7	2	1		10	32	11
12. Energy	11	6	2	1	3	6	29	14
13. Environment	11	20	3	6	10	13	63	1
14. Fisheries & Aquaculture	14	14	4	1	8	9	50	7
15. Food Security	12	7	1	1	2	6	29	14
16. Gender Equality	5	5	2			7	19	25
17. Governance & Policy	12	18	3	2	7	16	58	3
18. Health	17	19	3	4	5	12	60	2
19. Human Resource Development	9	8	1		3	3	24	17
20. Human Security	10	3	1			6	20	21
21. ICT	11	5	2			2	20	21
22. Indigenous Knowledge Systems	1	4		2	1	1	9	29
23. Industrial Sector Development	2					5	7	34
24. Infrastructure Development	8	2			1	2	13	27
25. Institutional Capacity Building	4	1				2	7	34
26. Labour Mobility	4	2	1			1	8	31
27. Media Studies		1				1	2	40
28. Mineral Resource	6	6	1		3	4	20	21
29. Microfinancing & Investment	1					6	7	34
30. Private Sector Development & Integration	10	2	1	1		9	23	19
31. Poverty Alleviation	5	2			1	1	9	29
32. Rural Development	2	4				2	8	31
33. Social Development	3	4	1		3	19	30	12
34. Sustainable Development	12	14	8	1	12	2	49	8
35. Technology Transfer & Innovation	4	3	1	1	3	1	13	27
36. Tourism	7	4				3	14	26
37. Trade	13	3	2			6	24	17
38. Transport	11	1	1			7	20	21
39. Waste & Pollution Management	5	5	2	1	5	9	27	16
40. Water & Sanitation	8	7	2	1	5		23	19

Key: ▩ S&T themes with highest scores ☐ cross cutting issues with highest scores

8.2 Conclusion

Of the S&T themes, 15 have emerged as priorities for the Pacific from the Table 8 are (descending order of score):

- environment (appears in 63/136 documents studied);
- health (60);
- biodiversity (56);
- climate change (56);
- fisheries and aquaculture (50);
- agriculture and forestry (41);
- culture, social and human sciences (37);
- disaster management (30);
- energy (29);
- food security (29)
- waste and pollution management (27);
- water and sanitation (27);
- transport (21);
- ICT (20); and
- mineral resources (20).

As was seen during the course of the Study, the Pacific island region has significant and pressing needs and challenges to respond to (see Annex 1). The inclusion of S&T becomes an ever increasing necessity for sustainable development in the region. Table 9 describes how the 15 S&T themes that appear as priorities in the development agendas of the region can solve certain of the issues that the Pacific islands face (see Table 9).

Table 9: Linking S&T to development goals and challenges of the Pacific islands

S&T themes[1] / **Development need and challenges[2]**	1. Environment	2. Health	3. Biodiversity	4. Climate Change	5. Fisheries and Aquaculture	6. Agriculture and Forestry	7. Culture, Social and Human sciences	8. Disaster Management	9. Energy	10. Food Security	11. Waste and Pollution Management	12. Water and Sanitation	13. Transport	14. Information and Communication Technology	15. Mineral Resources
Size, Isolation and Resources	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Economy	√	√	√	√	√	√		√	√	√		√	√	√	√
Infrastructure and Institutional Capacity	√	√		√	√	√		√	√		√	√	√	√	√
Demography and Urbanisation	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Productive Sectors			√	√	√	√		√	√	√			√	√	√
Environmental Fragility	√	√	√	√	√	√		√	√	√	√	√	√		√
Social Situation	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Political Leadership and Governance	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Regional Cooperation and Regionalism	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

[1] S&T themes are inspired from the outcomes of the present Study

[2] Development needs and challenges of the Pacific island region are inspired from a review study that is present in the Annex 1

Of these 15 S&T themes, certain of these S&T themes (such as environment, health, biodiversity, climate change, fisheries and aquaculture, agriculture and forestry and culture, social and human sciences) are mentioned at a higher frequency in the development agendas reviewed than the others (disaster management, energy, food security, waste and pollution management, water and sanitation, transport, ICT and mineral resources) (Fig. 2).

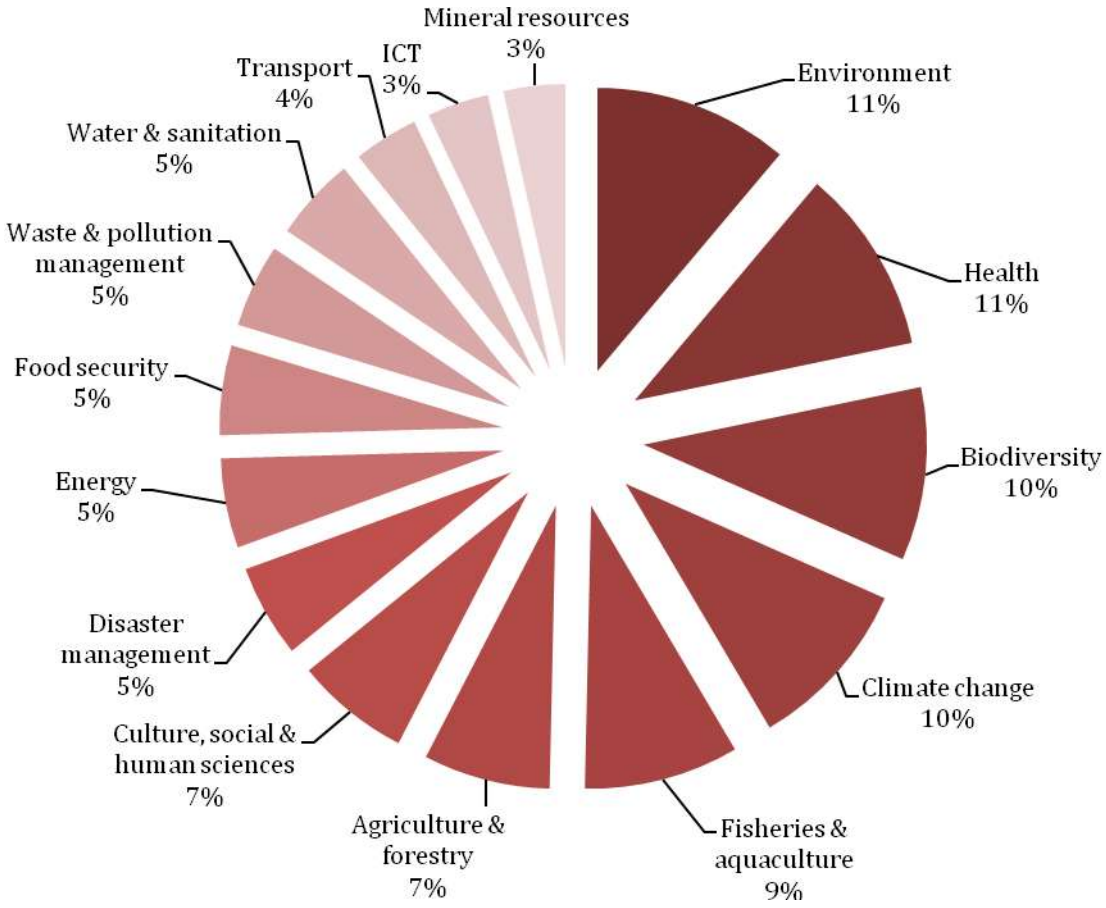

Fig. 2: Pie chart representation of frequency at which S&T themes that have emerged as priorities in the development agendas of the Pacific islands are mentioned in the 136 development agendas studied

Furthermore, when these S&T themes are linked to the R&D sectors of the EU (see Annex 2); the 15 S&T themes could be classed into the eight R&D sectors as per the Table 9. The Table 9 is also shows the multi-disciplinary nature of R&D sectors.

The analysis undertaken in the Table 9 and the outcomes of Fig. 2 strongly indicates that the R&D sectors that will be most appropriate to Pacific island region include ***(1)*** environment and climate; ***(2)*** biology and medicine; ***(3)*** social and economic concerns;

(4) agriculture and food supply; and ***(5)*** energy. Therefore, it can be recommended that these five R&D sectors should be encouraged during the five thematic workshops that will be organised in the framework of dialogue fora of PACE-Net.

Table 9: Linking priority S&T themes outcomes of this Study to R&D sector of EU

S&T themes / R&D sectors	1. Environment	2. Health	3. Biodiversity	4. Climate Change	5. Fisheries and Aquaculture	6. Agriculture and Forestry	7. Culture, Social and Human Sciences	8. Disaster Management	9. Energy	10. Food Security	11. Waste and Pollution Management	12. Water and Sanitation	13. Transport	14. Information and Communication Technology	15. Mineral Resources	Total	Rank
1. Agriculture and food supply	√	√		√	√	√	√			√						7	4
2. Biology and medicine	√	√		√	√	√	√	√		√	√	√				10	3
3. Energy	√			√			√				√		√			5	5
4. Environment and climate	√		√	√	√	√	√	√	√		√	√	√		√	12	2
5. Industry and industrial technology							√				√				√	3	7
6. Information and communication technology							√							√		2	8
7. Social and economic concerns	√	√	√		√	√	√		√	√	√	√	√	√	√	15	1
8. Transport and construction	√								√		√		√			4	6

8.3 Recommendation

To define the thematic sub-areas the following are some recommendations for the research that can be undertaken in the above identified priority S&T themes and/or R&D sector to address the needs and goals of the Pacific island region.

Thematic Area - Health

The Pacific island region has a great number of health concerns. The traditional communicable diseases, such as malaria, meningitis, tuberculosis, and diarrhoeal diseases are thriving in the Pacific and HIV/AIDS is ravaging Papua New Guinea. NCDs like diabetes, heart disease, cardiovascular disease and cancer constitute the greatest burden of disease in many PICs and are the major cause of death. The incidence of certain NCD risk factors, obesity and tobacco use in the Pacific is among the highest in the world. High fertility rates in the region make reproductive health and family planning services regional priorities. While infant mortality has declined throughout the region and generally women have proper prenatal, intra-natal and post-natal care, high rates of maternal mortality, especially in Melanesia point to continuing issues for women in getting access to good reproductive and maternal health care.

While some of these health issues in the Pacific can be addressed using current knowledge, *(e.g.* dysentery), still others require scientific breakthroughs in S&T, including:

- research and development of improved diagnostic tools, and preventive and therapeutic technologies for infectious (HIV/AIDS, malaria, TB, neglected tropical diseases) and NCDs;

- breakthrough on drugs and delivery systems to limit drug resistance;
- research and development into needed vaccines;
- research into development of genetic and chemical strategy to control vectors that transmit diseases;
- research on impacts of environmental pollutants on health;
- develop pre-natal screening and diagnostic technology for birth defects;
- studying impact of climate variability on the incidence of water-borne and vector-borne diseases;
- research to improve quality of life of people suffering from disability;
- improving the scientific knowledge on Pacific traditional medicine and standardising their use in treatment ;
- research on best practices of Pacific models of care and service delivery;
- developing technologies to assess population health; and
- conducting research and innovation in the area of population and family planning.

Thematic Area - Marine and land resource exploitation

Forestry and terrestrial minerals are significant and potential sources of revenue in the western PICTs area like Papua New Guinea, New Caledonia, Solomon Islands and Fiji. However, the sea is a substantial major common resource for the entire region. The small land areas of the Pacific islands are, to a large extent, compensated for by the extremely large sea areas that form the EEZ for each country to exploit for marine resources. Coastal areas provide the food, income, culture and recreation that are important to Pacific Islanders. Oceans, with the vast offshore areas comprise fisheries resource of high economic and strategic value, and yet to be exploited undersea minerals. The importance of fish, especially tuna, for the peoples of the Pacific has been likened to the importance of petroleum for states in the Middle East.

For an informed sustainable and environmentally-friendly exploitation of various land and marine resources, research is required in the following sub-areas:

- improve technologies, equipment and knowledge on the prospection and sustainable management of land and offshore oil and natural gas, solid mineral, freshwater and marine fisheries resources and forestry;
- promote eco-friendly sustainable development and growth of agriculture, forestry and aquaculture activities in areas of genetics, breeding, culture, production efficiency, health, pathology, aquaculture waste management and water quality assurance, forest hydrology and soil sustainability;
- improve technologies in the region to improve agricultural and aquacultural production and productivity;
- develop manufacturing and storage technologies for high value-added products;
- develop technologies for recycling and/or treating solid and water wastes shed from mines;
- develop reinforced smelting technologies with low pollution, low energy consumption and shorter and ecological process;
- study the impact, adaptation and mitigation of living resources to climate change;
- improve conservation of land and marine environment resources through informed management; and

- monitor the impacts of exploitation on the sustainability of the resource, the environment and the biodiversity.

Thematic Area - Environmental pollution control and integrated ecological reclamation

Pacific Islanders are heavily reliant on land and inshore marine environments for food, subsistence and recreational activities. The geographical location and isolation of PICTs has given rise to one of the world's richest marine and terrestrial biodiversity with very high rates of endemicity of terrestrial flora and fauna. The increasing environmental challenges due to human activities threaten these milieus, often undermining sustainable development in the Pacific.

All PICTs share the problems of pollution prevention and management. Scientific knowledge and technology is critical in the fight against the environmental pollution. This includes:

- conducting ecosystem evaluation studies;
- development of technologies to prevent biological invasion;
- development of technologies for soil preservation, reclamation of polluted soil, integrated reclamation of ecologically fragile regions, and the reclamation of mines;
- development of technologies and equipments for industrial, urban and domestic pollutants and wastes testing, monitoring, controlling and treatment;
- development of technologies and equipments for urban refuse, special dangerous wastes and used household appliances disposal and recycling;
- development of clean coal technologies;
- development of technologies for motorized vehicle and industrial emission control;
- development of technologies for low-energy consumption, high-performance and environmentally-friendly material; and
- development of clean-production technologies for the chemical, metallurgical and light industries.

Thematic Area – Climate change and biodiversity

The environmental issues that have regularly been identified in the region include: loss of biological diversity, threats to freshwater resources, degradation of coastal environments, climate change, ocean acidification, and sea level rise.

To understand better these threats, it is necessary to conduct research into major scientific regional and international issues of global change, *i.e.*:

- impact of climate change and climatic variability;
- biodiversity and food security loss; and
- ozone layer protection.

Thematic Area – Food security

Climate variations and extremes are already disrupting food production, water supply and the economies of these countries. The future climate projections indicate that the primary food sources (agriculture, fisheries and forest) and water will be impacted by this phenomenon and that in most cases, these impacts will be negative. Rising ocean

temperatures are predicted to alter the migratory routes of fish species such as tuna, which are vital to PICs' economies. Declining agricultural productivity as a result of the increasing salinity of soils and drought, rising saline water tables and declining fish stocks could therefore pose a substantial risk to food security in the region.

Food security in the Pacific can be increased, *inter alia*, through improving food (crop, livestock, poultry and aquaculture) productivity. This can be bought about through research on:

- improving the aquaculture sector and species diversification;
- improving nutrients, fertilizers and veterinary drug residues;
- improving resistance to pests and diseases;
- improving resistance to drought; salinity and temperature extremes resulting from climate change;
- raising nutritional value of the crop;
- improving breeding techniques and cultivation practices;
- reducing post-harvest loss; and
- agricultural biotechnology (genetic engineering), all in an environmentally and socially sustainable manner.

Thematic Area – Renewable and sustainable energy

There is significant potential in the region for reducing fuel imports by use of alternate energy. To develop these new, environmentally- and socially-sustainable technologies that will meet Pacific's requirements, research is necessary on:

- solar energy (photovoltaics and concentrated solar power technology)
- wind energy
- bio-energy (methane produced from anaerobic digestion of organic waste matter; ethanol made from sugar cane and starch crops and coconut oil) and overcoming barriers to its production for domestic use;
- other renewable energies (ocean, hydro and geothermal) and biomass sources;
- hybrid renewable technology;
- identify the right renewable energy mix appropriate for each PICTs; and
- improving energy efficiency and energy conservation techniques.

Thematic Area – Disaster management

The Pacific and its populations are frequently subjected to a range of natural hazards, such as cyclones, volcanic eruptions, earthquakes, floods, tsunamis, landslides and droughts. The small, highly dispersed land areas and populations intensify this vulnerability. In addition to imposing high damage and infrastructure rehabilitation costs, natural disasters have considerable long-term impacts on human lives, livelihoods and living conditions, as well as on the environmental assets of PICs, all of which severely undermine development in the region.

Although natural disasters cannot be stopped, scientific research and technology can be used to mitigate the impacts of natural disaster in the PICs. This includes:

- development of better technologies and instruments/equipments to monitor natural calamities;
- development of forecasting technologies with higher precision;
- development of emergency management technologies for natural disasters and creation of an information system to support decision-making; and
- risk assessment for urban infrastructures and other settlements.

Thematic Area – Transport

Transport is particularly important for the geographically dispersed Pacific countries and communities that remain underdeveloped in many PICs. Inefficient ports raise the costs of sea transport. Air transport costs are high because many airlines are government owned and restrict access to foreign carriers. Roads are often in very poor condition, making it difficult if not impossible to get goods to markets and information to farmers. For informed sustainable and environmentally-friendly transport facilities, research is required on:

- understanding policy and planning process in urban transport;
- understanding land use and urban design that are closely linked to urban transport for long-term development;
- economic and social issues linked to transport;
- particular attention to public transport systems;
- addressing transport congestion, air pollution, road safety and accident
- research on policies to reduce environmental and other problems (traffic congestion, accidents, air pollution, greenhouse gas emission, noise and dependence on volatile world oil market) caused by motor vehicles

Thematic Area – Water and Sanitation

In many parts of the region, sustainable access to improved water supplies and sanitation is not universal. A scarcity of freshwater poses several problems in the region, particularly in atoll communities forced to use polluted or salty groundwater for drinking and cooking, thus giving raise to serious health problems. This is far aggravated by lack of sanitation treatment systems in the region and by the phenomena of climate change. Scientific knowledge and technology is critical to ensure adapted solutions to clean and sustainable water supply in the region. This includes:

- research knowledge in relation to water and sanitation issue of the region, dynamics of water distribution and understand the complexity of systems required;
- new method of storing, treating and disinfecting water and developing sanitation systems to minimise pathogen release;
- integrated and locally adapted water resource management;
- climate change adaptation in the water and sanitation sectors;
- addressing the health impacts of water and sanitation sectors; and
- strengthening availability of data on water and sanitation.

Thematic Area – Information and Communication Technology

ICT is central to today's modern economics. Many international development agencies recognise the importance of ICT for development. The physical isolation of the Pacific islands remains a fundamental challenge one that can be overcome by ICT to spur economic growth. However, PICs far lag developed countries in computer use and internet access/usage.

ANNEX 1: Development Needs and Challenges of the Pacific islands

The Pacific, also collectively known as Oceania, is a region of a multitude of small islands scattered over the Pacific Ocean that covers one-third of the earth's surface. These islands vary greatly in size and composition, from large multi-ethnic Papua New Guinea to very small islands states such as Niue and Tokelau.

These islands are mostly grouped in archipelagos. The region is made of 25 PICTs, each unique given its distinctive combination of geographical, ecological, geological, sociological, political and economic characteristics. Home to diverse groups of indigenous peoples and cultures, the region is ethnologically grouped into three commonly recognised sub-regional constituents – Melanesia extending from Fiji to Papua New Guinea; Micronesia in the northwest; and Polynesia in the east. These sub-regions comprise 25 PICTs, 20 of which are recognised as Small Island Developing States (SIDS) (Table 1). Certain of these SIDS, are amongst the poorest and weakest segment of the international community and hence are also currently classified as Least Developed Countries (LDCs) (Table 1).

This chapter covers 14 Pacific Island Countries (PICs) of the Asian, Caribbean and Pacific Group of States (ACP), and four Overseas Countries and Territories (OCTs) as well as East-Timor, a SIDS country in Southeast Asia, often included in references to Oceania due to its proximity and similarities with PICTs (Table 1).

The Pacific ACP countries differ in many respects – size, population, resource endowments and social and economic achievement – thus any generalised description of the Pacific Islands therefore becomes problematic. However, despite their differences, similarities in culture, traditions, history and geography mean that these countries face many common development challenges as well as opportunities for development cooperation and coordination. The common and not-so-common development needs and challenges are discussed below and are put under the headings: size, isolation and resources economy; infrastructure and institutional capacity; demography and urbanisation; productive sectors; environmental fragility; social situation; political leadership and governance; and regional cooperation and regionalism.

Size, Isolation and Resources

Except Papua New Guinea, all PICs are relatively small in land size (<30 000 km^2) and are spread over the vastness of the Pacific Ocean (29 million km^2). Overall the ratio of land area to sea area of PICs excluding Papua New Guinea is 1:258 (calculated from Table 1). The Pacific region is also characterised by a small population size (<1 million) (Table 1). This limited land mass and population size exhibit by low primary resource endowment and small human resource capacity, which undermines the economical, institutional and infrastructural capacity of the Pacific island states.

While forestry and terrestrial minerals are significant and potential sources of revenue in the western Pacific areas like Papua New Guinea, the sea is a substantial major common resource for the entire region. The small land areas of the Pacific islands are, to a large extent, compensated for by the extremely large sea areas that form the exclusive

economic zone (EEZ) for each country to exploit for marine resources (Table 1). Coastal areas provide the food, income, culture and recreation that are important to Pacific Islanders. Oceans, with the vast offshore areas comprise fisheries resource of high economic and strategic value, and yet to be exploited undersea minerals. The importance of fish, especially tuna, for the peoples of the Pacific has been likened to the importance of petroleum for states in the Middle East.

In the same way as the physical isolation of the Pacific islands remains a fundamental challenge to development, it has contributed to the specialised ecosystems and species endemisms that occurs throughout the region, and is therefore home to an exceptional range of biodiversity.

Economy

The Pacific islands region is notorious for low economic growth. Most PICs are small market economies often with substantial subsistence elements and limited livelihood options. The main economic sectors in the region are tourism, fisheries, forestry, agriculture and mining. Remittances from national working abroad have become a major and regular source of foreign exchange for a number of Pacific island economies.

In general, the service sector dominates PICTs' economy, followed by the primary resource sector, while the manufacturing sector is small. The public sector remains a principal feature of the economic landscape although its capacity in terms of finance and human resources is often stretched. The private sector in PICTs, considered as an imperative for sustainable development in the region, is typically small and finds it difficult to achieve economies of scale[5].

Given the limited land resources, small population size, remoteness from export markets, and high vulnerability to natural disasters and climate change, PICTs face higher cost in the production and exchange of goods and services. Furthermore, the fortunes of PICTs' economies are closely tied to external events and conditions. Relying heavily on imports for many essential supplies (fossil fuels, etc.) with a narrow range of export base, the development challenges of the Pacific island have been compounded by the global financial and economic crisis and world commodity price fluctuations. Furthermore, poor governance, as manifested in inadequate macroeconomic management and administration of public services, weak policies and limited accountability, is also widely seen as a major reason for the meagre economic development of PICTs.

Nonetheless, many PICTs have some exceptional advantages that can be exploited in a globalising world. This includes a relatively pristine natural environment with a high tourism potential, backed by English language capability, high value marine resources and, in certain PICs, various other natural resources.

PICs, ever since their independence, have been among world's top ten recipients of Official Development Assistance (ODA) on a per capita basis. The large majority of this financing has been in the form of grants. More than 85% of per capita ODA is bi-lateral,

[5] Cost advantages that a business obtains due to expansion *e.g.* the decrease in unit cost of a product or service resulting from mass production.

with Australia, New Zealand, France, United States and Japan as leading donors. In spite of the international communities' commitment to support the sustainable development of the Pacific through the provision of financial resources, it is widely recognized that the effectiveness, growth and poverty outcomes of the majority of past ODA-funded activities in the region have been very limited. Major lessons drawn by donors' include the need to: strengthen existing institutions; increase community and government ownership; enhance non governmental organisations (NGOs) and private sector partnerships; keep operations at a small-scale level; make simple and flexible implementation arrangements; secure market links; maintain cost-effective supervision; and adopt sustainable rural finance mechanisms.

Infrastructure and Institutional Capacity

The infrastructure needs in PICTs are a major abstraction to sustainable development. Each country, depending on it geography including the number of its islands and population settlement has different infrastructure needs. Furthermore, this infrastructure is vulnerable to damage during the frequent natural disasters that the region faces. State-owned enterprises are usually sole providers of infrastructure in the Pacific including air, marine and land transport, water supply, sanitation, solid waste, energy and telecommunication.

In most PICTs, less than half of the population have access to electricity and the costs are relatively high. Telephone coverage is also limited despite the mobile phone revolution that is sweeping the world, is slowly penetrating the Pacific due to the monopolistic model of conventional service providers. Transport infrastructure, particularly important for the geographically dispersed Pacific countries and communities, remains underdeveloped in many PICs. Inefficient ports raise the costs of sea transport. Air transport costs are high because many governments own airlines and restrict access to foreign carriers. Roads are often in very poor condition, making it difficult if not impossible to get goods to markets and information to farmers.

PICTs generally have lower levels of access to telecommunications, electricity, improved water and sanitation than similar countries with the same level of income such as the Caribbean islands. These differences are not only due solely to geography but also to poor management resulting in unplanned and unsustainable structures, and improper maintenance and rehabilitation after natural disasters, all of which pose fundamental constraints to economic activity and growth in the region.

The inherent economic and infrastructure constraints, as well as weak legal and regulatory frameworks, also affect institutional capacity of many PICTs, hampering private sector growth and investment. Charging businesses high prices for power and telecommunication services, in order to provide low-cost services to household and the outer islands, places additional burdens on the private sector. There is significant potential for reducing fuel imports through improved management, greater efficiencies and use of alternate energy in PICTs.

Though much of the PICTs' economy is dominated by the public sector, recently, as a result of reforms initiated due to fiscal pressures and capacity constraints on governments, civil society organisations and private agencies have provided an

increasingly large proportion of services to rural areas, including in agricultural extension, health, water supply and education. However, despite the fact that the private sector has in the past led and is currently leading the tourism and agricultural exports sectors in the region, its role as a development partner is frequently overlooked by the policy makers.

Demography and Urbanisation

Population growth in the western and northern Pacific islands has been among the highest in the world. While rapid population growth is a serious concern in Melanesian countries that have more than doubled their population over the last two decades, in other countries like the Cook Islands and Niue, the population has been declining due to increasing emigration levels.

Related to high population rates is the high youth demographic in the Pacific islands region. The median age of the region is 20 years. Population growth alone has major impacts on access for citizens - especially young people in PICTs - to health, education, transport, employment, housing and infrastructure. On the contrary, population loss, in some countries, is placing strains on society, impacting on the elderly, culture and language retention and causing a 'brain drain' of their most skilled and motivated people. This out-migration is eroding the level of skills and capacity in PICTs, in government, the private sector and civil society.

Though the overall population remains predominantly rural, urbanisation across the region is rapid causing severe strains on the rural communities as well as on the already weak urban infrastructures and services, leading to haphazard provision of urban infrastructure, bottleneck expansions of economic activity and growth, and environmental degradation, as well as giving rise to several social and health issues.

Productive Sectors

Of a number of productive sectors in the Pacific (as described in Table 2), the five most important sectors; agriculture, forestry, mining, fishery and tourism, are discussed herein. Agriculture provides more employment than any other sector in PICTs and is a major source of export earnings for many states, particularly in Melanesia. A wide variety of agricultural products, though focused on horticultural industries, takes place throughout Melanesia and the higher, larger islands of Polynesia. Yet agricultural productivity is well below potential. The problem is not a scarcity of opportunities for agriculture as there are both domestic opportunities for supplying urban and tourist markets, and export opportunities for traditional tree crops and new horticultural and spice products. Infrastructure has emerged as a particularly important constraint for agriculture. Limited access to the latest technology and market information is also constraining growth in the agricultural sector.

Like agriculture, forestry has potential throughout Melanesia and the higher, larger islands of Polynesia, with a total forest cover of over 340 000 km^2. Natural forests and plantation forestry present governments with very different mixes of opportunities and challenges. Four Melanesian countries have important natural forestry sectors, but are in crisis. Vanuatu and Fiji show that sustainable harvesting of natural forests is possible.

But current natural forest logging practice in Papua New Guinea and Solomon Islands are unsustainable and bound to decline in the coming years, raising questions on management of growth, governances and implementation of forestry policies and legal requirements.

Minerals, which are increasingly exploited throughout Melanesia, provide significant revenue inflows. Papua New Guinea, Solomon Islands, New Caledonia, and East Timor are the four PICTs with significant mineral and petroleum reserves. For many of the other PICs there may be a potential for deep seabed mining, which can be an important source of revenue in years to come. However, in the absence of good governance, exploitation of minerals can lead to environmental damage, corruption and political instability. Nauru presents a tragic tale of a mining resource dependence gone wrong.

PICTs also control massive fishery resource reserves. But oceanic fisheries are approaching the limits of sustainability after decades of steady growth in catches, and coastal fisheries are facing environmental risks. Better management policies in the fisheries sector, which call for stronger governance, are required to address these issues.

Unlikely to be competitive in basic manufacturing because of their remoteness and small sizes, tourism provides PICTs with a 'niche' activity where, in return for differentiated or exclusive products, they can charge the high prices needed to cover their high costs and risks. Both the smaller and larger PICTs are capitalising on their coasts and climate and are being marketed globally as safe tourist destinations. Getting to the PICTs has to be made easier and cheaper by running aviation along more commercial and competitive lines. However, Pacific tourism is still a small business by global standards, even compared with other island destinations. A major obstacle to boosting tourism in the Pacific is weak infrastructure. Reputations for social and political instability, disease risks and high crime rates also deter tourists. In some countries, land tenure problems need to be addressed if new tourist sites are to be developed and foreign investment needs to be welcomed to enable joint ventures or the like to attract overseas capital. Addressing these constraints to tourism will give it an enormous boost.

Environmental Fragility

Pacific Islanders are heavily reliant on land and in-shore marine environments. The geographical location and isolation of PICTs has given rise one of the world's richest marine and terrestrial biodiversity with very high rates of endemicity of terrestrial flora and fauna The increasing environmental challenges threaten these milieus, often undermining sustainable development in the Pacific. The region is vulnerable to both human activities and natural phenomena. The environmental issues that have regularly been identified in the region include: loss of biological diversity, threats to freshwater resources, degradation of coastal environments, climate change and sea level rise and land and sea based pollution.

The Pacific and its populations are frequently subjected to a range of natural hazards, such as cyclones, volcanic eruptions, earthquakes, floods, tsunamis, landslides and droughts. The small, highly dispersed land areas and populations intensify this vulnerability. In addition to imposing high damage and infrastructure rehabilitation

costs, natural disasters have considerable long-term impacts on human lives, livelihoods and living conditions, as well as on the environmental assets of the PICs, all of which severely undermine development in the region.

The limited landmass makes many terrestrial and freshwater resources as well as marine resources very vulnerable to over-exploitation and to pollution. Scarcity of freshwater poses several problems in the region, particularly in atoll communities forced to use polluted or salty groundwater for drinking and cooking, thus giving raise to serious health problems. Some PICs have extensive forest resources but much of the commercially exploitable timber has already been harvested in the region. Terrestrial flora and fauna of PICTs are highly susceptible to disturbance, and the region has a high number of threatened and endangered species. As the Pacific Ocean covers one-third of the earth's surface, all PICTs have vast marine areas with rich, yet fragile coral reef ecosystems and marine biodiversity. Given that most of the region's population (>80 percent) relies heavily on marine resources for both subsistence use and economic development and are settled in coastal areas, the use of the coastal zone and activities taking place within it, pose many threats to marine and coastal resources and pose serious challenges to sustainable development in the Pacific.

Climate change poses an additional and daunting threat to the region as PICTs generally suffer from sea-level rise, more frequent and intense tropical storms and flooding, prolonged periods of drought, bleaching of coral reefs, increasing scarcity of freshwater resources, and a higher incidence of vector-borne diseases. Climate variations and extremes are already disrupting food production, water supply and the economies of these countries. The future climate projections indicate that the primary food sources (agriculture, fisheries and forest) and water will be impacted by this phenomenon and that in most cases, these impacts will be negative. Rising ocean temperatures are predicted to alter the migratory routes of fish species such as tuna, which are vital to PICs' economies. Declining agricultural productivity as a result of the increasing salinity of soils and drought, rising saline water tables and declining fish stocks could therefore pose a substantial risk to food security in the region, while increasing severity of natural events is already posing challenges to human security concerns.

Social Situation

The exceptional ethnic and cultural diversity of the Pacific is such that more than 2 000 languages are spoken across the region, accounting for almost one third of the world's languages. The significant cultural diversity of the Pacific islands is an important aspect of the region's unique identity, but can also function as a barrier. Resolving population, education and health issues in the region remain at the core of any list of sustainable development priorities to reduce poverty.

Largely unrecognised in previous decades, poverty in many PICTs is now a significant and growing issue in urban areas. Poor rural economic performance and alternative employment opportunities, fairly rapid population growth and urban drift, rising expectations and growing inequalities have contributed to increasing poverty in some PICTs. Though severe hunger and starvation are generally absent in most of the Pacific as a wide variety of subsistence food crops are grown, poverty is reflected by difficulties in meeting basic needs such as adequate shelter and health care and an increasing

dominance of a cash economy. Previously, poverty in the Pacific was mitigated by social safety nets within rural villages. However, the traditional systems are breaking down and high rates of migration, international and internal to major towns in search of (largely non-existent) jobs, are creating poverty in both unplanned and unserviced peri-urban settlements as well as among the less productive (older and younger) populations left behind in rural areas and in outer islands.

Tensions associated with weak economies, changing societies and the uneasy co-existence of 'traditional' and 'modern' cultures have led to an expansion of social problems such as drug and alcohol abuse, crime, domestic violence and teenage pregnancies in many PICTs and the highest youth suicide rates in the world in some other PICTs.

Despite the relatively high levels of government expenditures and donor support, provision of basic education for all and quality of education in the Pacific region remains a challenge. High literacy and numeracy levels in the Eastern Pacific are offset by declining levels in the Melanesian countries of Papua New Guinea, Solomon Islands, Fiji and Vanuatu. Although, primary school enrolment rates are relatively high, the primary school completion and accomplishment rates are declining. The access to secondary schooling is very low in some of the PICs, particularly in Melanesia, largely due to government's insufficient resources to meet the recurrent costs, compounded by the lack of physical facilities. Moreover, schooling is not adequately equipping children with the basic skills needed to pursue further studies or training or to succeed in the labour market. Most young people lack opportunities to upgrade their skills because too few non-formal training programmes are available.

Major challenges also exist in achieving gender equality and the empowerment of women. The main areas of gender inequality experienced across the Pacific are: high prevalence of physical and/or sexual violence; severe under-representation in public life; and numerous gaps in the legislation region-wide regarding sex discrimination, domestic violence, marital rape, legal and safe abortion, legal age of marriage and property rights including land. Despite the emerging gender trend that shows that girls stay at school longer and are more successful than their male counterparts in external examination and higher level education, women remain under-represented in technical and professional sectors and are over-represented in low-paid, informal sectors. They are also under-represented in decision-making bodies and high-level positions. Institutional arrangements for promoting gender equality have proven problematic in the Pacific. Governmental women's development agencies have had great difficulty in implementing the international commitments of the PICs that have signed conventions such as the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW), Beijing Platform for Action and Pacific Platform for Action for gender equality and the advancement of women.

The prevalence of infectious diseases varies across the region. The traditional communicable diseases, such as malaria, meningitis, tuberculosis, and diarrhoeal diseases are thriving in the Pacific. Environmental health is an issue in many parts of the region as sustainable access to improved water supplies and sanitation is not universal. HIV/AIDS is ravaging Papua New Guinea. Non-communicable diseases (NCDs) like diabetes, heart disease, cardiovascular disease and cancer now constitute the greatest

burden of disease in many PICs and are the major cause of death. The incidence of certain NCD risk factors, obesity and tobacco use in the region is among the highest in the world. This 'double burden' of infectious diseases and NCDs is exacerbated by structural weakness of health systems, further impacting the health of individuals and population, and affecting broader social and economic development as well. High fertility rates in the region make reproductive health and family planning services regional priorities. While infant mortality has declined throughout the region and generally women have proper prenatal, intra-natal and post-natal care, high rates of maternal mortality, especially in Melanesia point to continuing issues for women in getting access to good reproductive and maternal health care.

Political Leadership and Governance

PICs have diverse political systems that provide divergent outcomes. Being relatively young democracies, PICs governments generally suffer from weak public sector management and overall governance, including non-transparent and weak decision-making in the public interest.

Weaknesses in policy formulation and implementation processes are widespread. Policy formulation often follows a top-down approach, with little participation or recognition that stakeholders beyond senior levels of government, including women and youth, may have valuable experience or perspectives to add. Furthermore, policy processes, too infrequently developed on the basis of careful data gathering and analysis, are sometimes haphazard and externally driven, either by development partners or specific interest groups. When effective and appropriate policies are in place, implementation through effective institutions is a major challenge.

Traditional authority is recognised through the democratic system in varying ways in Fiji Islands, Samoa and Vanuatu, but in general it can be said that 'modern' and 'traditional' governance systems tend to coexist awkwardly. With traditional loyalties to family and clan mixing uneasily with western economic systems and structures of government, leadership is a difficult and complex task in the Pacific. The balance between demands for priority treatment for indigenous interests with support for policies and the approaches that address broader national concerns is not always achieved, especially in ethnically diverse Melanesia, where tribal allegiances remain strong and national loyalties are often seen to be of secondary importance.

Customary ownership of land is deeply embedded in Pacific culture and no subject in the Pacific is more sensitive than land tenure. Land is an asset that identifies family, clan and lineage and is valued for the subsistence and livelihood it provides. Over 80 percent of land and marine resources in the Pacific are owned by indigenous communities in a variety of customary tenure arrangements. These communities are therefore critical to any process that aims to address the management and sustainable use of these resources. Though participatory approaches to environmental conservation and resource development in PICTs have been successful and are increasingly employed, maintaining customary land systems in their current form will not meet emerging needs, especially given the fast-changing demographics and aspirations of Pacific island citizens. Traditional land tenure regimes in urban centres have largely been unable to adapt to the needs of rural and outer island immigrants, and this has led to the

development of insecure squatter settlements with very unhealthy solid waste management, domestic water supplies and sanitation systems as well as often non-existent provision of electricity and other urban services.

Conflicts and insecurity have become increasing features of the Pacific landscape in the past decade due to the interaction of a range of political, social and economic tensions. Several countries have suffered civil unrest, political instability and a breakdown in poor law and order. This is largely due to local conflict, often involving ethnic differences, land disputes, economic disparities, and lack of confidence in the ability of central governments to satisfactorily resolve provincial differences. Conflicting land claims with clans and among tribes, squatter encroachments, and access arrangements to resource are direct causes of disputes that have led to: tribal fighting and civil unrest in Papua New Guinea and the Solomon Islands; major disputes with mining and logging companies in Papua New Guinea and Vanuatu; and to vacating of plantation and arable agriculture developments in Papua New Guinea, Solomon Islands and Fiji Islands. Papua New Guinea and Solomon Islands have experienced protracted civil conflicts and, especially in Papua New Guinea, high levels of urban crime. Fiji Islands has had four coups d'états and three constitutions revoked.

Failure of most PICTs to sustainably build and retain human capital is another central and long-standing issue impacting the quality of governance and institutions, as is the issue of corruption and political instability, which may result in too little pursuit of the public good. Furthermore, provincial and local governments invariably flounder due to lack of resources and capacity to meet local demands. These issues are considered to present fundamental challenges to sustainable development. Without more effective political leadership – government policies and political commitment to sustainable and regulatory frameworks - sustained growth will remain elusive.

Regional Cooperation and Regionalism

Regional cooperation has long been recognised as having the potential to address many of the constraints to development in the Pacific by: improving economies of scale; sharing the costs and human resources for providing specialized public goods; and by jointly addressing other common development challenges and by speaking with a common voice beyond the region. Regional cooperation began during colonial times when the region was almost wholly made of dependent territories and gathered momentum as these territories gained their independence and formed new organisations among themselves as sovereign states (Table 3). Today the region has already several intergovernmental organisations and many national and international NGOs.

Regionalism has been evolving slowly in the Pacific and today, regionalism exemplified by the Pacific Plan. In October 2005, the Leaders of the Pacific Islands Forum (PIF) endorsed the Pacific Plan for Strengthening Regional Cooperation and Integration (Pacific Plan); thereby acknowledging that strengthened regional cooperation can bring wide benefits to the countries of the Pacific. The Pacific Plan is designed to create stronger and deeper links between the countries of the region, and to identify practical steps in the four focal areas of the PIF: economic growth; sustainable development; good governance; and security.

Table 1: Basic demographic indicator of PICTs

Pacific island countries and territories	Last population census[a]	Population count at last census[a]	Population (mid-2010 estimation)[a]	Land area (km²)[a]	Exclusive Economic Zone (km²)[b]
MELANESIA					
Fiji Islands[1]	2007	837271	847793	18273	1290000
New Caledonia[1]	2009	245580	254525	18576	1774000
Papua New Guinea[1]	2000	5190786	6744955	462840	3120000
Solomon Islands[1]	1999	409042	549574	30407	1340000
Timor-Leste[c, 1, 2]	..	..	..	14870	1154625
Vanuatu[1,2]	1999	186678	245036	12281	680000
MICRONESIA					
Guam[1]	2000	154805	187140	541	218000
Kiribati[1,2]	2000	92533	100835	811	3550000
Marshall Islands[1]	1999	50840	54439	181	2131000
Micronesia (Federated States)[1]	2000	107008	111364	701	2978000
Nauru[1]	2006	9233	9976	21	320000
Northern Mariana Islands[1]	2000	69221	63072	457	777000
Palau[1]	2005	19907	20518	444	629000
POLYNESIA					
American Samoa[1]	2000	57291	65896	199	390000
Cook Islands[1]	2006	15324	15539	237	1830000
French Polynesia[1]	2007	259706	268767	3521	5030000
Hawaii	..	..	..	..	..
Niue[1]	2006	1625	1479	259	390000
Norfolk Island[c]	..	..	..	36	2155
Pitcairn Islands	2007	66	66	5	800000
Samoa[1,2]	2006	180741	183123	2935	120000
Tokelau	2006	1151	1165	12	290000
Tonga	2006	101991	103365	650	700000
Tuvalu[1,2]	2002	9561	11149	26	900000
Wallis and Futuna	2008	13445	13256	142	300000

Key: Countries in bold indicate ACP countries; .. indicate unavailability of data. [1] indicate SIDS countries and [2] indicate LCDs countries Source: [a] Secretariat of the Pacific Community (SPC) *Pacific Island Populations - Estimates and projections of demographic indicators for selected years (updated July 2010)*; [b] SPC *Fisheries Address Book* (2010); [c] These countries are not members of SPC thus their data has been sourced from *The World Fact Book* accessed online on 9 August, 2010

Table 2: Main economics activities of PICs

Pacific island countries	Industries
Cook Islands	Fruit-processing, tourism, offshore financial services, copra, citrus fruits, clothing, coffee, fish, pearls and pearl shells, mining, handicrafts.
Micronesia (Federated States)	Tourism, construction, fish processing, craft items (shell, wood, pearls), garments, bananas, black pepper.
Fiji Islands	Sugar, tourism, agriculture, copra, gold, silver, garments, timber, fish processing, cottage industries.
Kiribati	Fishing, handicrafts, copra, tourism
Marshall Islands	Copra, fish, tourism, craft items (shell, wood, pearls), offshore banking (embryonic), coconut oil, trocha shells.
Nauru	Phosphate mining, coconut products
Niue	Fishing, tourism
Palau	Tourism, craft items (shell, wood, pearl), fishing, agriculture
PNG	Copra crushing, palm oil processing, plywood production, wood chip production, gold, silver, copper, crude oil production, construction, tourism, timber, coffee, cocoa, seafood and fish canning
Samoa	Fishing, tourism, timber, food processing, coconut oil and cream, copra, beer
Solomon Islands	Timber, fishing, palm oil, cocoa, copra, gold, tourism
Tonga	Tourism, fishing, squash, vanilla, root crops, coconut oil
Tuvalu	Fishing, tourism, copra, stamps/coins
Vanuatu	Fishing, offshore financial services, tourism, food and fish freezing, wood processing, meat canning, coconut, cocoa, coffee

Source: *SPC Fisheries Address Book (2010)*

Table 3: Regional inter-governmental organisation in the Pacific islands forming the Council of Regional Organisations in the Pacific

Pacific island countries and territories	PIFS	SPC	SOPAC	FFA	PIDP	PPA	SPREP	SPTO	USP	SPBEA	FSMed
American Samoa		√			√	√	√				
Cook Islands	√	√	√	√	√		√	√	√		
Fiji Islands	X	√	√	√	√	√	√	√	√	√	√
French Polynesia		√			√	√	√	√			
Guam		√	√		√	√	√				
Hawaii					√	√	√				
Kiribati	√	√	√	√	√			√	√	√	
Marshall Islands	√	√	√	√		√	√	√	√		
Micronesia (Federated States)	√	√	√	√	√	√	√				
Nauru	√	√	√	√	√	√	√	√	√	√	
New Caledonia		√			√	√	√	√			
Niue	√	√	√	√	√		√	√	√		
Northern Mariana Islands		√			√	√	√				
Palau	√	√	√	√	√	√	√				
Papua New Guinea	√	√	√	√	√	√	√	√			
Pitcairn Islands	√	√						√			
Samoa	√	√	√	√	√	√	√	√	√	√	
Solomon Islands	√	√	√	√	√	√	√	√	√	√	
Tokelau		√		√			√		√	√	
Tonga	√	√	√	√	√	√	√	√	√	√	
Tuvalu	√	√	√	√	√	√	√	√	√	√	
Vanuatu	√	√	√	√	√	√	√	√	√	√	
Wallis and Futuna							√				

Key: Countries in bold indicate ACP countries; X indicates that Fiji Islands was suspended from PIFS.

Abbreviation: PIFS – Pacific Island Forum Secretariat; SPC – Secretariat of the Pacific Community; SOPAC - South Pacific Applied Geoscience Commission; FFA - Forum Fisheries Agency; PIDP - Pacific Islands Development Programme; PPA – Pacific Power Authority; SPREP - South Pacific Regional Environment Programme; SPTO – South Pacific Tourism Organisation; USP – University of the South Pacific; SPBEA - South Pacific Board for Educational Assessment; and FSMed – Fiji School of Medicine.

ANNEX 2: Research and Development Sectors defined by the European Union

Agriculture and food supply - veterinary and animal sciences; agriculture; food production and food security; agricultural biotechnology and resources of the land and sea

Biology and medicine - medicine; health, including public health and sanitation; biotechnology; life sciences; healthcare delivery/services; medical biotechnology

Energy - nuclear fission; nuclear fusion; fossil fuels; renewable sources of energy; energy storage; energy transport; energy saving; biofuels; hydrogen and fuel cells; other energy topics; clean coal technologies

Environment and climate - meteorology; environmental protection; radiation protection; waste management; radioactive waste; sustainable development; earth sciences; climate change and carbon cycle research; water resource management; biodiversity; disaster management, sanitation

Industry and industrial technology - industrial manufacturing; materials technology; nanotechnology and nanoscience; industrial biotechnology; mineral and metal mining; sea bed resources

Information and communication technology - electronics and microelectronics; information processing, information systems; telecommunications; automation; robotics; ICT application; network technologies

Social and economic concerns - social aspects; education and training; information and media; economic aspects; regional development; employment issues; safety; security; governance; private sector; poverty alleviation; gender equality; culture

Transport and construction - construction technology; transport; aerospace technology; space and satellite research; other technology not included elsewhere

For more details on type of information covered by the themes please consult the following website: http://cordis.europa.eu/themes/home_en.html

ANNEX 3: Existing Networks, Partnerships or Alliances in the Pacific region

Complementary Report

Existing networks, partnerships or alliances in the Pacific region

Prepared by the Strategic Engagement, Policy and Planning Facility (SEPPF) of the Secretariat of the Pacific Community (SPC)

Edited version, 22/06/2011

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Table of Content

B. Existing networks, partnerships or alliances in the Pacific region that support science and technology

List of Abbreviations for the Networks

APAARI	Asia Pacific Association of Agricultural Research Institutions
APAFRI	Asia Pacific Association of Forestry Research Institutions
APAN	Asia Pacific Climate Change Adaptation Network
APAPA	Asia Pacific Alcohol Policy Alliance
APFISN	Asia Pacific Forest Invasive Species Network
APFORGEN	Asia Pacific Forest Genetic Resources Network
APMEN	Asia Pacific Malaria Elimination Network
APMRN	Asia Pacific Migration Research Network
APN	Asia Pacific Network for Global Change Research
APNAC	Asia Pacific Neuro-AIDS Consortium
APNG	Asia Pacific Networking Group
APPHAC	Asia Pacific Paediatric Consortium
ARTNeT	Asia Pacific Research and Training Network on Trade
ASAO	Association for Social Anthropology in Oceania
ASPAC	Asia Pacific Network of Science and Technology Centres
BAPNET	Banana Asia and Pacific Network
COGENT	Coconut Genetic Resource Network
CORAL	Coral Reed Alliance
DevNet	Aotearoa New Zealand International Development Studies Network
DIWPA	DIVERSITAS in the Western Pacific and Asia
GCRMN	Global Coral Reef Monitoring Network
GOPS	Grand Observatoire de l'Environnement et de la Biodiversité Terrestre et Marine du Pacifique Sud
GWN	Gender Water Network
ICRAN	International Coral Reef Action Network
IPCA	Indo-Pacific Conservation Alliance
LMMA Network	Locally-Manage Marine Area Network
NACA	Network of Aquaculture Centres in Asia Pacific
NAPSIPAG	Network of Asia Pacific Schools and Institutes of Public Administration and Governance
NET-BIOME	Networking Tropical and Subtropical Biodiversity Research in OuterMost Regions and Territories of Europe in support of Sustainable Development
ODN	Oceania Development Network
PAA	Pacific Arts Association
PABITRA	Pacific-Asia Biodiversity Transect Network
PACINET	Pacific Island Partnership for Taxonomy
PACVET	Pacific Veterinary Network
PAFPNet	Pacific Agricultural and Forestry Policy Network
PAHLNet	Pacific Animal Health Laboratory Network
PAPGREN	Pacific Agricultural Plant Genetic Resources Network
PDARN	Pacific Drug and Alcohol Research Network
PDRMPN	Pacific Disaster Risk Management Partnership Network
PEG	Pacific Energy and Gender Network
PHOVAPS Network	Pacific Heads of Veterinary and Animal Production Services Network

PICRA	Pacific Islands Conservation Research Association
PICISOC	Pacific Islands Chapter of the Internet Society
PILN	Pacific Invasives Learning Network
PIMA	Pacific Island Museums Association
PPHSN	Pacific Public Health Surveillance Network
PSA	Pacific Science Association
SPMUS	South Pacific Underwater Medicine Society
STAR	Science, Technology and Resource Network
START	System for Analysis, Research and Training
USCRFT	United States Coral Reef Task Force

List of Illustrations

Tables

1. Presentation of the Study

This Study was carried out within the framework of the Pacific Europe Network for Science and Technology (PACE-Net), a project funded by the European Commission's Directorate-General for Research - 7th Framework Programme (FP7) - Grant agreement n° 244514.

The overall objective of PACE-Net is to enhance science and technology (S&T) research activities for development in the Pacific island region by: ***(1)*** reinforcing existing dialogues and Networks and promoting regional integration for these networks; ***(2)*** identifying S&T international cooperation activities and programmes towards the Pacific region; and ***(3)*** by strengthening the coordination of S&T cooperation and the complementarities with activities and programmes carried out by other Community instruments.

The current Study addresses the first objective of the project. It seeks to identify and provide a comprehensive list (if not exhaustive) of the existing networks in the Pacific island region including Australia and New Zealand that support or promote scientific research activities as per the mission, vision and/or goals statement that these networks adhere to. Moreover, the report also inventories various networks that do not per se support or promote research activities but advocate other S&T activities (*e.g.* application of research results, policy formulation that require researchers to participate, etc.) and hence may in due course lead to scientific research collaboration and cooperative activities. Finally, the reports also attempts to recommend the networks that could serve the objectives of PACE-Net.

Given the functional definition of the term 'network' – a system or process that involves a number of persons, groups or organisations – and the various synonyms – association, alliance, group, organisation, etc - that exist, a broad definition of the term has been privileged in this report. As such the scope of the report is not limited to the appearance of the term 'network' in the title of such organisations or groups but also includes the terms such as 'partnerships,' 'association' and 'alliances.'

In total 55 networks have been inventoried and analysed, which have been classified into two categories: those that promote research activities as part of their objectives or goals (43 networks) and those that are S&T networks (11). For reading ease, these networks appear in the report in alphabetical order and have been numerated.

The networks inventoried in this report vary in type, structure, *modus operandi*, the themes they cover, the objectives and activities, the regions and countries they cover and that are involved, as well as the number and type of members involved, which can vary from highly formal institutional memberships to individuals to highly informal email group mailing lists. Moreover, some of the networks listed herein require membership fees while others are free of charge to join.

The structure of the report is divided into two parts. The first part includes the presentation of the data in table-format. There are 5 tables which correlate the networks with:

1. the research and development sectors they cover (Table 1);
2. the regions covered through the geographical scope of the networks and/or through affiliation via the membership and/or partnership (Table 2);
3. the Pacific countries covered through the geographical scope of the networks and/or through affiliation via the membership and/or partnership (Table 3);
4. Pacific island research institutions and universities involved (Table 4); and
5. Pacific island governmental, non governmental, inter-governmental and other organisations involved (Table 5).

The data compiled in these tables are also present in a list-format, which comprises the second part of the report. Attempts have been made to provide information on the networks listed using the following category filters: Aim; Countries Involved or Covered; Member/Partner Institutions or Organisations; Website; Contact and Research and Development Sector[6]. Please note that in case of individual membership, the organisation of affiliation has been quoted.

The objective of this report is to provide information to and assist the PACE-Net Consortium and the PACE-Net dialogue fora, in particular the first bi-regional platform which will attempt to answer the following question: what are the networks and partnerships that already exist in the domain of research in the region and how it can be effective used to build capacity to work towards the priorities of research in the region?

DISCLAIMER: Efforts are made to ensure that the information presented in this report is accurate, up-to-date and from reliable sources.

[6] The Research and Development (R&D) sectors have been largely inspired from those of the European Union (http://cordis.europa.eu/themes/home_en.html).

2. Recommendations

The preliminary analysis of the 55 networks shows that there are a good number of networks that already exist in the following Research and Development (R&D) sectors: Agriculture and food supply, Biology and medicine, Environment and climate and Social and economic concerns (Table 1). To recommend the networks that could serve the objectives of PACE-Net (*i.e.* to increase regional integration into existing networks in order to increase S&T research collaborations and finally co-operation), the roles and objectives of the networks within the above R&D sectors were studied, which leads to the following recommendations for PACE-Net:

Agriculture and food supply:	Biology and medicine:	Environment and climate:	Social and economic concerns:
- APAARI	- APMEN	- APN	- APMRN
- APAFRI	- PDARN	- APFORGEN	- NAPSIPAG
- APFORGEN		- DIWPA	- ODN
- BAPNET		- GCRMN	- PDARN
- COGENT		- GOPS	
- NACA		- NET-BIOME	
- PAPGREN		- PACINET	
		- PABITRA	
		- START	

Part I Analysis of information collated

Table 1: Research and Development sectors supported by the existing networks, partnerships or alliances in the Pacific region

No.	Networks, partnerships or alliances in the Pacific region	Research and Development sectors promoted by the networks								
		Agriculture, fisheries & food supply	Biology & medicine (Health)	Energy	Environment including climate change	Industry & industrial technology	Information & communication technology	Social & economic concerns	Transport & construction	Science & technology (not defined)
Networks, partnerships or alliances that promotes or facilitates science and technology research activities										
1	DevNet							√		
2	APAARI	√								
3	APAFRI	√								
4	APAN				√					
5	APFORGEN	√			√					
6	APFISN	√			√					
7	APMEN		√							
8	APMRN							√		
9	APN				√					
10	APNG						√			
11	Asia Pacific Network of HIV Social Researchers		√					√		
12	APNAC		√					√		
13	APPHAC		√							
14	ARTNeT							√		
15	ASAO							√		
16	ANU Development Studies Network							√		
17	BAPNET	√								
18	COGENT	√								
19	DIWPA				√					
20	GWN							√		
21	GCRMN				√					
22	GOPS				√					
23	HIV Consortium for Partnerships in Asia and the Pacific		√							

No.	Networks, partnerships or alliances in the Pacific region	Research and Development sectors promoted by the networks								
		Agriculture, fisheries & food supply	Biology & medicine (Health)	Energy	Environment including climate change	Industry & industrial technology	Information & communication technology	Social & economic concerns	Transport & construction	Science & technology (not defined)
Networks, partnerships or alliances that promotes or facilitates science and technology research activities										
24	IPCA				√					
25	ICRAN				√					
26	LMMA Network				√					
27	NACA	√								
28	NAPSIPAG							√		
29	NET BIOME				√					
30	ODN							√		
31	PAPGREN	√								
32	PAA							√		
33	PABITRA				√					
34	PDARN		√					√		
35	PEG			√				√		
36	PICRA				√					
37	PIMA							√		
38	PACINET				√					
39	PSA		√		√			√		
40	SPUMS		√							
41	STAR				√					
42	START				√					
43	USCRTF				√					
Networks, partnerships or alliances that promotes or facilitates science and technology activities										
44	APAPA							√		
45	ASPAC									√
46	CORAL				√					
47	PAFPNet	√								
48	PAHLNet	√								
49	PDRMPN				√					

No.	Networks, partnerships or alliances in the Pacific region	Research and Development sectors promoted by the networks								
		Agriculture, fisheries & food supply	Biology & medicine (Health)	Energy	Environment including climate change	Industry & industrial technology	Information & communication technology	Social & economic concerns	Transport & construction	Science & technology (not defined)
Networks, partnerships or alliances that promotes or facilitates science and technology activities										
50	PHOVAPS Network	√								
51	PILN				√					
52	PICISOC						√			
53	PPHSN		√							
54	PACVET	√								
55	PestNet	√								
TOTAL		13	9	1	21	0	2	16	0	1

Table 2: Regions covered by the geographical scope of and/or associated through partnerships and/or memberships to the existing networks, partnerships or alliances in the Pacific region

No.	Networks, partnerships or alliances in the Pacific region	Regions covered the geographical scope of and/or associated through partnerships and memberships to the networks							
		Africa	Americas	Asia	Caribbean	Europe	Indian Ocean	Middle East	Pacific
Networks, partnerships or alliances that promotes or facilitates science and technology research activities									
1	DevNet			√					√
2	APAARI			√				√	√
3	APAFRI			√					√
4	APAN			√					
5	APFORGEN			√					√
6	APFISN		√	√		√			√
7	APMEN		√	√		√			√
8	APMRN			√					√
9	APN		√	√		√			√
10	APNG			√		√			√
11	Asia Pacific Network of HIV Social Researchers		√	√				√	√
12	APNAC			√					√
13	APPHAC			√					√
14	ARTNeT			√					√
15	ASAO		√	√		√			√
16	ANU Development Studies Network								√
17	BAPNET			√					√
18	COGENT	√	√	√	√				√
19	DIWPA	√	√	√		√			√
20	GWN								√
21	GCRMN	√	√	√	√			√	√
22	GOPS					√			√
23	HIV Consortium for Partnerships in Asia and the Pacific			√					√
24	IPCA		√	√					√
25	ICRAN	√	√	√	√				√

No.	Networks, partnerships or alliances in the Pacific region	Regions covered the geographical scope of and/or associated through partnerships and memberships to the networks							
		Africa	Americas	Asia	Caribbean	Europe	Indian Ocean	Middle East	Pacific
Networks, partnerships or alliances that promotes or facilitates science and technology research activities									
26	LMMA Network		√	√					√
27	NACA			√					√
28	NAPSIPAG	√		√		√			√
29	NET BIOME				√		√		√
30	ODN								√
31	PAPGREN								√
32	PAA					√			√
33	PABITRA	√	√	√		√			√
34	PDARN								√
35	PEG					√			√
36	PICRA								√
37	PIMA								√
38	PACINET								√
39	PSA	√	√	√		√			√
40	SPUMS								√
41	STAR								√
42	START								√
43	USCRTF	√	√		√				√
Networks, partnerships or alliances that promotes or facilitates science and technology activities									
44	APAPA			√					√
45	ASPAC		√	√		√		√	√
46	CORAL		√	√					√
47	PAFPNet								√
48	PAHLNet								√
49	PDRMPN		√						√
50	PHOVAPS Network								√
51	PILN		√	√					√
52	PICISOC								√

No.	Networks, partnerships or alliances in the Pacific region	Regions covered the geographical scope of and/or associated through partnerships and memberships to the networks							
		Africa	Americas	Asia	Caribbean	Europe	Indian Ocean	Middle East	Pacific
Networks, partnerships or alliances that promotes or facilitates science and technology activities									
53	PPHSN		√						√
54	PACVET								√
55	PestNet			√	√				√

Table 3: Countries in the Pacific region covered by geographical scope of and/or associated through partnerships and/or memberships to the existing networks, partnerships or alliances in the Pacific region

No.	Networks, partnerships or alliances in the Pacific region	Pacific countries covered by geographical scope of and/or associated through partnerships and memberships to the networks																											
		American Samoa	Australia	Cook Islands	Easter Island	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	New Caledonia	New Zealand	Niue	Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wake Island	Wallis and Futuna
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																													
1	DevNet		√												√														
2	APAARI		√				√							√						√	√								
3	APAFRI		√				√													√			√						
4	APAN																												
5	APFORGEN																												
6	APFISN		√												√												√		
7	APMEN		√																	√			√				√		
8	APMRN		√	√			√				√	√	√		√	√						√	√	√	√	√	√		
9	APN		√				√								√														
10	APNG		√												√														
11	Asia Pacific Network of HIV Social Researchers	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
12	APNAC		√				√													√									
13	APPHAC		√																	√									
14	ARTNeT						√																						
15	ASAO	√	√			√				√				√	√					√		√	√				√		
16	ANU Development Studies Network		√												√														
17	BAPNET		√																	√									
18	COGENT			√			√				√									√		√	√		√		√		

No.	Networks, partnerships or alliances in the Pacific region	Pacific countries covered by geographical scope of and/or associated through partnerships and memberships to the networks																										
		American Samoa	Australia	Cook Islands	Easter Island	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	New Caledonia	New Zealand	Niue	Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wake Island	Wallis and Futuna
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																												
19	DIWPA		√	√		√	√	√	√					√	√				√	√		√						
20	GWN		√																									
21	GCRMN	√	√	√		√	√	√	√	√	√	√	√	√		√	√	√	√	√		√	√	√	√	√	√	√
22	GOPS							√						√														
23	HIV Consortium for Partnerships in Asia and the Pacific		√																									
24	IPCA									√										√								
25	ICRAN						√					√							√			√	√					
26	LMMA Network					√	√												√	√			√				√	
27	NACA		√																									
28	NAPSIPAG		√				√																					
29	NET BIOME							√						√														
30	ODN		√	√			√					√	√		√	√				√		√	√	√	√	√	√	
31	PAPGREN	√	√	√		√	√	√			√	√		√	√	√		√	√	√		√	√		√	√	√	
32	PAA		√			√	√	√		√					√					√		√	√					
33	PABITRA		√			√	√	√		√										√		√	√					
34	PDARN		√	√		√	√				√	√	√		√	√		√	√	√		√	√	√	√	√	√	
35	PEG	√	√	√		√	√	√	√		√	√	√	√		√		√	√	√	√	√	√	√	√	√	√	√
36	PICRA																											
37	PIMA	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	
38	PACINET	√		√		√	√	√	√		√	√	√	√			√	√	√		√	√	√	√	√	√	√	√
39	PSA		√	√			√	√	√	√	√	√	√	√		√						√	√	√	√	√	√	

No.	Networks, partnerships or alliances in the Pacific region	Pacific countries covered by geographical scope of and/or associated through partnerships and memberships to the networks																											
		American Samoa	Australia	Cook Islands	Easter Island	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	New Caledonia	New Zealand	Niue	Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wake Island	Wallis and Futuna
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																													
40	SPUMS		√																										
41	STAR	√		√		√	√	√	√		√	√	√	√	√	√		√		√		√	√	√	√	√	√		
42	START	√	√	√		√	√	√	√	√	√	√	√	√	√	√		√	√	√		√	√	√	√	√	√		√
43	USCRTF	√				√			√	√		√						√	√										
Networks, partnerships or alliances that promotes or facilitates science and technology activities																													
44	APAPA	√	√	√		√	√	√	√		√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√		√
45	ASPAC		√												√														
46	CORAL						√			√																			
47	PAFPNet	√		√		√	√	√	√		√	√	√	√		√		√	√	√	√	√	√	√	√	√	√		√
48	PAHLNet	√	√	√		√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√		√
49	PDRMPN	√	√	√		√	√	√	√		√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√		√
50	PHOVAPS Network	√		√		√	√	√	√		√	√	√	√		√		√	√	√	√	√	√	√	√	√	√		√
51	PILN	√				√	√	√	√	√	√	√		√		√		√	√			√							
52	PICISOC	√		√		√	√	√	√		√	√	√	√		√		√	√	√	√	√	√	√	√	√	√		√
53	PPHSN	√	√	√		√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√		√
54	PACVET	√		√		√	√	√	√		√	√	√	√		√		√	√	√	√	√	√	√	√	√	√		√
55	PestNet		√																										

Table 4: Major Pacific island research institution and universities affiliated to the existing networks, partnerships or alliances in the Pacific region

No.	Networks, partnerships or alliances in the Pacific region	Major Pacific island research institution and universities affiliated to the networks[1]																																
		ASCC	CCRI	CRIOBE	FNU	FSMed	Gump Station (UCB)	IAC	IPANC	IFREMER	ILM	IPNC	IRCP	IRD	IRSN	MERIP	NARI	NRI	NUS	PAU	PICRC	PNG-FRI	PNG-IBR	PNG-IMR	PNG-UniTech	SIL	SRIF	SROS	UoF	UoG	UNC	UPF	UPNG	USP
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																																		
1	DevNet																																	
2	APAARI							√									√																	
3	APAFRI																				√													
4	APAN																																	
5	APFORGEN																																	
6	APFISN																																	
7	APMEN																							√										
8	APMRN																																	√
9	APN																																	
10	APNG																																	
11	Asia Pacific Network of HIV Social Researchers																																	
12	APNAC																																	
13	APPHAC																																	
14	ARTNeT																																	√
15	ASAO	√												√				√	√	√						√					√		√	
16	ANU Development Studies Network																																	
17	BAPNET																√																	
18	COGENT													√																				
19	DIWPA																																	
20	GWN																																	
21	GCRMN			√									√								√													√
22	GOPS							√		√	√			√																	√	√		

No.	Networks, partnerships or alliances in the Pacific region	Major Pacific island research institutions and universities involved in or associated to the networks[1]																																		
		ASCC	CCRI	CRIOBE	FNU	FSMed	Gump Station (UCB)	IAC	IPANC	IFREMER	ILM	IPNC	IRCP	IRD	IRSN	MERIP	NARI	NRI	NUS	PAU	PICRC	PNG-FRI	PNG-IBR	PNG-IMR	PNG-UniTech	SIL	SRIF	SROS	UoF	UoG	UNC	UPF	UPNG	USP
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																																				
23	HIV Consortium for Partnerships in Asia and the Pacific																																			
24	IPCA																						√													
25	ICRAN																																			
26	LMMA Network																																			√
27	NACA																																			
28	NAPSIPAG																																			√
29	NET BIOME																																			
30	ODN				√														√															√	√
31	PAPGREN																√																			√
32	PAA																																			
33	PABITRA						√												√											√					√
34	PDARN					√																														√
35	PEG																																			√
36	PICRA																																			
37	PIMA																																			
38	PACINET																																			√
39	PSA																													√						√
40	SPUMS																																			
41	STAR																																			
42	START													√																						√
43	USCRTF																																			

No.	Networks, partnerships or alliances in the Pacific region	Major Pacific island research institutions and universities involved in or associated to the networks[1]																																
		ASCC	CCRI	CRIOBE	FNU	FSMed	Gump Station (UCB)	IAC	IPANC	IFREMER	ILM	IPNC	IRCP	IRD	IRSN	MERIP	NARI	NRI	NUS	PAU	PICRC	PNG-FRI	PNG-IBR	PNG-IMR	PNG-UniTech	SIL	SRIF	SROS	UoF	UoG	UNC	UPF	UPNG	USP
Networks, partnerships or alliances that supports science and technology activities																																		
44	APAPA																																	
45	ASPAC																																	
46	CORAL																																	
47	PAFPNet																√																	√
48	PAHLNet																													√				
49	PDRMPN					√																												√
50	PHOVAPS Network																																	
51	PILN																																	√
52	PICISOC																																	
53	PPHSN					√					√	√																						
54	PACVET																																	

[1]Abrreviations:

ASCC - American Samoa Community Collage
CCRI – Cacao and Coconut Research Institute of Papau New Guinea
CRIOBE – Centre de Recherches Insulaires et Observatoire de l'Environnement de Polynésie Française
FNU – Fiji National University
FSMed – Fiji School of Medicine
Gump Station (UCB) - University of California Berkeley's Richard B. Gump South Pacific Research Station
IAC – Institut Agronomique néo-calédonien
IPANC - Institut d'archéologie de la Nouvelle-*Calédonie* et du *Pacifique*
IFREMER – Institut Français de Recherche pour l'Exploitation de la Mer
ILM – Institut Louis Malardé
IPNC – Institute Pasteur de la Nouvelle-Calédonie
IRCP - Institut des Récifs Coralliens du Pacifique (IRCP)
IRD – Institut de Recherche pour le Développement
IRSN - Institut de Radioprotection et de Sûreté Nucléaire
MERIP – Marine and Environmental Research Institute of Pohnpei
NARI – Papua New Guinea National Agricultural Research Institute
NRI –National Research Institute of Papua New Guinea
NUS – National University of Samoa
PAU – Pacific Adventist University
PICRC – Palau International Coral Reef Center
PNG-FRI – Papua New Guinea Forestry Research Institute
PNG-IBR – Papua New Guinea Institute of Biological Research
PNG-IMR – Papua New Guinea Institute of Medical Research
PNG-UniTech – Papua New Guinea University of Technology
SIL – Summer Institute of Linguistics
SRIF –Sugar Research Institute of Fiji
SROS – Scientific Research Organisation of Samoa
UoF – University of Fiji
UoG – University of Guam
UNC – Université de la Nouvelle- Calédonie
UPF – Université de la Polynésie Française
UPNG – University of the Papua New Guinea
USP – University of the South Pacific

Table 5: Pacific island governmental, non governmental, inter-governmental and other organisations affiliated to the existing networks, partnerships or alliances in the Pacific region

No.	Networks, partnerships or alliances in the Pacific region	Pacific island governmental, non governmental, inter-governmental and other organisations involved in or associated to the networks[2]																					
		CSP	FSPI	Government Cook Island	Government Federate States of Micronesia	Government Fiji	Government French Polynesia	Government Kiribati	Government Marshall Islands	Government New Caledonia	Government Palau	Government Papua New Guinea	Government Samoa	Government Solomon Islands	Government Tonga	Government Vanuatu	MHRDC	PIFS	SPC	SPREP	SOPAC	SPTO	WWF
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																							
1	DevNet																						
2	APAARI					√							√										
3	APAFRI					√								√									
4	APAN																						
5	APFORGEN																						
6	APFISN					√										√							
7	APMEN																						
8	APMRN																						
9	APN																						
10	APNG																						
11	Asia Pacific Network of HIV Social Researchers																						
12	APNAC																						
13	APPHAC																						
14	ARTNeT																						
15	ASAO				√																		
16	ANU Development Studies Network																						
17	BAPNET																						
18	COGENT					√		√							√	√			√				
19	DIWPA																						
20	GWN																						

No.	Networks, partnerships or alliances in the Pacific region	Pacific island governmental, non governmental, inter-governmental and other organisations involved in or associated to the networks[2]																					
		CSP	FSPI	Government Cook Island	Government Federate States of Micronesia	Government Fiji	Government French Polynesia	Government Kiribati	Government Marshall Islands	Government New Caledonia	Government Palau	Government Papua New Guinea	Government Samoa	Government Solomon Islands	Government Tonga	Government Vanuatu	MHRDC	PIFS	SPC	SPREP	SOPAC	SPTO	WWF
Networks, partnerships or alliances that promotes or facilitates science and technology research activities																							
21	GCRMN																						
22	GOPS																						
23	HIV Consortium for Partnerships in Asia and the Pacific																						
24	IPCA																						
25	ICRAN																			√			
26	LMMA Network	√	√																				√
27	NACA																						
28	NAPSIPAG																						
29	NET BIOME						√			√													
30	ODN																						
31	PAPGREN			√	√	√	√	√	√		√		√	√	√	√		√	√	√			
32	PAA																						
33	PABITRA						√																
34	PDARN															√							
35	PEG																	√			√		
36	PICRA																						
37	PIMA																						
38	PACINET																		√	√			
39	PSA																						
40	SPUMS																						
41	STAR																						
42	START																			√			
43	USCRTF																						

No.	Networks, partnerships or alliances in the Pacific region	Pacific island governmental, non governmental, inter-governmental and other organisations involved in or associated to the networks[2]																					
		CSP	FSPI	Government Cook Island	Government Federate States of Micronesia	Government Fiji	Government French Polynesia	Government Kiribati	Government Marshall Islands	Government New Caledonia	Government Palau	Government Papua New Guinea	Government Samoa	Government Solomon Islands	Government Tonga	Government Vanuatu	MHRDC	PIFS	SPC	SPREP	SOPAC	SPTO	WWF
Networks, partnerships or alliances that supports science and technology activities																							
44	APAPA																						
45	ASPAC																						
46	CORAL																						
47	PAFPNet		√															√	√	√	√		
48	PAHLNet					√						√							√				
49	PDRMPN																	√	√	√	√	√	
50	PHOVAPS Network																						
51	PILN										√								√	√			
52	PICISOC																						
53	PPHSN					√											√		√				
54	PACVET																						
55	PestNet																						

[2]Abrreviations:
CSP – Conservation Society of Pohnpei
FSPI – Foundation of the Peoples of the South Pacific International
MHRDC – Micronesian Human Resource Development Center
PIFS – Pacific Island Forum Secretariat
SPC – Secretariat of the Pacific Community
SPREP – South Pacific Regional Environment Programme
SOPAC – Pacific Islands Applied GeoScience Commission
SPTO – South Pacific Tourism Organisation
WWF – World Wide Fund for Nature

Part II List of information collated

A. Existing networks, partnerships or alliances in the Pacific region that promote or facilitate science and technology research activities

1. Aotearoa New Zealand International Development Studies Network (DevNet)

Aim: The Aotearoa New Zealand International Development Studies Network (DevNet) links people and organisations involved and interested in the broad field of international development in New Zealand and wider. It is an interface amongst people and organisations working in or researching international development. It facilitates the exchange of ideas, information and research amongst the staff and students in Development Studies (and related disciplines) and other stakeholders in development. These include aid and development non governmental organisations (NGOs), private sector development practitioners and government (especially the Ministry of Foreign Affairs and Trade).

The network has a global reach with over 2,000 members from New Zealand, the Pacific, Australia, Southeast Asia, India, China and further. Members include university students, development practitioners, NGO and government workers, university lecturers, teachers and librarians.

Website: http://www.devnet.org.nz/

Research and Development Sector: Social and Economic concerns

2. Asia Pacific Association of Agricultural Research Institutions (APAARI)

Aim: The Asia-Pacific Association of Agricultural Research Institutions (APAARI) was established in 1990 with the aim to promote the development of National Agricultural Research Systems (NARS) in the Asia-Pacific region through intra-regional and inter-institutional cooperation. APAARI is an important regional forum whose policies, plans, strategies and programmes focus on resolving regional concerns on food security, poverty and agricultural sustainability.

The overall objective of APAARI is to foster the development of agricultural research in the Asia-Pacific region so as to: ***(1)*** promote the exchange of scientific and technical information; ***(2)*** encourage collaborative research; ***(3)*** promote human resource development; ***(4)*** build-up organisational and management capabilities of member institutions; and ***(5)*** to strengthen cross-linkages and networking among diverse stakeholders.

Countries Covered: Australia, Bangladesh, Bhutan, Fiji, India, Iran, Japan, Malaysia, Nepal, New Caledonia, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Sri Lanka, Chinese Taipei, Thailand, Viet Nam, and Western Samoa.

Member Institutions/Organisations: APAARI has the regular members from countries in South Asia, Southeast Asia, Northeast Asia, and the Pacific.

From the Pacific: Australian Centre for International Agricultural Research (ACIAR; Australia), *Institut Agronomique neo-Calédonien* (IAC; New Caledonia), Koronivia Research Station - Ministry of Agriculture, Fisheries and Forest (MAFF; Fiji), Department of Agriculture - Ministry of Primary Industries (MPI; Fiji), Ministry of Commerce, Forests and Fisheries (MCFF; Samoa), and National Agricultural Research Institute (NARI; Papua New Guinea).

Other associated members include the Papua New Guinea University of Technology (PNG UniTech; Papua New Guinea), and the Sugar Research Institute of Fiji (SRIF; Fiji).

From other regions: Agricultural Research, Education and Extension Organisation (Iran), Bureau of Agricultural Research (Philippines), Bangladesh Agricultural Research Council (Bangladesh), Sri Lanka Council for Agricultural Research Policy (Sri Lanka), Council of Agriculture (Chinese Taipei), Council of RNR Research of Bhutan (Bhutan), Department of Agriculture (Thailand), Indian Council of Agricultural Research (India), Japan International Research Center for Agricultural Sciences (Japan), Ministry of Agriculture and Rural Development (Vietnam), Malaysian Agricultural Research and Development Institute (Malaysia), Nepal Agricultural Research Council (Nepal), Pakistan Agricultural Research Council (Pakistan), Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development (Philippines), and Rural Development Administration (Republic of Korea).

Website: For more information please consult http://www.apaari.org/

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Research and Development Sector: Agriculture, Fisheries and Food supply

3. Asia Pacific Association of Forestry Research Institutions (APAFRI)

Aim: The Asia Pacific Association of Forestry Research Institutions (APAFRI) is an independent non-for-profit body, which aims to enhance research and technology development capabilities in support of conservation and management of forest resources in the Asia and the Pacific region. The International Union of Forest Research Organisations (IUFRO) recognises **APAFRI** as its Asia-Pacific chapter.

APAFRI aims to: ***(1)*** promote and assist in the development of the region's scientific research and development culture and capacity; and ***(2)*** to foster the establishment of institutional and professional collaboration among the region's forestry researchers.

APAFRI's activities support sustainable management and utilisation of forest resources at the local, national and regional levels.

Countries Covered: Covers countries in Oceania include Australia, South East Asia, East Asia, and South Asia.

Member Institutions/Organisations: **APAFRI** serves a wide region with diverse social, economic, political, and cultural backgrounds and different levels of development. Membership is open to all organisations or institutions that are actively involved in these activities.

From the Pacific: Commonwealth Scientific and Industrial Research Organisation (CSIRO; Australia), Australian Centre for International Agricultural Research (ACIAR; Australia), Queensland Forestry Research Institute (QFRI; Australia), Department of Forestry (Fiji), Research and Development - Fiji Pine Ltd (Fiji), Papua New Guinea Forest Research Institute (PNG-FRI; Papua New Guinea), and Forestry Research Centre – Ministry of Forestry, Environment and Conservation (MFETC; Solomon Islands).

From other regions: Institute of Forestry and Environmental Sciences (Bangladesh), Bangladesh Forest Research Institute (Bangladesh), Renewable Natural Resources Research Centre (Bhutan), Department of Forestry and Wildlife (Cambodia), Research Institute of Forestry (China), Research Institute of Tropical Forestry (China), Research Institute Forest Ecology (China), Institute of Applied Ecology (China), International Network for Bamboo and Rattan (China), Indian Plywood Industries Research and Training Institute (India), ITC Limited Paperboards and Specialty Papers Division (India), Indian Council of Forestry and Education (India), University Of Horticulture & Forestry (India), Kerala Forest Research Institute (India), Ashoka Trust for Research in Ecology and the Environment (India), Rain Forest Research Institute (India), Indian Institute of Forest Management (India), State Forest Research Institute (India), Center for International Forestry Research (Indonesia), Faculty of Forestry - Agricultural University Bogor (Indonesia), Faculty of Forestry - University Gadjah Mada (Indonesia), Forestry and Estate Crops Research and Development Agency (Indonesia), Forest Research Institute of Kalimantan (Indonesia), Forestry and Forest Products Research Institute (Japan), Japan International Research Centre for Agricultural Science (Japan), Forest Research Institute (Korea), Forest Research Centre (Laos PDR), Sarawak Timber Association (Malaysia), Rakyat Berjaya Sdn Bhd. (Malaysia), Bioversity International

(Malaysia), University of Northern Philippines (Philippines), *Universiti Malaysia Sabah* (Malaysia), Sarawak Forest Department (Malaysia), Faculty of Forestry - *Universiti Putra Malaysia* (Malaysia), Kasetsart University (Thailand), TropBio Research Sdn. Bhd. (Malaysia), BAIF Development Research Foundation (India), Forest Research Centre, Sepilok (Malaysia), Centers for Applied Biosciences International (Malaysia), Forest Research Institute Malaysia (Malaysia), Forest Research Division (Nepal), Pakistan Forest Institute (Pakistan), Save The Environment – Afghanistan SEA (Pakistan), College of Forestry and Natural Resources (Philippines), Philippine Council for Agriculture, Forestry and Natural Resource Research and Development (Philippines), Forest Products Research and Development Institute (Philippines), Forestry Department (Sri Lanka), Ecosystems Research and Development Bureau (Philippines), Taiwan Forestry Research Institute (Taiwan, R.O.C.), The Experimental Forest (Taiwan, R.O.C), Department and Graduate Institute of Forestry (Taiwan, R.O.C.), Department of Forestry (Taiwan, R.O.C.), ASEAN Forest Tree Seed Centre (Thailand), Institute of Pacific Islands Forestry (United States), Forest Science Institute of Viet Nam (Viet Nam), Nonglam University of HoChiMinh City (Viet Nam), and Sustainable Management of Resources in the Lower Mekong Basin Project (Viet Nam).

Website: For more information please consult http://www.apafri.org/

Contact: APAFRI Secretariat is located in Forest Research Institute Malaysia, Kuala Lumpur, Malaysia.

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Or

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Research and Development Sector: Agriculture, Fisheries and Food supply

4. Asia Pacific Climate Change Adaptation Network (APAN)

Aim: The Asia Pacific Climate Change Adaptation Network (APAN), launched in 2009, is part of the Global Adaptation Network. It aims to help build climate resilience of vulnerable human systems, ecosystems and economies through the mobilisation of knowledge and technologies to support adaptation capacity building, policy-setting, planning and practices.

The specific objectives are to: ***(1)*** improve availability and accessibility of knowledge relevant to adaptation and enhance dissemination of information on good adaptation practices; ***(2)*** strengthen targeted knowledge support and advisory services to governments, planners and practitioners; and ***(3)*** to enhance capacity of developing country institutions working on adaptation.

APAN together with the Regional Climate Change Adaptation Knowledge Platform for Asia organised the Asia Pacific Climate Change Adaptation Forum 2010. This Forum is a response to the demand for effective mechanisms for sharing information on climate change adaptation and developing adaptive capacities in Asian countries. The initiative supports research and capacity building, policy-making and information assimilation, generation, management and sharing. It will also facilitate climate change adaptation at local, national and regional levels – while working with existing and emerging networks and initiatives.

Actually in the process of implementation stage, APAN will involve decision-makers, planners, scientists, development agencies, development practitioners, communities and private sector to enhance partnership and its activities will be undertaken by its regional hub, sub-regional nodes and partner institutions in the Asia and the Pacific region.

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Research and Development Sector: Environment including climate change

5. Asia Pacific Forest Genetic Resources Network (APFORGEN)

Aim: The Asia Pacific Forest Genetic Resources Network (APFORGEN) is a programme and network to increase conservation and sustainable use of forest genetic resources (FGR) in the Asia and the Pacific region. It provides a holistic approach to the conservation and management of FGR.

APFORGEN aims to enhance technical and scientific cooperation, training and information exchange among countries by support, and link national forest programmes, research institutions, non governmental organisations (NGOs) and individuals interested in FGR in the region.

The specific objectives of APFORGEN are to: ***(1)*** strengthen national programmes of forest genetic diversity in participating countries; ***(2)*** enhance regional networking and collaboration on conservation and management of FGR; ***(3)*** locate, characterize, conserve and facilitate exchange of genetic diversity of selected priority forest species; ***(4)*** promote sustainable utilisation of genetic diversity in natural and man-made forest; and ***(5)*** to enhance linkages with other regional and international networks.

Countries Involved: Bangladesh, Cambodia, China, India, Indonesia, Laos PDR, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, and Viet Nam.

Partner Institutions/Organisations: Target beneficiaries of the APFORGEN programme include forest research institutions, policy-makers, local communities, government forestry departments, NGOs and private forestry companies. Other international and regional organisations, such as Danida Forest Seed Centre and Food and Agriculture Organisation, are also participating in the development of the programme and its activities.

From the Pacific: none

From other regions: Bangladesh Forest Research Institute (Bangladesh), Forestry and Wildlife Research Institute (Cambodia), Research Institute of Forestry - Chinese Academy of Forestry (China), Indian Council for Forestry Research and Education (India), Research and Development Centre for Biotechnology and Forest Tree Improvement (Indonesia), Forest Research Centre (Laos PDR), Forest Research Institute Malaysia (Malaysia), Institute of Forestry, Yezin (Myanmar), Department of Forest Research and Survey (Nepal), Pakistan Forest Institute (Pakistan), College of Forestry and Natural Resources - University of Philippines Los Baños (Philippines), Forest Department (Sri Lanka), Royal Forest Department/National Park, Wildlife and Plant Conservation Department (Thailand), and Forest Science Institute of Viet Nam (Viet Nam).

Website: For more information please consult http://www.apforgen.org/

Contact: APFORGEN Secretariat is hosted by the Asia Pacific Association of Forestry Research Institutions (APAFRI) in Kuala Lumpur, in collaboration with the Bioversity International (Bioversity).

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Research and Development Sectors: Agriculture, Fisheries and Food supply, and Environment including climate change

6. Asia Pacific Forest Invasive Species Network (APFISN)

Aim: The Asia Pacific Forest Invasive Species Network (APFISN) was established as a response to the immense costs and dangers posed by invasive species to the sustainable management of forests in the Asia and the Pacific region. It is a cooperative alliance of 32 member countries of the Asia-Pacific Forestry Commission (APFC).

The Network operates under the umbrella of APFC which is a statutory body of the Food and Agricultural Organisation of the United Nations. APFISN focuses on inter-country cooperation that helps to detect, prevent, monitor, eradicate and/or control forest invasive species in the Asia-Pacific region.

The Network: ***(1)*** raises awareness of forest invasive species (FIS) throughout the Asia and the Pacific region; ***(2)*** exchanges and shares information on FIS among member countries; ***(3)*** facilitates access to technical expertise, research results and training and education opportunities; ***(4)*** strengthens capacities of member countries to conduct research, manage FIS and prevent new incursions; and ***(5)*** develops strategies for regional cooperation and collaboration in combating threats posed by FIS.

Countries Involved: Australia, Bangladesh, Bhutan, Cambodia, China P.R., France, Fiji, India, Indonesia, Japan, Kiribati, Republic of Korea, Laos, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Russia, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Tuvalu, United States, Vanuatu, and Viet Nam.

Member Institutions/Organisations: Each country nominates its national contact. These are:

From the Pacific: Australian Department of Agriculture, Fisheries and Forestry (Australia), Silviculture Research Division - Department of Forestry (Fiji), Ministry of Agriculture and Forestry Policy, Biosecurity & Science Policy (New Zealand), and Ministry of Agriculture, Quarantine, Forestry and Fisheries (Vanuatu).

From other regions: Forest Department (Bangladesh), Forest Resources Development Division (Bhutan), Forestry Administration – Ministry of Agriculture, Forestry and Fisheries of Cambodia (Cambodia), Department of Afforestation, State Forestry Administration (China P.R.), Ministry of Environment & Forests (India), Directorate General of Forestry Research and Development - Ministry of Forestry (Indonesia), Forestry and Forest Products Research Institute (Japan), Korea National Arboretum (Korea), Department of Forestry (Laos), Ministry of Nature and Environment (Mongolia), Forest Research Institute - Forest Department (Myanmar), Department of Forest Research and Survey (Nepal), MAF Policy, Ministry of Environment, Local Government & Rural Development (Pakistan), Ecosystems Research & Development Bureau (Philippines), Forest Research Centre (Sri Lanka), Department of Forestry & Water Resources Ministry of Agriculture (Timor-Leste), USDA Forest Service (United States) and Forest Science Institute of Viet Nam (Viet Nam).

Website: For more information please consult http://www.apfisn.net/

Contact:
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Research and Development Sectors: Agriculture, Fisheries and Food supply, and Environment including climate change

7. Asia Pacific Malaria Elimination Network (APMEN)

Aim: The Asia Pacific Malaria Elimination Network (APMEN) was established in 2009 to bring attention to and to support the under-appreciated and little-known work of malaria elimination in Asia and the Pacific, with a particular focus on *Plasmodium vivax*. APMEN is composed of 10 Asia and Pacific countries that are pursing malaria elimination, as well as leaders and experts from key multilateral and academic agencies.

The mission of this diverse, but cohesive network is to collaboratively address the unique challenges of malaria elimination in the region through leadership, advocacy, capacity building, knowledge exchange, and building of the evidence base.

Countries Covered: Bhutan, China, Democratic People's Republic of Korea (North Korea), Indonesia, Malaysia, Philippines, Republic of Korea (South Korea), Solomon Islands, Sri Lanka and Vanuatu.

Partner Institutions/Organisations:

From the Pacific: Menzies School of Health Research (Australia), Pacific Malaria Initiative Support Centre (PacMISC; Australia), and Nossal Institute for Global Health - University of Melbourne (Australia), Australian Agency for International Development (AusAID; Australia), Australian Army Malaria Institute (AAMI; Australia), Burnet Institute (Australia), and Papua New Guinea Institute of Medical Research (PNG-IMR; Papua New Guinea).

From other regions: Eijkman-Oxford Clinical Research Unit (Indonesia), Research Institute for Tropical Medicine (Philippines), Karolinska Institutet (Sweden), Center for Disease Control (United States), Malaria Elimination Group - University of California (United States), Asian Collaborative Training Network for Malaria, Armed Forces Research Institute for Medical Science, Bill and Melinda Gates Foundation, Malaria Atlas Project, United Nations Children's Fund, United States Agency of International Development - Regional Development Mission/Asia, WorldWide Antimalarial Resistance Network, and World Health Organisation (SEARO malaria and WPRO malaria).

Website: For more information please consult http://apmen.org/

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Research and Development Sector: Biology and Medicine (Health)

8. Asia Pacific Migration Research Network (APMRN)

Aim: The Asia Pacific Migration Research Network (APMRN), established in 1995, is a collaborative organisation of researchers and scholars interested in all aspects of migration. The aim is to build an international research network which will carry out interdisciplinary research on social and political aspects of international migration and growing ethno-cultural diversity in the region. The work is carried out by a number of partner institutions or networks in the various countries.

The overall aim of APMRM is to develop understanding of the long-term role of migration and ethno-cultural diversity as major factors of transformation of the societies of the Asia and the Pacific region, in order to provide a base of knowledge and analysis for forward-looking policy-making.

The specific objectives are to: ***(1)*** establish a network of research institutions working on issues of migration and ethno-cultural diversity in the Asia and the Pacific region, with a view to developing international communication and exchanging information; ***(2)*** develop research capabilities in the region, through exchange of information and ideas, international seminars, in-service training courses for researchers, and graduate programmes for future researchers, carry out international comparative research projects on a range of topics concerned with social and political dimensions of migration and ethno-cultural diversity; ***(3)*** enhance theoretical and methodological knowledge on migration and ethnic relations research through cooperative research, conferences, and the publication and dissemination of appropriate material; ***(4)*** involve potential research-users (especially national policy-makers, inter-governmental organisations, non governmental organisations and community organisations) in the research process at various stages, including research-design, empirical work and analysis and dissemination of findings; ***(5)*** provide high-level advice and research services for policy-makers at the national and international levels; ***(6)*** assist in raising the quality of international migration data collection, storage and analysis by immigration/emigration authorities and by census and statistics officers throughout the region and to encourage and facilitate data sharing between countries participating in the Network; and ***(7)*** to achieve long-term sustainability of the network after the initial five-year period.

Countries Covered: Each regional network of the APMRN is autonomous and there are regional coordinators in Australia, Bangladesh, Cambodia, China, India, Indonesia, Japan, Laos PDR, Malaysia, Mongolia, New Zealand, Philippines, Republic of Korea, Singapore, Sri Lanka, the Pacific islands (based in Fiji), Taiwan, China, Thailand, and Viet Nam.

Member Institutions/Organisations: The following institutions coordinate the individual regional networks of APMRN.

From the Pacific: Member networks of APMRN in the Pacific are Aeoteroa/New Zealand Migration Research Network (A/NZMRN) coordinated by University of Waikato and Massey University; the Australian network coordinated by University of Adelaide, Australian National University (ANU), Macquaire University and Royal Melbourne Institute of Technology (RMIT); and the Pacific migration Research Network (PacMRN)

is coordinated by University of the South Pacific (USP), which represent its 11 member countries.
From other regions: University of Dhaka (Bangladesh), Institute of Sociology of the Chinese Academy of Social Sciences (China), Beijing East China Normal University Shanghai (China), and Fujian Normal University (China), Jawarhalal Nehru University (India), Indonesian Institute of Sciences (Indonesia), Atmajaya Catholic University (Indonesia), University of Singapore (Singapore), University of Colombo (Sri Lanka), National Institute of Social Development (Sri Lanka), Tamkang University (Taiwan), United Nations Educational, Scientific and Cultural Organisation (Thailand), Vietnam Academy of Social Sciences (Viet Nam), and Organisation for Migration (Viet Nam).

Website: For more information please consult http://apmrn.usp.ac.fj/

Contact: The APMRN Secretariat for the Pacific islands is located at USP in Fiji.

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APMRN Secretariat Director
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Or

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Research and Development Sector: Social and Economic concerns

9. Asia Pacific Network for Global Change Research (APN)

Aim: The Asia-Pacific Network for Global Change Research (APN) is a network of member country governments that promotes global change research in the region, increases developing country involvement in that research, and strengthens interactions between the science community and policy-makers.

APN enables countries in the Asia and the Pacific region to successfully address global change challenges through science-based adaptation strategies, effective science and policy linkages, and capacity development by: ***(1)*** supporting regional cooperation in global change research on issues particularly relevant to the region; ***(2)*** strengthening appropriate interactions among scientists and policy-makers and providing scientific input to policy decision-making and scientific knowledge to the public; ***(3)*** improving the scientific and technical capabilities of nations in the region including the transfer of know-how and technology; and ***(4)*** by cooperating with other global change networks and organisations.

Countries Covered: Australia, Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Russian Federation, Sri Lanka, Thailand, United States, and Viet Nam.

Individuals and organisations in Pacific island states and Singapore are able to participate in all APN programme activities and are considered to be from an APN-approved country under the programme membership participation criterion.

Collaborates: SysTem for Analysis, Research and Training (START)

Website: For more information please consult http://www.apn-gcr.org

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Research and Development Sector: Environment including climate change

10. Asia Pacific Networking Group (APNG)

Aim: The Asia Pacific Networking Group (APNG) is an internet organisation dedicated to the advancement of the networking infrastructure in this region and to the research and development of all associated enabling technologies.

Its mission is to promote the internet and the coordination of network inter-connectivity in the Asia and the Pacific region by: ***(1)*** learning its history in each country and experience from seniors; ***(2)*** sharing information among community; ***(3)*** activating Next Generation activity through APNG Camp; ***(4)*** providing place and opportunity of discussion for developing countries; and ***(5)*** by challenging to create new internet growth opportunity.

APNG hold camps at regular intervals for future internet leaders in the Asia Pacific region where Asia and Pacific seniors and the next generation learn and work together. This camp intends to foster multidisciplinary research in engineering and also non-engineering domains.

Through its activities, it has spawned off a number of Asian and Pacific organisations including Asia Pacific Network Information Centre (APNIC), Asia and Pacific Internet Association (APIA), Asia Pacific Top Level Domain Association (APTLD) and Asia Pacific Computer Emergency Response Team (APCERT). Today APNG represents the region at the Coordinating Committee for Inter-Continental Research Networking (CCIRN), and is the leading voice of internet networking in the Asia and the Pacific region.

Participating Economies: Afghanistan, Australia, Bangladesh, Brunei, Bhutan, Cambodia, Canada, China, Hong Kong, India, Indonesia, Korea, Japan, Macau, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Philippines, Russia, Singapore, Sri Lanka, Taiwan, Thailand, United States, and Viet Nam.

Website: For more information please consult http://www.apng.org/

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Research and Development Sector: Information and Communication Technology

11. Asia Pacific Network of HIV Social Researchers

Aim: The Asia Pacific Network of HIV Social Researchers was launched to help build a network of social researchers throughout Asia and the Pacific who have an interest in HIV social research. The Network aims to increase dialogue, opportunities and research partnerships between social researchers throughout the region.

The Asia Pacific Network for HIV Social Researchers is designed to act as a support structure for HIV social researchers to enable them to increase their research capacity and to encourage multi-country applications for research funding.

Countries Covered: The network covers countries from Asia, including North Asia and the Middle East to the Oceania.

The countries from the Pacific include Australia, New Zealand, Fiji, New Caledonia, Papua New Guinea, Solomon Island, Vanuatu, Federated States of Micronesia, Guam, Kiribati, Marshall Islands, Nauru, Northern Mariana Island, Palau, Wake Island, American Samoa, Cook Islands, Easter Island, French Polynesia, Hawaii, Niue, Pitcairn Island, Samoa, Tokelau, Tonga, Tuvalu, and Wallis and Futuna.

Website: For more information please consult
http://www.hivsocialresearchers.net/index.php?content=home

Research and Development Sectors: Biology and Medicine (Health), and Social and Economic concerns

12. Asia Pacific Neuro-AIDS Consortium (APNAC)

Aim: The Asia Pacific Neuro-AIDS Consortium (APNAC) was established to improve the diagnosis and management of neurological complications of HIV infection (neuro-AIDS) in the Asia and the Pacific region.

APNAC is a network of clinicians, scientists, neuropsychologists, social researchers and neuropathologists interested in the social, diagnostic, management and research aspects of HIV-related neurological illnesses affecting people living in resource-limited settings in the Asia and the Pacific region. APNAC sites are tertiary referral hospitals with high-HIV patient caseloads.

APNAC has developed guidelines for neuro-AIDS opportunistic infections diagnosis and treatment in resource-limited settings. It has also established a regular email forum to share clinical experience.

Member countries: Australia, Cambodia, China, Fiji, Hong Kong, India, Indonesia, Malaysia, Myanmar, Papua New Guinea, Singapore, and Thailand.

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Research and Development Sectors: Biology and Medicine (Health), and Social and Economic concerns

13. Asia Pacific Paediatric HIV Consortium (APPHAC)

Aim: The Asia Pacific Paediatric HIV Consortium (APPHAC) is a network of researchers and clinicians across Asia and Pacific countries collaborating on improved diagnosis, treatment, care and support for paediatric HIV issues. This is a burgeoning issue in many of these regional countries as increasing numbers of children are diagnosed with HIV and as preventing mother-to-child transmission (PMTCT) programmes in many of these countries are inadequate.

Research and Development Sector: Biology and Medicine (Health)

14. Asia Pacific Research and Training Network on Trade (ARTNeT)

Aim: The Asia Pacific Research and Training Network on Trade (ARTNeT) is an open regional network of research and academic institutions specializing in international trade policy and facilitation issues.

ARTNeT's goal is to increase the amount of quality trade research available to policymakers in the Asia and the Pacific region to achieve the long-term goal of enabling government policy-makers to more effectively formulate trade policies. As such ARTNet has adopted a three-pronged strategy which includes research, dissemination and capacity building.

Member institutions/Organisations: Network members currently include over 20 leading national trade research and academic institutions from as many developing countries from East, South and South East Asia, and the Pacific.

From the Pacific: University of South Pacific (USP).

From other regions: Bangladesh Institute of Development Studies (Bangladesh), Centre for Policy Dialogue (Bangladesh), Cambodia Development Resource Institute (Cambodia), China Europe International Business School (China), Chinese Academy for International Trade and Economic Cooperation (China), Institute of the Chinese Economy and WTO studies - Peking University (China), Macau University of Science and Technology (China), Hong Kong Institute of Economics & Finance - Hong Kong University (Hong Kong), Center for WTO Studies - Indian Institute of Foreign Trade (India), Department of Economics - Jadavpur University (India), Indian Council for Research on International Economic Relations **(India),** Research and Information System for Developing Countries (India), Energy and Resources Institute (India), Centre for Strategic and International Studies (Indonesia), Korea Institute for International Economic Policy (Republic of Korea), Economic Research Institute for Trade (Lao PDR), Institute of Malaysian and International Studies (Malaysia), Institute for Policy Research and Development (Nepal), Pakistan Institute of Development Economics (Pakistan), Pakistan Institute of Trade and Development (Pakistan), Centre for Business and Economics Research and Development- De La Salle University (Philippines), Philippine Institute for Development Studies (Philippines), Department of Agricultural Economics and Business Management - University of Peradeniya (Sri Lanka), Institute of Policy Studies (Sri Lanka), Centre for International Economics and Development Studies (Thailand), Thailand Development Research Institute (Thailand), Centre for Analysis and Forecasting (Viet Nam), and Foreign Trade University (Viet Nam).

Website: http://www.unescap.org/tid/artnet/

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Research and Development Sector: Social and Economic concerns

15. Association for Social Anthropology in Oceania (ASAO)

Aim: The Association for Social Anthropology in Oceania (ASAO) is an international organisation dedicated to comparative studies of Pacific topics. ASAO holds annual meetings with a special format designed to facilitate discussion and develop topics for publication. ASAO has a book series and a special publication series. In addition many other publications have emerged from ASAO sessions.

ASAO is committed to providing a forum in which Pacific islanders can fully participate, and to that end has established a Pacific Islands Scholars' Fund (PISF) to help with the cost of transportation to annual meetings.

Countries Covered: Memberships from the Pacific, Asia, Australia, New Zealand, Europe and the United States.

Members: Paying annual membership. In 2009 and 2010, some of the institutions or organisations represented by individual members included:

From the Pacific: American Samoa Community College (ASCC; American Samoa), Australian Museum (Australia), Australian National University (ANU; Australia), James Cook University (JCU; Australia), La Trobe University (Australia), University of Melbourne (Australia), University of Newcastle (Australia), University of New South Wales (UNSW; Australia), University of Queensland (Australia), Micronesian Seminar (Federated States of Micronesia), Office of National Archives, Culture and Historic Preservation (Federated States of Micronesia), Brigham Young University (BYU; Hawaii), Centre for South Pacific Studies - East West Center (EWC; Hawaii), University of Hawaii (Hawaii), *Institut de Recherche pour le Développement* (IRD; New Caledonia), *Université de la Nouvelle Calédonie* (UNC; New Caledonia), Auckland University of Technology (AUT; New Zealand), Manukau Institute of Technology (New Zealand), Vava'u Academy for Critical Inquiry & Applied Research (New Zealand), University of Auckland (New Zealand), Victoria University of Wellington (New Zealand), University of Waikato (New Zealand), Massey University (New Zealand), Melanesian Institute (MI; Papau New Guinea), National Research Institute (NRI; Papau New Guinea), Pacific Adventist University (PAU; Papau New Guinea), Summer Institute of Linguistics (SIL; Papau New Guinea), University of Papua New Guinea (UPNG; Papua New Guinea), National University of Samoa (NUS; Samoa), Anglican Church of Melanesia (Solomon Islands), Summer Institute of Linguistics (SIL; Vanuatu), and Vanuatu Cultural Centre (Vanautu).

From other regions: Concordia University (Canada), McMaster University (Canada), Trent University (Canada), University of British Columbia (Canada), *Université Laval* (Canada), University of Ottawa (Canada), University of Regina (Canada), University of Toronto (Canada), University of Western Ontario (Canada), National Tsing-Hua University (China), University of Aarhus (Denmark), *Centre National de la Recherche Scientifique* (France), *Centre de Recherche et de Documentation sur l'Oceanie (France), École des hautes études en sciences sociales* (France), *Université Paris V René Descartes* (France), University of Helsinki (Finland), *Abt. Allgemeine Psychologie* (Germany), *Universität Göttingen* (Germany), University of Heidelberg (Germany), Ohkagakuen University (Japan), Ritsumeikan Asia Pacific University (Japan), *El Colegio de Mexico*

(Mexico), National Museum of Ethnology (Netherlands), Papua Heritage Foundation (Netherlands), Radboud University Nijmegen (Netherlands), *Universiteit van Amsterdam* (Netherlands), University of Bergen (Norway), National Taiwan University (Taiwan, ROC), London School of Economics (United Kingdom), University of Cambridge (United Kingdom), University of Edinburgh (United Kingdom), Amherst College (United States), Asbury Theological Seminary (United States), Binghamton University/SUNY (United States), Brandeis University (United States), Columbia University (United States), Cornell University (United States), DePaul University (United States), Depauw University (United States), Duke University (United States), Eastern New Mexico University (United States), Florida International University (United States), Framingham State College (United States), Indiana University (United States), Lake Forest College (United States), Longwood College (United States), New York University (United States), Santa Clara University (United States), Smithsonian Institution (United States), Southern Oregon University (United States), Summer Institute of Linguistics International (United States), SUNY Geneseo (United States), Trinity College (United States), University of Arizona (United States), University of California (United States), University of Chicago (United States), University of Colorado (United States), University of Connecticut (United States), University of Florida (United States), University of Georgia (United States), University of Illinois-Urbana-Champaign (United States), University of Maryland Univ. College (United States), University of Massachusetts (United States), University of Michigan (United States), University of Minnesota (United States), University of Montana (United States), University of North Texas (United States), University of Oregon (United States), University of Pittsburgh (United States), University of Texas (United States), University of Tulsa (United States), University of Utah (United States), University of Vermont (United States), University of Virginia (United States), University of Washington (United States), University of Wisconsin (United States), Vassar College (United States), Western Kentucky University (United States), Western Washington University (United States), Wheelock College (United States), Washington State University (United States), and Wells College (United States).

Website: http://www.asao.org/

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Research and Development Sector: Social and Economic concerns

16. Australian National University (ANU) Development Studies Network

Aim: The Australian National University (ANU) Development Studies Network is a self funding, not for profit multidisciplinary organisation that provides information and discussion on social and economic development issues. It encourages discussion and widespread exchange of knowledge of global social and economic development issues, development-related research, and international aid policy and practice.

In particular, the ANU Development Studies Network provides an Australian and Pacific focal point for information and outreach on social and economic development research, policy, planning, project implementation and teaching. It also promotes and provides opportunities for open discussion on development issues between universities and colleges, government and non government organisations, aid practitioners, communities and the private sector.

The Network aims to enrich knowledge of, and interest in, social and economic development and the role of development assistance through providing information that covers a broad range of experience, perceptions and opinions, and to inform Australian development assistance policy and making this policy known.

Open to anyone who wishes to join, the Network members now include all major Australian, New Zealand and Pacific island universities, government and non government aid organisations.

Website: For more information please consult http://devnet.anu.edu.au/

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Research and Development Sector: Social and Economic concerns

17. Banana Asia and Pacific Network (BAPNET)

Aim: The Banana Asia and Pacific Network (BAPNET), formerly known as Asia Pacific Banana Research Network (ASPNET), was established in 1991. It is one of the four regional networks of International Network for the Improvement of Banana and Plantain (INIBAP) to foster collaborative research on bananas in the Asia and the Pacific region.

BAPNET operates under the auspices of APAARI (Asia Pacific Association of Agricultural Research Institutes) and is guided by a steering committee, which is made up of representatives of all the national programmes and institutions that participate in the Network. This committee meets annually to review progress in addressing the regional research agenda and to discuss future priorities and strategies for the Network. Bioversity International's regional office in the Philippines provides the secretariat and coordination for the Network.

Countries Covered: Australia, Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand, and Viet Nam.

Member Institutions/Organisations: The Network includes 13 country members and 2 research institutes.

From the Pacific: Department of Primary Industry and Fisheries (DPI&F; Australia), and National Agricultural Research Institute (NARI; Papua New Guinea).

From other regions: Bangladesh Agricultural Research Institute (Bangladesh), Cambodian Agricultural Research and Development Institute (Cambodia), Guangdong Academy of Agricultural Sciences (China), National Research Centre on Banana (India), Indonesian Central for Horticulture Research and Development (Indonesia), Malaysian Agriculture Research and Development Institute (Malaysia), Ministry of Agriculture and Irrigation (Myanmar), Philippine Council for Agriculture Forestry and Natural Resources Research and Development (Philippines), Department of Agriculture-Bureau of Agricultural Research (Philppines), Horticultural Crop Research and Development Institute (Sri Lanka), Horticulture Research Institute (Thailand), Vietnam Agricultural Science Institute (Viet Nam), and Banana Research Institute (Taiwan).

Website: For more information please consult
http://bananas.bioversityinternational.org/en/partnerships-mainmenu-34/bapnet-mainmenu-108.html

Contact: INIBAP is operated under Bioversity International

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Research and Development Sector: Agriculture, Fisheries and Food supply

18. Coconut Genetic Resources Network (COGENT)

Aim: The goal of Coconut Genetic Resources Network (COGENT) is to improve coconut production on a sustainable basis and increase incomes in developing countries through improved cultivation of the coconut and efficient utilisation of its products. COGENT coordinates research activities of national, regional and global significance, particularly in germplasm exploration, collecting, conservation and enhancement through collaboration on the broader aspects of coconut research and development.

Specifically, COGENT objectives are to: ***(1)*** establish and maintain an international database on existing and future collections; ***(2)*** encourage the protection and use of existing germplasm collections; ***(3)*** identify and secure additional threatened diversity by developing and adopting suitable technologies and conservation strategies; ***(4)*** promote greater collaboration among research groups in producer countries and advanced technology sources in the exchange of germplasm and the development of new techniques; and ***(5)*** to conduct appropriate training, information dissemination and secure necessary funding for network activities.

Countries Involved: All coconut-producing countries are invited to join. Only a country can become a COGENT member. Each country member is represented in COGENT by a national representative, chosen by the country concerned.

COGENT currently has 38 member countries that are divided into five sub-networks: Southeast and East Asia (China, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Vietnam); South Asia (Bangladesh, India, Pakistan and Sri Lanka); Africa and the Indian Ocean (Benin, Côte d'Ivoire, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Seychelles and Tanzania); Latin America and the Caribbean (Brazil, Colombia, Costa Rica, Cuba, Guyana, Haiti, Honduras, Jamaica, Mexico and Trinidad-Tobago); and South Pacific (Cook Islands, Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu).

Member Institutions/Organisations: Includes research agencies in 38 member countries. COGENT also has established collaborative linkages with research and development institutions working on coconut.

From the Pacific: University of Queensland (Australia), Coconut Industry Development Authority (Fiji), Ministry of Environment, Lands and Agricultural Development (Kiribati), Kokonas Industri Koporisin (Papua New Guinea), Ministry of Agriculture, Fisheries & Food (Tonga), Vanuatu Agricultural Research and Technical Center (Vanuatu), Department of Agriculture & Rural Development (Vanuatu), Secretariat of the Pacific Community (SPC), *Institut de Recherche pour le Développement* (IRD), and Asian and Pacific Coconut Commission (APCC).

From others regions: Bangladesh Agricultural Research Institute (Bangladesh), *Centro de Pesquisa Agropecuária dos Tabuleiros Costeiros* (Brazil), Coconut Research Institute - Chinese Academy of Tropical Agriculture Sciences (China) Centre National De Recherche Agronomique (Cote d'Ivoire), *Instituto de Investigaciones en Fruticultura Tropical* (Cuba), *Centre de Coopération Internationale en Recherche Agronomique pour le Développement* (CIRAD; France), Ministry of Food and Agriculture, Directorate of Crop Services, Coconut

Research Program (Ghana), Central Plantation Crops Research Institute - Indian Council of Agriculture Research (India), Peekay Tree Crops Development Foundation (India), Indonesian Coconut and Palmae Research Institute (Indonesia), Indonesian Center for Estate Crops Research and Development (Indonesia), Food and Agriculture Organization of the United Nations, Coconut Industry Board (Jamaica), Department of Agriculture Sabah - Agriculture Research Station (Malaysia), *Instituto Nacional de Investigaciones Forestales Agricolas y Pecuarias* (Mexico), Philippine Coconut Authority (Philippines), Coconut Research Institute (Sri Lanka), Horticulture Research Institute - Department of Agriculture (Thailand), Royal Botanic Gardens (United Kingdom), Ben Tre Department of Science and Technology (Viet Nam), and Research Institute for Oils and Oil Plants (Viet Nam).

The other partner institutions of COGENT include *Institut des Fôrets*, Inter-American Institute for Cooperation on Agriculture, and Long Ashton Research Station (United Kingdom).

Website: For more information please consult http://www.inibap.org/cogent/

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Research and Development Sector: Agriculture, Fisheries and Food supply

19. DIVERSITAS in the Western Pacific and Asia (DIWPA)

Aim: The DIVERSITAS in the Western Pacific and Asia (DIWPA) is an international network for the promotion of cooperative studies and information exchange on biodiversity in the Western Pacific and Asia, under a close cooperation with its mother programme, DIVERSITAS, organized by ICSU (International Council for Science), SCOPE (Scientific Committee on Problems of the Environment), IUBS (International Union of Biological Sciences), IUMS (International Union of Microbiological Societies) and UNESCO-MAB (Man and the Biosphere).

The main functions of DIWPA are: ***(1)*** promotion of research projects and science on biodiversity in the Western Pacific and Asia, ***(2)*** promotion of governmental and non governmental activities for the conservation and utilisation of biodiversity, ***(3)*** facilitation of information sharing and research cooperation on biodiversity, and ***(4)*** capacity building of scientists, in particular young scientists from developing countries.

DIWPA aims to connect existing networks of people working on biodiversity and research projects in Asia and the Western Pacific. DIWPA is not an overarching organisation but a flexible network of networks.

Countries Covered: The term of "Western Pacific and Asia" used in this proposal intends to cover East Asia, South Asia, Southeast Asia, Melanesia, Micronesia, Australia and New Zealand. DIWPA also welcomes any organisation or individual (scientists and citizens) interested in the biodiversity of the region, including those who are outside the region of Western Pacific and Asia.

The countries represented are Australia, Cook Islands, Fiji, French Polynesia, Guam, Micronesia, New Caledonia, New Zealand, Palau, Papua New Guinea, and Samoa.

Other countries include Bangladesh, Brunei, Cambodia, Canada, China, DPR of Korea, Finland, France, Germany, Hungary, India, Indonesia, Japan, Korea, Laos, Malaysia, Mexico, Mongolia, Myanmar, Nepal, Netherlands, Pakistan, Philippines, Russia, Singapore, Sri Lanka, Switzeland, Taiwan ROC, Thailand, United Kingdom, United States, Viet Nam, and Zambia

Website: For more information please consult http://diwpa.ecology.kyoto-u.ac.jp/

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Research and Development Sector: Environment including climate change

20. Gender Water Network (GWN)

Aim: The overall aim of the Gender Water Network (GWN) is to explore and propagate the concept of gender mainstreaming in the water sector – including research, policy-making and aid - in the developing countries of the Asia and the Pacific region. The network provides a common point for students, professionals and academics with interests in the field.

The GWN works by: ***(1)*** liaising with other groups, agencies and bodies working at the national, regional or international levels with initial contacts through existing national and international water organisations and partnerships; ***(2)*** communicating with community groups in Australia and the Asia and the Pacific with a view to enhancing women's participation in community water management; ***(3)*** putting forth the need for and generating gender segregated data on water use in Australia and in Asia and the Pacific; ***(4)*** organising meetings within Australia and regionally to establish dialogues between academics, policy-makers and civil society members; ***(5)*** taking suitable measures for creating gender sensitisation in water-related research and policy-making; ***(6)*** acting as an interest group or a pressure group in water policy making; ***(7)*** acting as a clearinghouse of gender- and water-related information through links to water partnerships and gateways; ***(8)*** enhancing gendered views in water research in Australian National University/Australia; and ***(9)*** by helping give a stronger voice to women's issues in water and to make a case for a greater participation of women in water-related decision-making.

Most members are students, researchers and professionals in the gender and water fields. Membership is free and open to all interested people.

Website: For more information please consult http://rspas.anu.edu.au/gwn/index.php

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Research and Development Sector: Social and Economic concerns

21. Global Coral Reef Monitoring Network (GCRMN)

Aim: Global reef monitoring was a major theme when the International Coral Reef Initiative (ICRI) was launched at the United Nations Global Conference on Sustainable Development of Small Islands Developing States in Barbados in 1994. In 1995, ICRI called on many nations to commit themselves towards increasing research and monitoring of reefs to provide the data for effective management. At that time, the Global Coral Reef Monitoring Network (GCRMN) was established as one of the operating units of ICRI.

GCRMN works to improve management and conservation of coral reefs by providing manuals, equipment, databases, training, problem solving, and helps with finding funds for reef monitoring - all coordinated in a global network.

The core objectives of GCRMN are to: ***(1)*** link existing organisations and people to monitor ecological and social, cultural and economic aspects of coral reefs within interacting regional networks; ***(2)*** strengthen the existing capacity to examine reefs by providing a consistent monitoring programme that will identify trends in coral reefs and discriminate between natural, anthropogenic, and climatic changes; ***(3)*** disseminate results at local, regional, and global scales on coral reef status and trends; and ***(4)*** to assist environmental management agencies implement sustainable use and conservation of reefs.

Countries Covered: GCRMN operates through 17 regional networks of countries and states, called nodes. Each of the 17 regional node has a regional coordinator, and countries within a node all (ideally) have a national coordinator.

GCRMN regional nodes include the Red Sea and Gulf of Aden, Persian Gulf and Arabian Sea, Southwest Indian Ocean, Eastern Africa, South Asia, Southeast Asia, North and East Asia, Australia and Papua New Guinea, Southwest Pacific, Southeast and Central Pacific, Micronesia, Hawaiian islands and US Pacific islands, US Caribbean, Northern Caribbean and Atlantic, Mesoamerica, Eastern Caribbean, and Southern Tropical America.

Member Institutions/Organisations:

From the Pacific: There are 6 nodes in the Pacific region and coordinators of these nodes are Australian Institute of Marine Science (AIMS; Australia), Great Barrier Reef Marine Park Authority (Australia), *Centre de Recherche Insulaire et Observatoire de l'Environnement* (CRIOBE; French Polynesia), *Institut des Récifs Coralliens du Pacifique* (IRCP; French Polynesia), National Oceanic and Atmospheric Administration (NOAA; Hawaii), Palau International Coral Reef Center (PICRC; Palau), and University of the South Pacific (USP).

From other regions: World Wildlife Fund-CA (Belize), Smithsonian Institution (Belize), *Instituto de Investigaciones Marinas y Costeras* (Colombia), Iranian National Center for Oceanography (Iran), University of the West Indies (Jamaica), Japan Wildlife Research Center (Japan), Coastal Oceans Research and Development in the Indian Ocean - East Africa (Kenya), Kenya Wildlife Service (Kenya), Department for Nature Management -

Norwegian Ministry of the Environment (Norway), Regional Organisation for the Conservation of the Environment of the Red Sea and Gulf of Aden (Saudi Arabia), Seychelles Centre for Marine Research and Technology – Marine Parks Authority (Seychelles), DHI Water & Environment (Singapore), National Aquatic Resources Research Agency (Sri Lanka), Coastal Oceans Research and Development in the Indian Ocean (CORDIO) – International Union for Conservation of Nature (IUCN), Global Marine Programme (Tanzania), United Nation Environmental Programme World Conservation Monitoring Centre (United Kingdom), and National Oceanic and Atmospheric Administration (United States).

Website: For more information please consult http://www.gcrmn.org/

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Research and Development Sector: Environment including climate change

22. Grand Observatoire de l'Environnement et de la Biodiversité Terrestre et Marine du Pacifique Sud (GOPS)

Aim: The *Grand Observatoire de l'Environnement et de la Biodiversité Terrestre et Marine du Pacifique Sud* (GOPS), launched in 2009, regroups French scientists in the South Pacific.

It aims to: ***(1)*** promote and monitor environmental research in the Pacific by coordinating research activities and resources; ***(2)*** provide training; ***(3)*** support environmental surveillance and monitoring networks; and ***(4)*** to acquire, manage and disseminate scientific data.

The overall objective of GOPS is to disseminate the information to various stakeholders necessary to elaborate environmental policies as well as to set up measures in order to: protect the biodiversity; conduct environmental surveillance and monitoring; and to perserve and valorise the natural heritage of the South Pacific.

GOPS intends to extend its network to the non-French scientific establishments in the Pacific region.

Countries Covered: The region of South Pacific.

Member Institutions/Organisations:

From the Pacific: *Institut Agronomique néo-Calédonie* (IAC ; New Caledonia), *Institut Français de Recherche pour l'Exploitation de la Mer* (IFREMER), *Institut de Recherche pour le Développement* (IRD), *Institut Louis Malardé* (ILM; French Polynesia), *Université de la Nouvelle Calédonie* (UNC ; New Caledonia), and *Université de la Polynésie Française* (UPF; French Polynesia).

From other regions: *Centre National de la Recherche Scientifique* (France), *Ecole Pratique des Hautes Etudes* (France), *Muséum National d'Histoire Naturelle* (France), *Université Montpellier* (France), *Université de Perpignan* (France), and *Université Pierre et Marie Curie* (France).

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Research and Development Sector: Environment including climate change

23. HIV Consortium for Partnerships in Asia and the Pacific

Aim: The HIV Consortium for Partnerships in Asia and the Pacific is a collaboration of 9 Australian HIV organisations formed to foster strategic partnerships and linkages between Australia and the Asia and Pacific regions.

The organisations who are members of the HIV Consortium seek to develop long-term relationships with counterpart organisations in the Asia and the Pacific region. In collaboration with these partner organizations (which include healthcare workers and their organisations, researchers and research institutions, and most-affected communities and their peer-based organiaations), the HIV Consortium supports skills building, organisational strengthening and leadership development. Its activities aim to recognise and identify existing capacity, and to build on this collaboratively through a partnership approach.

The HIV Consortium is implementing the Regional HIV Capacity Building Programme funded by the Australian Agency for International Development (AusAID). The purpose of the Programme is to foster strategic partnerships and linkages between Australian and the Asia and the Pacific region to increase the capacity of partners in the healthcare, research and community sectors to contribute to effective HIV responses.

The programme aims to support a strategic, coordinated and complementary use of the expertise and experience of organisations which have played important roles in the Australian response to HIV.

Countries Covered: Indonesia, Pacific islands, Cambodia, Viet Nam, Laos, China, and Timor Leste.

Consortium Institutions/Organisations: Australian Research Centre in Sex, Health and Society (ARCSHS) of La Trobe University (Australia), International HIV Research Group (IHRG) - University of New South Wales (UNSW; Australia), National Centre in HIV Epidemiology and Clinical Research (NCHECR) – University of the New South Wales (UNSW; Australia), Albion Street Centre (ASC; Australia), Australasian Society for HIV Medicine (ASHM; Australia), National Serology Reference Laboratory (NRL; Australia), Australian Federation of AIDS Organisations (AFAO; Australia), Australian Injecting and Illicit Drug Users League (AIVL; Australia), and Scarlet Alliance Australian Sex Workers Association (Australia).

Website: For more information please consult http://www.hivconsortium.org.au/

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Research and Development Sector: Biology and Medicine (Health)

24. Indo-Pacific Conservation Alliance (IPCA)

Aim: The Indo-Pacific Conservation Alliance (IPCA) is a science-oriented conservation organisation dedicated to the study and conservation of the native ecosystems of the tropical Indo-Pacific region and to provide support for traditional peoples in their stewardship of these globally significant natural resources.

Formed in 1998, IPCA was established with the aim of doing conservation with as little overhead as possible in order to focus resources in fieldwork where they are urgently needed. IPCA is geared to act in alliance with and to work through existing in-country institutions as much as possible in order to reduce costs and build local capacity.

IPCA's approach is to: ***(1)*** empower local community organisations to sustainably manage their natural resources by providing tools, training and environmental education; ***(2)*** generate and mobilize scientific data on an area's biotic resources in order to provide baseline knowledge critical to carrying out sound conservation strategies; ***(3)*** carry out economic studies on ecosystems resources (including valuation studies) in order to provide sound economic arguments for biodiversity protection; and ***(4)*** to activate this information to facilitate improved land management and to enhance the policy content in which development and conservation decisions are made.

Countries Covered: The geographic focus of IPCA is on the tropical Indo - Pacific region, a vast area that includes Indonesia, Melanesia, Micronesia, and Polynesia - by far the most biologically and culturally diverse area of the planet.

Partner Institutions/Organisations:

From the Pacific: Bishop Museum (Hawaii), and Papua New Guinea Institute of Biological Research (PNGIBR; Papua New Guinea).

Others/From other regions: Cenderanasih University (Indonesia), State University of Papua (Indonesia), Indonesian Explorer (Indonesia), Montclair State University (United States), Smithsonian Institution (United States), Arnold Arboretum – Havard University (United States), Asmat District Government (Indonesia), and Conservation International.

Website: For more information please consult http://www.indopacific.org/index2.asp

Contact: IPCA is based at the Bishop Museum in Honolulu, Hawaii.

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Research and Development Sector: Environment including climate change

25. International Coral Reef Action Network (ICRAN)

Aim: The International Coral Reef Action Network (ICRAN) is an innovative and dynamic network of many of the world's leading coral reef science and conservation organisations. The Network consolidates technical and scientific expertise in reef monitoring and management to create strategically linked actions across local, national and global scales.

ICRAN is an alliance to respond to conservation needs at the global scale by recognising both traditional and scientific perspectives of coral reef dynamics and respective social dependency. It is a collective coral reef conservation and research programme that combines scientific, cultural and economic perspectives. There are three main interlinked components of ICRAN: ***(1)*** reef management; ***(2)*** global coral reef monitoring and assessment; and ***(3)*** communications and knowledge dissemination.

Building on existing coral reef research, conservation and management programmes, it is designed to act on local, regional and international levels. It seeks to put mechanisms in place that support the translation of findings into direct on-the-ground action throughout the world's major coral reef regions. Furthermore, ICRAN provides a strategic network to support coral reef conservation by enabling the partners to focus their efforts through communication and shared resources.

ICRAN was established in 2000 with a historic grant from the United Nations Foundation (UNF). Formed in response to a Call to Action by the International Coral Reef Initiative (ICRI), ICRAN supports the implementation and regular review of ICRI's Framework for Action.

Countries Covered: ICRAN has established a network of demonstration sites that can be replicated as good practice within and between regions, and encourage local communities to share knowledge and experience among themselves. These sites are based in Caribbean region (Mexico, Belize, St. Lucia, Netherlands Antilles, Bonaire, Colombia, Cuba, Dominican Republic, Jamaica, Tobago and Venezuela), East African region (Kenya, Tanzania, Seychelles and Madagascar), East Asian Seas (Cambodia, Viet Nam China, Indonesia, Thailand and Philippines), South Asian region, and South Pacific region (Marshall Island, Fiji, Samoa, Palau and Solomon Islands).

Partners: ICRAN works with a large network of organisations on all levels to achieve its mission statement, on the international, regional, national and local scale.

From the Pacific: South Pacific Regional Environment Programme (SPREP).

From other regions: Coral Reef Alliance, Global Coral Reef Monitoring Network, International Coral Reef Inititative-Coordination Planning Committee, Marine Aquarium Council, Nature Conservancy, Reef Check, South Asia Co-operative Environment Programme, United Nations Environment Programme (UNEP), United Nations Foundation, World Fish Center, World Resources Institute, and World Wildlife Fund (WWF).

Website: for more information please consult http://www.icran.org/
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Research and Development Sector: Environment including climate change

26. Locally-Manage Marine Area (LMMA) Network

Aim: The Locally-Managed Marine Area (LMMA) Network is a group of practitioners involved in various community-based marine conservation projects around the globe, primarily in the Indo-Pacific region, who have joined together to improve efforts. The mission of the LMMA Network is to advance the practice of community-based marine resource management and conservation by providing a forum for practitioners to share experiences and information.

The Network envisions: ***(1)*** healthy marine ecosystems that support the people and communities that depend on them; ***(2)*** protected marine biodiversity; ***(3)*** sustainable coastal development; ***(4)*** effective local management methods and models for marine areas; and ***(5)*** improved conservation science.

The LMMA Network is learning network where participating projects use a common strategy and work together to achieve goals. The aim of LMMA Network is to collaboratively spread resources and knowledge on locally-managed marine areas (LMMAs) and community-based adaptive management (CBAM) and to promote and improve this approach.

The Network's membership consists largely of conservation projects that are using (or planning on using) an LMMA approach, and includes individuals, communities, land-owning groups, traditional leaders, government representatives, conservation organisation staff, elected decision-makers, university scientists and researchers and/or donors.

Countries Covered: The LMMA Network spans the people and cultures of Southeast Asia, Melanesia, Micronesia, Polynesia and the Amercias. It has participating projects in 8 countries: Fiji, Indonesia, Palau, Papua New Guinea, Philippines, Federated States of Micronesia, Solomon Islands and Vanuatu.

Some nations have their own country-wide network, which operate autonomously, but within the framework of the overall Network. The LMMA Network also works with many other sites and countries to spread knowledge and skills.

Partner Institutions/Organisations: Representatives from the following organisations are currently involved in the LMMA Network.

From the Pacific: Conservation Society of Pohnpei (CSP; Federated States of Micronesia), Foundation for the South Pacific International (FSPI), University of the South Pacific (USP), Mahonia Na Dari - Guardian of the Sea (MND; Papua New Guinea), Wetlands International-Oceania, World Wildlife Fund (WWF) South Pacific Programme (Fiji), WWF South Pacific Programme (Papua New Guinea), and The Nature Conservancy (Papua New Guinea).

From other regions: Center for Empowerment and Resource Development (Philippines), Community Based Coastal Resource Management Resource Center (Philippines), Community Conservation Network, Coral Cay Conservation, Earth Restoration Trust,

Foundations of Success, Kehati Foundation, John D. and Catherine T. MacArthur Foundation, David and Lucile Packard Foundation Conservation and Science Programme, SIKAT, and University of California at Santa Barbara (United States).

Website: For more information please consult http://www.lmmanetwork.org/

Contact:

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Research and Development Sector: Environment including climate change

27. Network of Aquaculture Centres in Asia-Pacific (NACA)

Aim: The Network of Aquaculture Centres in Asia-Pacific (NACA) is an inter-governmental organisation that promotes rural development through sustainable aquaculture. It works on the principle of cooperation and collaboration with the intention of sharing regional resources amongst the stakeholders within the network that includes governments, institutions and individuals.

The core activities of NACA are: ***(1)*** capacity building through education and training; ***(2)*** collaborative research and development through networking among centers and people; ***(3)*** development of information and communication networks; ***(4)*** policy guidelines and support to policies and institutional capacities; ***(5)*** aquatic animal health and disease management; and ***(6)*** genetics and biodiversity.

Member Countries: Current member governments are Australia, Bangladesh, Cambodia, China, Hong Kong SAR, India, Indonesia, I.R. Iran, Korea (DPR), Lao PDR, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Viet Nam.

Institutions/Organisations Involved: A number of research centres form the network of NACA which work collaboratively to share technical resources and experience in order to avoid duplication of effort, and facilitate aquaculture development in a cost effective manner.

From the Pacific: Australian Institute of Marine Science (AIMS; Australia), Commonwealth Scientific and Industrial Research Organisation Marine Research (CSIRO; Australia), Queensland Department of Primary Industry - Northern Fisheries Centre (Australia), University of Tasmania (Australia), Deakin University (Australia), and South Australian Research & Development Institute (SARDi; Australia).

From other regions: Bangladesh Fisheries Research Institute (Bangladesh), Freshwater Fisheries Research Centre (China), Yellow Sea Fisheries Research Institute (China), Asia-Pacific Regional Research and Training Centre for Integrated Fish Farming (China), Agriculture, Fisheries and Conservation Department (Hong Kong SAR), Central Inland Fisheries Research Institute (India), Central Institute of Brackishwater Aquaculture (India), Central Institute of Fisheries Education (India), Central Marine Fisheries Research Institute (India), Marine Central Institute of Freshwater Aquaculture (India), Marine Products Export Development Authority (India), National Bureau of Fish Genetic Resource (India), National Research Centre on Coldwater Fisheries (India), Brackishwater Aquaculture Development Centre - Takalar (Indonesia), Brackwishwater Aquaculture Development Centre - Situbondo (Indonesia), Main Centre for Mariculture Development, Ambon (Indonesia), Mariculture Development Centre - Batam (Indonesia), Mariculture Development Centre - Lombok (Indonesia), Coldwater Fishes Research Centre (Iran), Iran Fisheries Organisation - Shilat (Iran), Iranian Fisheries Research Organisation (Iran), Living Aquatic Resources Research Centre (Lao PDR), SEAFDEC Aquaculture Department (Philippines), National Aquatic Resources Research and Development (Sri Lanka), National Aquaculture Development Authority (Sri Lanka), Aquatic Animal Health Research Institute (Thailand), National Inland Fisheries Institute (Thailand), Marine Shrimp Research Institute (Thailand), Southeast Asia Fisheries

Development Center Secretariat (Thailand), Inland Fisheries Research and Development Bureau - Department of Fisheries (Thailand), Fisheries Informatics Centre (Viet Nam), Research Institute for Aquaculture No. 1 (Viet Nam), Research Institute for Aquaculture No. 2 (Viet Nam), and Research Institute for Aquaculture No. 3 (Viet Nam).

Website: For more information please consult http://www.enaca.org/index.php

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Research and Development Sector: Agriculture, Fisheries and Food supply

28. Network of Asia Pacific Schools and Institutes of Public Administration and Governance (NAPSIPAG)

Aim: The Network of Asian and Pacific Schools and Institutes of Public Administration and Governance (NAPSIPAG) was officially launched in 2004 as a result of a technical assistance project of the Asian Development Bank (ADB) to establish a network of schools and institutes of public administration within the Asia and the Pacific region.

The long-term goal of creating NAPSIPAG is to build and enhance the capacities of public administration institutions in the Asia and the Pacific region and to influence their transformation as more effective agents of good governance.

The objectives of NAPSIPAG are to: ***(1)*** encourage the voluntary exchange and sharing of expertise, good practices, and lessons learned; ***(2)*** assist member institutes in the ongoing development of public administration theory and practice through research and other initiatives; and ***(3)*** to foster collaboration between member institutes in the pursuit of common interests.

Countries Covered: Australia, Bangladesh, China, Fiji, France, Hawaii, India, Indonesia, Kazakhstan, Malaysia, Nepal, Pakistan, Korea, Kyrgyzstan, Philippines, Singapore, Sri Lanka and Tanzania.

Member Institutions/Organisations: Some of the institutional members are:

From the Pacific: University of Sydney (Australia), Flinders University (Australia), Monash University (Australia), Australia and New Zealand School of Government (Australia), and University of South Pacific (USP).

From other regions: Bangladesh Public Administration Training Centre (Bangladesh), University of Dhaka (Bangladesh), China National School of Administration (China), Brawijaya University (Indonesia), Kazakhstan Institute of Management, Economics and Strategic Research (Kazakhstan), Seoul National University (Korea), Social Economic Research Centre (Kyrgyzstan), National Institute of Public Administration (Malaysia), University Sains Malaysia (Malaysia), University Malaya (Malaysia), Indian Institute of Public Administration (India), Institute of Public Enterprises (India), Jawaharlal Nehru University (India), *Universiti Uttara Malaysia* (Malaysia), Tribhuvan University (Nepal), National College of Public Administration and Governance (Philippines), Xavier University Public Administration (Philippines), and Development Academy of the Philippines (Philippines).

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Research and Development Sector: Social and Economic concerns

29. Networking Tropical and Subtropical Biodiversity Research in OuterMost Regions and Territories of Europe in support of Sustainable Development (NET-BIOME)

Aim: Networking Tropical and Subtropical Biodiversity Research in OuterMost Regions and Territories of Europe in support of Sustainable Development (NET-BIOME) is a consortium of 11 partners that links conservation entities of the overseas territories and departments of five member states (France, Netherlands, Portugal, Spain and United Kingdom) of the European Union (EU). It is part of the International Cooperation European Area Networks (ERA-Net) scheme, financed under the EU's 6th Framework Programme,

NET-BIOME aims is to initiate and stimulate co-operation and co-ordination of research programmes for the sustainable and integrated management of biodiversity that would address the needs of the threatened ecosystems of the European Outermost Regions (ORs) and Overseas Countries and Territories (OCTs) dispersed throughout the Altantic, Indian and Pacific Oceans.

The overall objective of NET-BIOME is to network the Regional Research Policies on sustainable management of biodiversity in the European tropical and subtropical ORs and OCTs in order to: ***(1)*** develop a durable partnership in research funding policy and practice between the partner organisations, thereby creating added value in high quality tropical and sub-tropical research across the seas; ***(2)*** increase co-operation between regional programmes, developing a trans-regional research funding programme between the partner organisations; ***(3)*** build a strategic and operational platform of co-operation which can be the interface between regional, national, EU and international structures; ***(4)*** contribute to the coordination of biodiversity research funding policies of the ORs and OCTs in co-operation with developing countries; ***(5)*** develop a 'Sustainable Management of tropical and sub-tropical Biodiversity' European Research Area component; ***(6)*** facilitate reciprocal opening of regional programmes, develop joint calls and transregional 'sustainable management of biodiversity' programmes; and ***(7)*** to support the ORs in the designing of their common research policy strategy allowing to build the beginning of an EU tropical component of the European Research strategy.

Countries Covered: La Réunion, Guadeloupe, French Guiana, Martinique, Canary Islands, Madeira, Azores, United Kingdom Overseas Territories (Cayman Islands, Turks and Caicos Islands, British Virgin Islands, Anguilla, Montserrat, Ascension Island, St. Helena, British Indian Ocean Territory and the Pitcairn Islands groups), New Caledonia, Netherland Antilles, and French Polynesia.

Consortium Institutions/Organisations: The consortium is coordinated by the Regional Council of La Réunion and the partners include:

From the Pacific: Government of New Caledonia (New Caledonia), and Government of French Polynesia (French Polynesia).

From other regions: Regional Council of La Réunion, Regional Council of La Guadeloupe, Regional Council of Guyane, Regional Council of Martinique, Regional Government of

Canary Islands, Regional Governement of Madeira Island, Regional Government of Azores, United Kingdom Overseas Territories Conservation Forum, and Ministry of Public Health and Social Development of Netherlands Antilles Government.

Website: http://www.netbiome.org/

Contact: netbiome@netbiome.net

Research and Development Sector: Environment including climate change

30. Oceania Development Network (ODN)

Aim: The Oceania Development Network (ODN) is one of the 11 regional networks of the Global Development Network (GDN). GDN is a global network of policy-making institutes, research institutes and researchers, both in the developed and developing countries, formed for the purpose of facilitating knowledge sharing on development issues among the researchers and policy-makers in the developed and developing countries, and bridging the gap between ideas and policies. GDN is engaged in research issues related to social and economic development, and encourages researchers by providing platform for the research.

Its activities are expected to contribute towards capacity building for the research institutes in the developing countries, dissemination of development knowledge by research institutes to the policy-makers, and to advance development in the developing countries.

ODN is network of individuals and organisations that interested in development research in the Pacific island states, Australia and New Zealand and its purpose is to provide a platform for researchers in the region to interact with each other, share knowledge and skills to foster team research, and build and update regional databases. The Network will identify contemporary issues that underpin the development agenda of the Island states and carry out research and organise conferences geared at developing and refining policies.

Membership is open to researchers, academics, policy-makers and development practitioners. It invites only individuals and organisations interested in development research in the region.

Member Institutions/Organisations: For ODN the institutions involved are University of Papua New Guinea (UPNG; Papua New Guinea), Australia National University (ANU; Australia), University of Auckland (New Zealand), University of South Pacific (USP), National University of Samoa (NUS; Samoa), and Fiji National University (FNU; Fiji).

Website: For more information please consult
http://www.gdn-oceania.org/Home/tabid/2281/language/en-US/Default.aspx

Contact: The Secretariat of the ODN is currently based in Fiji at USP.

Prof. Biman Prasad
ODN Chairperson
Professor of Economics
Dean, Faculty of Business and Economics
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Private Mail Bag
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Or

Litiana Kikau Temo
ODN Regional Coordinator,
odnpacificocean@gmail.com

Research and Development Sector: Social and Economic concerns

31. Pacific Agricultural Plant Genetic Resources Network (PAPGREN)

Aim: The Pacific Agricultural Plant Genetic Resources Network (PAPGREN) is a regional network for the conservation and use of the plant genetic resources (PGR) that is helping to improve the management of genetic resources of crops of local importance in order to ensure long-term conservation and access of these resources by Pacific island population, in order to contribute to sustainable development, food security and income generation in the region.

The objectives of PAPGREN are to: ***(1)*** develop appropriate management strategies for agricultural PGR; ***(2)*** promote the safe exchange of germplasm within and outside the region; and ***(3)*** to develop and coordinate documentation of agricultural PGR.

Countries Covered: Pacific island countries and territories participating in PAPGREN include American Samoa, Commonwealth of Northern Marianas, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, New Caledonia, Niue, Marshall Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

Member Institutions/Organisations: Coordinated by Secretariat of the Pacific Community (SPC) all countries in the Pacific region who are interested can become members of PAPGREN.

At the moment 13 countries are active in the network which include Ministry of Agriculture Department of Resources & Development (Cook Islands), Agriculture Pohnpei Office of Economic Affairs (Federated States of Micronesia), Island Food Community of Pohnpei (Federated States of Micronesia), Ministry of Agriculture, Fisheries & Forest (Fiji), Service du Developpement Rural (French Polynesia), Division of Agriculture - Ministry of Environment, Lands and Agricultural Development (Kiribati), Ministry of Resources & Development (Marshall Islands), Bureau of Agriculture - Ministry of Resources & Development (Palau), Papua New Guinea National Agriculture Research Institute (NARI; Papau New Guinea), Ministry of Agriculture, Forests, Fisheries & Meteorology (Samoa), Department of Agriculture and Livestock (Solomon Islands), Planting Materials Network Kastom Gaden Association (Solomon Islands), Ministry of Agriculture & Forests (Tonga), and Department of Agriculture & Rural Development (Vanuatu).

In addition, PAPGREN also collaborates with regional organisations such as South Pacific Regional Environment Programme (SPREP), Pacific Islands Forum Secretariat (PIFS) and University of the South Pacific (USP), research institutions in New Zealand and Australia, regional and international crop networks - Taro Network for South East Asia and Oceania (TANSAO), South Pacific Yam Network (SPYN), Coconut Genetic Resource Network (COGENT) and International *Network* for the Improvement of Banana and Plantain (INIBAP) - and international agricultural research centers.

Website: For more information please consult http://www.spc.int/lrd/index.php?option=com_content&view=article&id=633&Itemid=108

Contact: PAPGREN is coordinated by the Land Resources Division of the SPC with technical assistance from the Bioversity International and support from New Zealand Agency for International Development (NZAID), and Australian Centre of International Agricultural Research (ACIAR; Australia).

Tevita Kete
PGR Officer
Secretariat of the Pacific Community (SPC)
Suva, Islands
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Research and Development Sector: Agriculture, Fisheries and Food supply

32. Pacific Arts Association (PAA)

Aim: The Pacific Arts Association (PAA), established in 1978, is an international organisation devoted to the study of all the arts of Oceania. PAA provides a forum for dialogue and awareness about Pacific art and culture.

Its aims are to: ***(1)*** make members more aware of the state of all the arts in all parts of Oceania; ***(2)*** encourage international understanding among the nations involved in the arts of Oceania; ***(3)*** promote high standards of research, interpretation and reporting on the arts of Oceania; ***(4)*** stimulate more interest in the teaching of courses on Oceanic art especially but not only at the tertiary educational level; and ***(5)*** to encourage greater cooperation among the institutions and individuals who are associated with the arts of Oceania.

By connecting individuals and institutions around the world, PAA encourages greater cooperation among those who are involved with the creation, study, and exhibition of Pacific art. The peer-reviewed Pacific Arts journal features current research and reviews. The PAA newsletter provides timely information about important events to members. PAA's triennial International Symposium takes place in alternating venues across the globe and includes special tours, performances, exhibitions, and presentations of academic and artistic research on the arts of Oceania. Members have the opportunity to meet and participate in a PAA-sponsored session at the College Art Association annual meeting. PAA-Europe holds a meeting in Europe annually.

Individual and institution wishing to join PAA have to pay for membership.

Website: http://pacificarts.org/

Contact: PAA officers:

Michael Gunn: michael.gunn@nga.gov.au
Philippe Peltier: philippe.peltier@quaibranly.fr
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Research and Development Sector: Social and Economic concerns

33. Pacific-Asia Biodiversity Transect Network (PABITRA)

Aim: The Pacific-Asia Biodiversity Transect Network (PABITRA) is a network of conservation scientists involved in the Pacific basin and its island regions. PABITRA is the tropical island branch of DIWPA, the international network of **DI**VERSITAS in the **W**estern **P**acific and **A**sia.

PABITRA grew out of DIWPA which, in turn, grew out of DIVERSITAS which is an international global environmental change research programme sponsored by ICSU (International Council for Science), SCOPE (Scientific Committee on Problems of the Environment), IUBS (International Union of Biological Sciences), IUMS (International Union of Microbiological Societies) and UNESCO-MAB (Man and the Biosphere). It was officially initiated in 1994.

The PABITRA Network hopes to empower Pacific Islanders to have a better understanding of their natural resources, including land, soil, climate, plants, animals, terrestrial environment, freshwater environment, marine environment, coral reefs, watersheds, etc.

The mission of DIWPA is the promotion of sustainable management and utilisation of biodiversity in the Pacific and the Asia region. This mission statement is defined by ten objectives: ***(1)*** to promote regional research of biodiversity; ***(2)*** to develop joint projects at the regional level; ***(3)*** to establish regional biodiversity networks; ***(4)*** to encourage inter-change of information among scientists; ***(5)*** to conduct training courses pertinent for biodiversity; ***(6)*** to provide the scientific basis for developing common regional policies for biodiversity management and conservation; ***(7)*** to establish a network of data bases; ***(8)*** to develop capacity building in biodiversity assessment and analysis; ***(9)*** to organise meetings, workshops and symposia periodically on current regional issues and concerns regarding biodiversity; and ***(10)*** to contribute to accomplishing the 10 core programme elements of DIVERSITAS Operational Plan.

Countries Covered: A system of biodiversity study along an east west transect form Malaysia through Melansia, Micronesia, Polynesia and Hawaii. PABITRA research sites include: Hawaii, Federated States of Micronesia, Taiwan, Solomon Islands, Fiji, Malaysia, Samoa, Papua New Guinea, and the French Polynesia.

Member Institutions/Organisations: Some of the institutions affiliated through the members of PABITRA include:

From the Pacific: Griffith University (Australia), University of California Berkeley (Gump Station UCB; French Polynesia), University of Guam (UoG; Guam), Bishop Museum (Hawaii) University of Hawaii (UH; Hawaii), United Stated Geological Survey (USGS; Hawaii), Pacific Southwest Research Station (Hawaii), National University of Samoa (NUS; Samoa), University of the South Pacific (USP), Government of the French Polynesia (French Polynesia), and Pacific Science Association (PSA).

From other regions: University of Vienna (Austria), Academia Sinica (China), Georg-August University of Gothingen (Germany), University of Hannover (Germany),

Technische Universitat Munchen (Germany), Centre for International Forestry Research (Indonesia), The Nature Conservacy, Nagasaki University (Japan), Kyoto University (Japan), Komazawa University (Japan) and University of the Philippines Los Banos (Philippines), and University of California Berkeley (United States).

Website: For more information please consult www.botany.hawaii.edu/pabitra/

Contact:

PABITRA office is connected to the University of Hawaii Botany Department. The principal coordinator is Dieter Mueller-Dombois and Annette Mueller-Dombois is the executive assistant (amdhawaii@aol.com).

Research and Development Sector: Environment including climate change

34. Pacific Drug and Alcohol Research Network (PDARN)

Aim: The Pacific Drug and Alcohol Research Network (PDARN), established in 2005, is a research and information network in the Pacific region with a specific focus on substance use and related issues.

It aims to provide a sound evidence base and research capacity to: address the problems of drug and alcohol use in the region by identifying and exploring opportunities for collaboration between health, law enforcement and social research personnel across the Pacific on drugs and alcohol issues facing that the regions; and to make policy recommendations to individual governments.

Its key objectives are to: ***(1)*** create opportunities for inter-disciplinary and multi-method social science research in the Pasifika[7] on licit and illicit drug and alcohol use and to broaden the constituency of PDARN; ***(2)*** develop research capacity in the Pasifika and create academic, civil society and professional research collaboration; ***(3)*** create sustainable research partnerships between government agencies, community bodies and others interested in topics relate to licit and illicit drug and alcohol use issues; ***(4)*** develop substantive research proposals and seek appropriate funding; ***(5)*** develop a research evidence base to inform policy and practice in the Pasifika; and ***(6)*** to use a range of web-based and other technologies to expand and explore the potential of PDARN.

Membership is open to all interested parties and inclusion of a range of representatives from region is encouraged.

Country Covered: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tokelau, Tonga, Tuvalu, and Vanuatu.

Member Institutions/Organisations: The network comprises representatives from ministries of health, law enforcement agencies, community-based and regional organisations, research and education institutions from Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu, and other Pacific island countries and territories, as well as Australia and New Zealand.

PDARN operates with the financial support of Australian National Council on Drug (ANCD), Australian Agency for International Development (AusAID), Australian Government Department of Health and Ageing and United Nations Office on Drugs and Crime.

[7] The use of the term 'Pasifika' here refers to the Melanesian, Polynesian and Micronesian countries of the Pacific islands.

PDARN is further supported by Burnett Institute (Australia), Asia-Pacific Drug Issues Committee (Australia), Fiji School of Medicine (FSMed; Fiji), Vanuatu Ministry of Health (Vanuatu), and University of South Pacific (USP).

Website: For more information please consult http://www.usp.ac.fj/index.php?id=8327

Contact:

Pacific Drug & Alcohol Research Network
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Faculty of Arts and Law
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Research and Development Sectors: Biology and Medicine (Health), and Social and Economic concerns

35. Pacific Energy and Gender Network (PEG)

Aim: The Pacific Energy and Gender Network (PEG) is a regional initiative to connect, inform and mobilize people and organisations committed to achieving gender equality in energy use.

PEG aims to become a dynamic network of women and men around the Pacific and internationally, towards a viable solution for the 'available, reliable, affordable, environmentally sound energy for sustainable development and gender equity for all Pacific Islanders'.

The objectives of PEG are to: ***(1)*** incorporate gender concerns into energy policies and plans nationally and regionally; ***(2)*** raise awareness on energy and gender linkages in the Pacific islands region; ***(3)*** conduct research and analysis on energy and gender linkages in the Pacific islands region; ***(4)*** build the capacity of energy decision-makers, project officers, non state actors, village electrification councils and local communities in incorporating gender sensitive participatory approach and gender mainstreaming tools to energy project planning, implementation, monitoring and evaluation; ***(5)*** increase the representation of women in energy education and training programmes and decision-making committees; and ***(6)*** to strengthen networking and cooperation with relevant international, regional and national groups and institutions.

PEG includes and welcomes all countries, and all peoples and their organisations that have gender and energy interests in the Oceania region.

Country Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Institutions/Organisations Involved: Comprised of lead or partner organisations, stakeholder organisations and individuals. Some of the institutions include:

From the Pacific: South Pacific Applied Geoscience Commission (SOPAC), Pacific Islands Forum Secretariat (PIFS), University of the South Pacific (USP), and national energy representatives of different Pacific island countries and territories.

PEG is associated with other Pacific Networks: ECOWOMAN, Asia Pacific Gender Science and Technology Project (APGEST), APACE (Australia), and Melanesian Islands Village Electrification Group (MIVEG).

From other regions: Technical Centre for Agricultural and Rural Cooperation (Netherlands).

Website: For more information please consult http://map.sopac.org/About+PEG

Contact:

PEG Secretariat
Pacific Islands Applied Geoscience Commission (SOPAC)
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Email: koin@sopac.org

Research and Development Sector: Energy, and Social and Economic concerns

36. Pacific Islands Conservation Research Association (PICRA)

Aim: The Pacific Islands Conservation Research Association (PICRA) was formed in 2004 when founding members felt that conservation issues on Pacific islands could benefit from additional research.

PICRA's mission is to advance knowledge of Pacific species, populations and ecosystems through unbiased scientific investigations. It facilitates and conducts research that focuses on understanding of islands and the conservation issues they face. Results are used to develop solutions to conservation problems.

PICRA strives to support cutting edge programmes that are aligned with their mission of preventing extinctions on islands by sponsoring conservation biologists and their research.

Countries Covered: They have ongoing projects focused on endangered and threatened birds in Micronesia and Polynesia.

Website: http://www.picra.net/

Contact:

PICRA
PO Box 302
6255 SE Ash
South Beach, OR 97366
United States

Research and Development Sector: Environment including climate change

37. Pacific Island Museums Association (PIMA)

Aim: Established in 1994, Pacific Museum Island Association (PIMA) is a regional, multi-lingual, multi-cultural, non-for-profit non governmental organisation consisting of museums and professionals working together. PIMA assists Pacific museums, cultural centres and experts to preserve and promote Pacific islands heritage, arts and culture. Since its establishment, PIMA has been undertaking activities in the field of museum development, establishing a network among Pacific islands museums.

PIMA's role is to: ***(1)*** assist Pacific museums, cultural centres and peoples to preserve Pacific island heritage; ***(2)*** develop community participation in heritage management; ***(3)*** bring together museums and cultural centres in Pacific islands to develop their capacity to identify, research, manage, interpret and nurture cultural and natural heritage; ***(4)*** advocate the development of regional cultural resource management policies and practices; ***(5)*** facilitate training, and provides a forum for the exchange of ideas and skills; and ***(6)*** provide and encourage regional and global linkages which support Pacific islands heritage preservation.

The objectives of the Association is to: ***(1)*** represent the interests and concerns of museums and cultural centers in the region; ***(2)*** develop communication links which bring together professionals and institutions in support of Pacific islands heritage management; ***(3)*** promote community involvement in the vision of PIMA through consultation, education and access activities; ***(4)*** enhance human resources through education and training; ***(5)*** develop and promote ethics and standards; ***(6)*** advice and work with governments and other agencies in matters of heritage management and policy; and ***(7)*** to facilitate the protection and restitution of tangible and intangible cultural property.

PIMA is a member of the International Council of Museums.

Countries served: PIMA's mission is to preserve Pacific islands' heritage and to benefit and represent the interests and concerns of the museums and cultural centers of all Pacific island countries and territories: American Samoa, Cook Islands, Easter Island (Rapa Nui), Federated States of Micronesia, Fiji, French Polynesia, Guam, Hawaii, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Norfolk Island, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

Member Institutions/Organisations: PIMA represents Pacific island museums, cultural centers, national trusts, cultural departments and ministries, national parks, historic preservation offices, interpretative centers, cultural associations and arts councils. Members also include international museums with Pacific collections, universities, research centers and individuals within the region and internationally which support PIMA's vision, mission aims and activities.

Website: For more information please consult http://www.pima-museum.com/

Contact:

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Research and Development Sector: Social and Economic concerns

38. Pacific Island Partnership for Taxonomy (PACINET)

Aim: The Pacific Island Partnership for Taxonomy (PACINET), formed in 2000, is a sub-regional node of the BioNet-International global network for taxonomy, a not-for-profit initiative to promote taxonomy 'in the biodiversity rich but economically poorer countries of the world'.

BioNet's overall objective is to raise awareness of the fundamental relevance of taxonomy to tackling biodiversity conservation for sustainable development.

PACINET works within this framework but focuses on Pacific island priorities. PACINET is part of a worldwide network of people and institutions dedicated to pooling, sharing and enhancing the world's taxonomic resources.

Overall, PACINET aims to further develop the Pacific island's capability to identify, name and understand the roles and relationships of the organisms that constitute its biodiversity. It will also focus on providing coordinated access to existing taxonomic information and increasing taxonomic capacity in the region. The programme also hopes to facilitate and strengthen links between modern (scientific) taxonomy and local (vernacular or traditional) taxonomy as a foundation for improving the conservation, sustainable use and equitable sharing of the benefits of biodiversity in the Pacific region.

Countries Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Partner Institutions/Organisations:

From the Pacific: Secretariat for the Pacific Community (SPC), University of the South Pacific (USP), Secretariat of the Pacific Regional Environment Programme (SPREP), and Pacific Biodiversity Information Forum (PBIF).

Website: For more information please consult
http://www.pbif.org/PACINET/default.html

Contact:

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Research and Development Sector: Environment including climate change

39. Pacific Science Association (PSA)

Aim: Founded in 1920, the Pacific Science Association (PSA) is a regional, non governmental, scholarly organisation that seeks to advance science and technology in support of sustainable development in Asia and the Pacific region.

PSA facilitates inter-disciplinary and international research and collaboration in the Asia and the Pacific region, with a focus on key issues and problems in the region, in order to engage science in the service of human needs and to improve both the quality of life of the region's peoples and of the natural environment upon which all life depends.

Through congress and inter-congress meetings, and ongoing scientific working groups, PSA provides an interdisciplinary platform for scientists to discuss and review common concerns and priorities in the region. Through its scientific network, PSA links scientists from developed countries with those from developing countries, including the archipelagic and more remote states of the Pacific.

PSA facilitates research initiatives on critical emerging issues for the region, such as biodiversity loss, climate change, infectious diseases, and the social implications of globalization, in which science can provide crucial information in a way that is required by both society and policymakers to make sound and informed decisions. It contributes to the capacity building in science and technology by developing leadership opportunities for women, younger scientists and other under-represented groups; increasing communication for isolated scientists and scientific groups and strengthening education and mentoring activities.

PSA is a Scientific Associate of the International Council for Science (ICSU).

Countries Covered: The geographic scope covered by PSA is 'the Pacific' – broadly defined – and thus including all countries and islands within and bordering the Pacific Ocean as well as countries with strong research interest in the region.

Current national members to PSA include Australia, China-Beijing, China-Hong Kong, China-Taipei, France, Guam, Indonesia, Japan, Korea, Malaysia, Okinawa, Pacific Islands (Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu), Russia, Singapore, Thailand, United States, and Viet Nam.

Member Institutions/Organisations:

From the Pacific: National Academies Forum (Australia), University of Guam (Guam), and University of the South Pacific (USP).

From other regions: China Association for Science and Technology (China), University of Hong Kong (Hong Kong), Academia Sinica (Chinese Taipei), *Académie des Sciences* (France), Indonesian Institute of Science (Indonesia), Science Council of Japan (Japan), National Academy of Science (Korea), Ministry or Science, Techology and Innovation Malaysia (MOSTI; Malaysia), University of Ryukyus (Japan), National Research Council of

the Philippines (Philippines), Russian Academy of Science (Russia), Singapore National Academy of Science (Singapore), National Research Council of Thailand (Thailand), National Academy of Sciences (United States), and Viet Nam Academy of Science and Technology (Viet Nam).

Website: For more information please consult http://www.pacificscience.org/

Contact:

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Research and Development Sectors: Environment including climate change, Biology and Medicine (Health), and Social and Economic concerns

40. South Pacific Underwater Medicine Society (SPUMS)

Aim: The South Pacific Underwater Medicine Society (SPUMS) was founded in the early 1970s.

The aims and objectives of the society are to: ***(1)*** promote and facilitate information and research on all aspects of underwater and hyperbaric medicine; ***(2)*** provide information on underwater medicine to all interested groups, including diving organisations, industry, the military as well as the individual diver; ***(3)*** promote exchange of information between members on all aspects of underwater medicine and related subjects and to publish a quarterly journal; and ***(4)*** to convene members annually to the scientific conference.

Paying membership and members include medical practitioners, organisations, students undergoing training to become a medical practitioner and individual.

Website: For more information please consult http://www.spums.org.au/

Contact:
SPUMS Administrator
E-mail: admin@spums.org.au

Or

Michael Bennett
President Associate Professor
E-mail: president@spums.org.au

Dr Sarah Lockley
Secretary
E-mail: secretary@spums.org.au

Research and Development Sector: Biology and Medicine (Health)

41. Science, Technology and Resource Network (STAR)

Aim: Science, Technology and Resources Network (STAR) was founded in 1985. STAR was formed as a vehicle to assist the international research community to provide advice to the Secretariat of the Pacific Island Applied Geoscience Commission (SOPAC).

Country Covered: Amercian Samoa, Cook Islands Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu.

Website: For more information please consult http://www.sopac.org/index.php/star-network

Contact:

Professor John Collen
Chair, STAR
Victoria Univeristy of Wellington

Or

Russell Howorth
Director
Secretariat of the Pacific Island Applied Geoscience Commission
Email: russell@sopac.org

Research and Development Sector: Environment including climate change

42. System for Analysis, Research and Training (START)

Aim: System for Analysis, Research and Training (START) is a non governmental research organisation that works in developing regions of the world through a system of regional networks.

Its mission is to: ***(1)*** conduct research on regional aspects of global change; ***(2)*** assess the impacts of regional findings; and ***(3)*** to provide regionally important integrated and evaluated information to policy-makers and government.

START conducts its activities through its networks and individual scientists who have agreed to co-operate on global change activities, realising that such collaboration accelerates scientific research.

There are currently six regional networks, known as START Secretariat that are based in Africa, Asia the Mediterranean and Pacific. **START-Oceania Secretariat** is one of these regional networks and is based with the Pacific Centre for Environment and Sustainable Development (PACE-SD) at the University of the South Pacific (USP).

Countries Covered: The START-Oceania Secretariat serves the following countries: American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Institutions/Organisations involved:

From the Pacific: University of Adelaide (Australia), University of Hawaii (UH; Hawaii), University of Waikato (New Zealand), *Institut de Recherche pour le Développement* (IRD), Secretariat of the Pacific Regional Environment Programme (SPREP), and USP.

Website: For more information please consult http://www.usp.ac.fj/index.php?id=4174

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Research and Development Sector: Environment including climate change

43.

43. United States Coral Reef Task Force (USCRTF)

Aim: The United States Coral Reef Task Force (USCRTF) was established in 1998 by presidential executive order to lead United States efforts to preserve and protect coral reef ecosystems. USCRTF works in co-operation with state, territorial, commonwealth and local government agencies, non governmental organisations, the scientific community and commercial interests to further the understanding and conservation of coral reef ecosystems.

USCRTF has 13 goals encompassed in two themes for addressing threats to coral reefs. The themes are to: ***(1)*** understand the coral reef ecosystems; and ***(2)*** to reduce of adverse impacts of human activities worldwide. The goals are to: ***(1)*** create comprehensive maps of all United States coral reef habitat; ***(2)*** conduct long-term monitoring and assessments of reef ecosystem conditions; ***(3)*** support strategic research to address the major threats to reef ecosystems; ***(4)*** increase understanding of the social and economic factors of conserving coral reefs; ***(5)*** improve the use of marine protected areas to reduce threats; ***(6)*** reduce adverse impacts of fishing and other extractive uses; ***(7)*** reduce adverse impacts of coastal uses; ***(8)*** reduce pollution; ***(9)*** restore damaged reefs; ***(10)*** improve education and outreach; ***(11)*** reduce threats to coral reef ecosystems internationally; ***(12)*** `reduce impacts form international trade in coral reef species; and ***(13)*** to improve coordination and accountability.

USCRTF membership includes members from 12 federal agencies responsible for coral reef conservation, seven states and territories (American Samoa, Commonwealth of the Northern Mariana Islands, Guam, Hawaii, Puerto Rico, United States Virgin Islands and Florida), and three freely associated states (Federated of States of Micronesia; Marshall Islands and Palau).

Countries Covered: American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Marshall Islands, Guam, Hawaii, Palau, Puerto Rico, United States Virgin Islands, and United States.

Website: For more information please consult http://www.coralreef.gov/

Contact:

Email: coralreefweb@noaa.gov

Research and Development Sector: Environment including climate change

B. Existing networks, partnerships or alliances in the Pacific region that support science and technology

44. Asia Pacific Alcohol Policy Alliance (APAPA)

Aim: The Asia Pacific Alcohol Policy Alliance (APAPA), launched in 2006, is a network of individuals and non governmental organisations (NGOs) committed to the development of effective alcohol policy in the Asia and the Pacific region. APAPA aims to work with other organisations in reducing alcohol-related harm worldwide by promoting science-based policies independent of commercial interests.

The objectives of this Network is to: ***(1)*** provide a forum for alcohol policy advocates through meetings, information sharing, publications, and electronic communications with the purpose to disseminate information regionally on effective alcohol policies and policy advocacy; and ***(2)*** to bring to the attention of local communities, national governments, international governmental and non governmental agencies and communities the social, economic, and health consequences of alcohol consumption and related harm with the purpose to advocate for international and national governmental and non governmental efforts to reduce alcohol related harm worldwide.

APAPA is a younger sister organisation of the Global Alcohol Policy Alliance and European regional alcohol policy alliance (Eurocare).

Countries Covered: APAPA aims to work with NGOs in various countries within the Pacific and Asia.

Of interest, the countries of the Pacific region include: American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, New Caledonia, New Zealand, Niue, Commonwealth of the Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Other countries include Thailand, India, Bangladesh, Myanmar, Bhutan, Nepal, DPR Korea, Sri Lanka, Indonesia, Timor-Leste, Maldives, Darassalam, Cambodia, Vietnam, Laos, Japan, Republic of Korea, Singapore, and Mongolia.

Website: For more information please consult http://apapaonline.org/

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Research and Development Sector: Social and Economic concerns

45. Asia Pacific Network of Science and Technology Centres (ASPAC)

Aim: The Asia Pacific Network of Science & Technology Centres (ASPAC) was formed in 1997 to facilitate communication and cooperation amongst centers, museums and other organisations which use interactive approaches to encourage excellence and innovation in informal learning and the public understanding of science and technology in the Asia and the Pacific region.

ASPAC serves and links its members across the region by: ***(1)*** sharing information on the wide range of activities of member organisations; ***(2)*** organizing conferences, seminars and workshops for the professional development of staff of member organisations; ***(3)*** arranging staff exchanges and study visits to encourage the sharing of knowledge and skills between member science centers and museums; ***(4)*** providing technical assistance to member organisation, including new and developing science centers and museums; ***(5)*** facilitating the exchange of exhibitions between member science centers and museums; ***(6)*** providing a focus for inquiries by members and others on regional trends and developments in interactive science and technology exhibitions and programmes; ***(7)*** working with commercial companies and specialist organisations to further the development of science centers and museums in the region; and ***(8)*** by liaising with and contribution to relevant international networks and organisations for the mutual benefit of strengthening the role and impact of science centers and museums in furthering the public understanding of science and technology.

Countries Covered: ASPAC draws its membership from 20 countries and administrative regions in Asia and the Pacific, Europe, Middle East and North America. Members include science centers, science museums, children's museums and exhibit design and fabrication firms.

Member Institutions/Organisation:

From the Pacific: Australian Museum (Australia), Commonwealth Scientific and Industrial Research Organisation (CSIRO) Discovery Centre (Australia), Exhibition Studios Pty Ltd (Australia), Grande Exhibitions (Australia), Melbourne Museum (Australia), Monash Science Centre (Australia), National Centre for Public Awareness of Science (Australia), Queensland Museum (Australia), Questacon – The National Science and Technology Centre (Australia), Scienceworks Museum (Australia), Scitech (Australia), Science Alive! (New Zealand), Te Manawa Museums Trust (New Zealand), Museum of Transport and Technology (New Zealand), and Otago Museum and Discovery World (New Zealand).

From other regions: Oil and Gas Discovery Centre (Brunei Darussalam), Ontario Science Center (Canada), Science North (Canada), China Science & Technology Museum (China), Communications Museum (Macao, China), Guangdong Science Center (China), Macao Science Center (Macao, China), Shanghai Science and Technology Museum (China), Wenzhou Science & Technology Museum (China), Heureka - The Finnish Science Centre (Hong Kong), Science Museum (Hong Kong), Jogja Science Park, Taman Pintar Yogyakarta (Indonesia), Science Technology Centre, PPIPTEK (Indonesia), Kokoro

Company, Ltd (Japan), National Museum of Emerging Science & Innovation, Miraikan (Japan), National Museum of Nature and Science (Japan), Snibbe Interactive Asia Pacific (Japan), Thema Science Museum (Korea), National Science Museum (Korea), National Science Museum (Korea), Gyeryungsan Natural Science Museum (Korea), Creative Science International (Malaysia), National Science Centre (Malaysia), Palm Information Centre (Malaysia), Petrosains – The Discovery Centre (Malaysia), PICO International (M) Sdn Bhd (Malaysia), Terengganu Science and Creativity Centre (Malaysia), NorthernLight (Netherlands), Philippine Science Centrum (Philippines), Mind Museum (Philippines), Science Centre Singapore (Singapore), Museum at Marina Bay Sands (Singapore), National Museum of Natural Science (Taiwan), National Science and Technology Museum (Taiwan), Children's Discovery Museum (Thailand), Rangsit Science Centre, (Thailand), National Science Centre for Education (Thailand), National Science Museum (Thailand), Science Projects (United Kingdom), Techniquest (United Kingdom), Natural History Museum (United Kingdom), Natural History Museum (United States), Arizona Science Center (United States), Exploratorium (United States), Field Museum (United States), Gwacheon Informal Learning Experiences, Inc. (United States), and American National Science Museum of Yemen (Yemen).

Website: For more information please consult http://www.aspacnet.org/

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Research and Development Sector: Science and Technology

46. Coral Reef Alliance (CORAL)

Aim: Founded in 1994, the Coral Reef Alliance (CORAL) is an international non-for-profit organisation dedicated to protecting the health of coral reefs by focusing on fundamental catalysts for change: well-managed marine protected areas (MPAs), sustainable marine tourism and engagement from local community members.

CORAL is dedicated to building conservation alliances which connects individuals and organisations to bring positive change in reef conservation. It engages stakeholders from all three groups – MPA managers, mariner tourism operators and local residents and is also building a growing network of partnership with other conservation organisations, including funders, government agencies and non governmental organisations.

Countries Covered: Fiji, Indonesia, Hawaii, Belize, Honduras, and Mexico.

Website: For more information please consult http://www.coral.org/

Contact:

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San Francisco, CA 94104
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Fax: +415 834 0999
Email: info@coral.org

Research and Development Sector: Environment including climate change

47. Pacific Agricultural and Forestry Policy Network (PAFPNet)

Aim: A regional network, the Pacific Agricultural and Forestry Policy Network (PAFPNet) was launched in 2006 at the 36th Committee of Representatives of Governments and Administrations (CRGA) meeting of Secretariat of the Pacific Community (SPC).

Its aims are to facilitate communication, information dissemination, capacity building and awareness rising on issues related to agriculture and forestry policies and their development in Pacific countries.

Information shared *via* this Network aims to support the identification, formulation, implementation and monitoring, and evaluation of policies that will help to guide the future development of the agriculture and forestry sectors. PAFPNet works towards forging closer alliances and co-operation with other regional and international networks, particularly within the Africa Caribbean Pacific (ACP) group.

PAFPNet national members include representatives from government. Other members include stakeholders from the private sector, civil society and local community groups as PAFPNet recognizes that they are all important players in determining policy direction and action.

Countries Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Institutions/Organisations Involved: The core group members include:

From the Pacific: Papua New Guinea National Agricultural Research Institute (NARI, Papua New Guinea), Land Resource Division - Secretariat of the Pacific Community (SPC/LRD), Secretariat of the Pacific Regional Environment Programme (SPREP), Foundation of the South Pacific International (FSPI), Pacific Islands Forum Secretariat (PIFS), South Pacific Applied Geoscience Commission (SOPAC), and University of the South Pacific (USP)

From other regions: Technical Center for Agriculture and Rural Cooperation, and the Food and Agriculture Organisation (FAO).

Website: For more information please consult http://www.spc.int/lrd/index.php?option=com_content&view=article&id=463&Itemid=124

Contact: The Land Resources Division of SPC acts as a secretariat for the network and manages its content.

Mr. Inoke Ratukalou
Acting Director for Land Resources Division

SPC, Nabua, Fiji
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Research and Development Sector: Agriculture, Fisheries and Food supply

48. Pacific Animal Health Laboratory Network (PAHLNet)

Aim: The Pacific Animal Health Laboratory Network (PAHLNet) is a group of animal health laboratories in the Pacific region, organized through the Pacific Regional Influenza Pandemic Preparedness Project (PRIPPP), to work together and ensure early detection of infectious animal diseases. Establishing the Network is part of the efforts to strengthen animal health laboratory capacity and keep the region abreast with current developments in animal disease diagnosis.

The structure is composed of three laboratory levels - national/basic animal health laboratories from the all 22 Pacific Island countries and territories (PICTs); sub-regional animal health laboratories; and referral and reference laboratories - each playing significant roles for the efficient functioning of the networking. The PAHLNet mailing list was put in place to support communication between the different animal diagnostic laboratories. The mailing list directory now includes representatives from the agriculture/animal health sector of PICTs, as well as universities and private agencies engaged in diagnostics. Linkages with public health agencies are also being progressed.

Countries Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Institutions/Organisations Involved: Some of institutions involved in PAHLNet include:

From the Pacific: Australian Animal Health Laboratory (Australia), Queensland Department of Primary Industries Australia (Australia), Fiji Veterinary Pathology Laboratory (Fiji), University of Guam (UoG; Guam), United States Geological Survey National Wildlife Centre (Hawaii), Ministry of Agriculture and Forestry Biosecurity New Zealand Investigation and Diagnostic Centre (New Zealand), National Agriculture Quarantine and Inspection Authority (NAQIA; Papua New Guinea), and Secretariat of the Pacific Community (SPC)

Website: For more information please consult http://www.spc.int/lrd/index.php?option=com_content&view=article&id=596&Itemid=361

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Research and Development Sector: Agriculture, Fisheries and Food supply

49. Pacific Disaster Risk Management Partnership Network (PDRMPN)

Aim: The Pacific Disaster Risk Management Partnership Network (PDRMPN) was established in 2006, in order to provide a collaborative and co-operative mechanism to support disaster risk management (DRM) capacity building in the region and to assist the Pacific Island Countries and Territories (PICT) adapt and implement the *Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005 -2015 (Regional Framework): Building the Resilience of Nations and Communities to Disasters*.

The Partnership is an "open-ended, voluntary" membership of international, regional and national government and non government organisations, with comparative advantages and interests in supporting Pacific countries toward mainstreaming DRM through addressing their disaster risk reduction and disaster management priorities.

Country Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Partner Institutions/Organisation:

From the Pacific: Australian Agency for International Development (AusAID; Australia), Australasian Fire Authorities Council (AFAC; Australia), Bureau of Meterology-Australia (BoM-Aus; Australia), Emergency Management Australia (EMA; Australia), Fiji School of Medicine (FSMed; Fiji), New Zealand's International Aid and Development Agency (NZAID; New Zealand), Secretariat of the Pacific Islands Applied Geoscience Commission (SOPAC), Pacific Islands Forum Secretariat (PIFS), Secretariat for the Pacific Regional Environment (SPREP), Secretariat of the Pacific Community (SPC), South Pacific Tourism Organisation (SPTO), and University of the South Pacific (USP).

From the Pacific: Asian Development Bank (ADB), European Union (EU) Commission for the Pacific, International Federation of the Red Cross and Red Crescent Societies, Pacific Disaster Center, Asia Foundation, United Nations Children's Fund (UNICEF), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)/ Pacific Operations Centre (EPOC), United Nations Development Programme (UNEP), United Nations International Strategy for Disaster Reduction, United Nations Office of the Coordination of Humanitarian Affairs (UNOCHA), United States Agency for International Development/Office of United States Foreign Disaster Assistance (USAID; United States), and the World Bank .

Website: For more information please consult
http://www.sopac.org/index.php/pdrmpn

Contact:

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Research and Development Sectors: Environment including climate change, and Social and Economic concerns

50. Pacific Heads of Veterinary and Animal Production Services (PHOVAPS) Network

Aim: The aims of the Pacific Heads of Veterinary and Animal Production Services (PHOVAPS) Network are to: ***(1)*** review available information on the state of animal health and production services throughout the region; ***(2)*** elucidate regional work priorities; and ***(3)*** to develop strategies for improving animal health and animal production services throughout the region.

Members of PHOVAPS Network are country members of the Secretariat of the Pacific Community (SPC).

Countries Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Website: For more information please consult http://www.spc.int/lrd/index.php?option=com_content&view=article&id=498&Itemid=293

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Research and Development Sector: Agriculture, Fisheries and Food supply

51. Pacific Invasives Learning Network (PILN)

Aim: The Pacific Invasives Learning Network's (PILN) mission is to empower effective invasive species management through: ***(1)*** a participant-driven network that meets priority needs; ***(2)*** rapid sharing of skills and resources that provides links to technical expertise; and ***(3)*** through increased information exchange that accelerates on-the-ground action. PILN works closely with the Pacific Invasives Partnership and the Pacific Invasives Initiative (PII).

PILN serves teams of Pacific island agencies responsible for invasives management, including agencies responsible for agriculture and natural resource management, international trade and border control, as well as environment and conservation.

The goals of PILN are to: ***(1)*** strengthen essential technical, organisational, collaborative and policy skills to advance invasive species management in the Pacific islands; ***(2)*** demonstrate on-the-ground action against invasive alien species and rapidly share their experiences, skills and resources; ***(3)*** work co-operatively on high priority local and national invasive species issues; and ***(4)*** to collaborate in addressing at least one critical regional invasive issue or opportunity.

Countries Covered: American Samoa, Commonwealth of Northern Mariana Islands, Fiji, French Polynesia, Guam, Hawaii, Kiribati, Federated States of Micronesia, Marshall Islands, New Caledonia, Niue, Palau, and Samoa.

Partner Institutions/Organisation:

From the Pacific: Office of Environmental Response and Coordination (OERC; Palau), South Pacific Regional Environmental Programme (SPREP), Secretariat of the Pacific Community (SPC), and University of the South Pacific (USP)

From other regions: United States Forest Service (United States), United States Department of State (United States), National Park Service - United States Department of the Interior (United States), The Nature Conservancy, Invasive Species Specialist Group - International Union for Conservation of Nature (IUCN), Conservation International (CI), Pacific Invasives Initiative (PII), and Cooperative Islands Initiative (CII).

Website: For more information please consult http://www.sprep.org/PILN/Index.htm

Contact: PILN secretariat has been established at SPREP in Samoa.

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Research and Development Sector: Environment including climate change

52. Pacific Islands Chapter of the Internet Society (PICISOC)

Aim: The Pacific Islands Chapter of the Internet Society (PICISOC) is affiliated to the Internet Society (ISOC). ISOC provides leadership in addressing issues that confront the future of the Internet.

PICISOC serves ISOC's purposes by serving the interests of the global internet community through its presence in the Pacific island. It also focuses on local issues and developments, and is an impartial advisor to governments and the public on matters of significant interest to Pacific island people.

PICISOC organises PacINET, a yearly regional conference for practitioners, developers, researchers and those interested in information and communication technology (ICT) from all sectors to exchange information on the system design, enabling technologies, and anecdotal experiences related to the use of ICT in the Pacific islands. It has evolved to become the Pacific's largest annual ICT conference.

It works with various organisations and governments in ensuring the continuing development of ICT in the region.

Countries Covered: PICISOC covers 22 Pacific islands countries and territories with a membership of more than 300 individual in the region.

These include: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Marianas, Palau, Papua New Guinea, Pitcairn, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Website: For more information please consult www.picisoc.org

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Research and Development Sector: Information and Communication Technology

53. Pacific Public Health Surveillance Network (PPHSN)

Aim: The Pacific Public Health Surveillance Network (PPHSN) is a voluntary network of countries and organisations dedicated to the promotion of public health surveillance and appropriate response to the health challenges of 22 Pacific island countries and territories (PICTs). The first priorities of PPHSN are communicable diseases, especially the outbreak-prone ones, such as dengue, measles, rubella, influenza, leptospirosis, typhoid fever, cholera, SARS and HIV/STIs.

PPHSN include four services: ***(1)*** Pacific regional Infection Control Network (PICNet) – designed to facilitate infection control response to infectious disease threats in the region, through better communication, accessibility of expertise and technical advice; ***(2)*** LabNet – a three-tier network of public health laboratory services of existing laboratories to provide public health laboratory services for verification and identification of the six initially-targeted diseases to all PICTs; ***(3)*** EpiNet – a multi-disciplinary national/territorial outbreak response teams for preparedness, response and capacity building; and ***(4)*** PacNet – PPHSN's early warning system for outbreak alert to trigger preparedness.

Countries Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Institutions/Organisations Involved: The core members of PPHSN are the Ministries and Department of Health of PICTs. The network is further supported by:

From the Pacific: Australian National University (ANU; Australia), James Cook University (JCU; Australia), Communicable Diseases Network Australia (CDNA; Australia), Fiji School of Medicine (FSMed, Fiji), Fiji Centre for Communicable Disease (FCCD; Fiji), *Institut Louis Malardé* (ILM; French Polynesia), Hawaii Department of Health (Hawaii), Micronesian Human Resources Development Center (MHRDC; Federated States of Micronesia), *Institut Pasteur de la Nouvelle-Calédonie* (IPNC; New Caledonia), Institute of Environmental Science and Research (ESR; New Zealand), Pacific Basin Medical Association (PBMA), Pacific Health Research Council (PHRC), Pacific Island Health Officers Association (PIHOA), Secretariat of the Pacific Community (SPC), and Western Pacific HealthNet.

From the other regions: Centers for Disease Control and Prevention (CDC; United States), International Network of Pasteur Institutes (IPIN), Training Programmes in Epidemiology and Public Health Interventions Network, United Nations Children's Fund (UNICEF), and World Health Organisation (WHO).

Website: For more information please consult
http://www.spc.int/phs/pphsn/index.htm

Contact:

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Research and Development Sector: Biology and Medicine (Health)

54. Pacific Veterinary Network (PACVET)

Aim: Launched in 2000, the aim of the Pacific Veterinary Network (PACVET) is to: ***(1)*** bring together members of the veterinary profession in the Pacific islands much closer together, to the benefit of all; ***(2)*** review available information on the state of animal health and production services throughout the region; and ***(3)*** to elucidate regional work priorities, and develop strategies for improving animal health and animal production services throughout the region.

Countries Covered: American Samoa, Cook Islands, Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Website: For more information please consult http://www.spc.int/lrd/index.php?option=com_content&view=article&id=497&Itemid=267

Contact:

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Research and Development Sector: Agriculture, Fisheries and Food supply

55. PestNet

Aim: PestNet is an email network that helps people worldwide obtain rapid advice and information on crop protection, including the identification and management of plant pests. This informal network started as a service for the Pacific, rapidly expanded to South East Asia, set up a separate service for the Caribbean, and now welcomes anyone interested in crop protection anywhere in the world.

It links the Pacific and South East Asian regions with plant protection specialists worldwide. PestNet has members from government and non government organisations, universities, and the private sector, as well as farmers and students. Any organisation, group or individual can join.

Website: For more information please consult http://www.pestnet.org/PestNet.aspx

Contact:

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Or

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Research and Development Sector: Agriculture, Fisheries and Food supply

ANNEX 4: Physical Constrains to Establishing PACE-Net Networks

Complementary Report

Physical Constrains to Establishing PACE-Net Networks

Prepared by the Strategic Engagement, Policy and Planning Facility (SEPPF) of the Secretariat of the Pacific Community (SPC)

Edited version, 28/06/2011

Acknowledgement: The authors would like to acknowledge all those who have contributed to the current study.

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1. Presentation of the Study

This Study was carried out within the framework of the Pacific Europe Network for Science and Technology (PACE-Net), a European Commission (EC)-funded project under the 7th Framework Programme (Grant no 244514).

The global aim of PACE-Net project is to increase science and technology (S&T) research activities in the Pacific island region by: ***(1)*** improving collaborations and co-operations between S&T actors and ***(2)*** by strengthening the coordination between S&T co-operations and complementarities with other programmes and activities of the EC. To this end, PACE-Net seeks to establish and maintain networks and dialogues between the relevant S&T actors from within the Pacific[8], including Australia and New Zealand, and between the Pacific and Europe.

However, the effectiveness of such a network is subject to the capacity and ease with which the actors of the network can meet and/or communicate. This is particularly relevant to PACE-Net, which seeks to build networks between the Pacific and Europe, two regions that are geographically very distant both in terms of flight hours and time zones. Furthermore, geographical isolation of the Pacific islands from each other and the lack of adequate information and communication technology (ICT) in these countries raise further limits to PACE-Net. The current Study was undertaken to inform PACE-Net of the physical constraints that it may face to meet its objectives and thereby has to bear in mind during the implementation of the networks.

The current Study includes three sets of information: ***(1)*** a collation of information *via* internet on the time differences (Table 1) to determine the 'decent' hours in which telephonic communications are possible between PACE-Net actors within the Pacific region and between the Pacific and the PACE-Net Partner countries of Europe - France, Germany, Italy and Malta (Table 2); ***(2)*** also collated *via* internet, the report provides details on the existences of air routes and airlines operating in the Pacific region (Table 3 and 4) as well as on the frequency and the duration of flights (Table 5) within the region and wider where liaisons with Europe are possible in order for PACE-Net actors to travel and to meet; and ***(3)*** collation of information on the internet, email and video-conferencing capacity of major organisations of the Pacific island region that are involved in S&T research (Table 5) collected *via* a questionnaire (Annex 1), which was launched on the 4th April, 2011.

[8] Includes 15 Pacific group of the African, Caribbean and Pacific (ACP) countries - Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Samoa and Vanuatu - and 4 overseas countries and territories (OCT) - French Polynesia, New Caledonia, Pitcairn Islands, Wallis and Futuna.

NOTE: While every effort has been made to present complete and valid information, the information collated herein, especially pertaining to the air flights is subject to change.

2. Remarks

Analysis of the time difference between 25 countries of the Pacific and between the Pacific and PACE-Net Partner countries of Europe show that the time slots for conference calls within the Pacific region fall within 'decent' hours (from 10h-17h) for all Pacific countries considered and allows, if need be, time for longer discussions, all of which facilitates communication. This is not the case for communication between several countries of the Pacific and of Europe. Apart from countries such as Australia, Guam, Northern Marianna Islands, Papua New Guinea, Palau and Pitcairn Island, telephonic and/or conference calls between the Pacific and Europe are limited in time and only be possible in the early and late hours of the day, between 8-9h or earlier and/or 18h and after, depending on the geographical location of the Pacific country to the Greenwich Mean Time (GMT) line (see Table 2). [9]

The Pacific countries that are well-connected in terms of air routes with maximum of one stop-over include (see Table 3):

Within the Pacific region:
- Australia (possible to go to 15 destination);
- New Zealand (14);
- Fiji (10);
- French Polynesia (7);
- Guam (7);
- New Caledonia (6);
- Solomon Islands (6); and
- Hawaii (6)

Wider than the Pacific: [10]
- New Zealand (5);
- Australia (4);
- Guam (4);
- New Caledonia (4);
- Fiji (3);
- Hawaii (3); and
- Papua New Guinea (3)

According to the information collated from the questionnaire on 'Internet-based Communication Technology of Organisations in the Pacific involved in Research' (Annex 1), research organisations in the French OCTs (French Polynesia and New Caledonia) are equipped with adequate internet, email and video conference facilities. Certain of these research organisations have mentioned that they are further upgrading their internet connections that no doubt will promote communication between different actors (See Table 6) and hence assist PACE-Net meet its objectives.[11]

[9] The daylight saving hour change has not been taken into account in this Study.
[10] For this Study, only those airlines that serve the Pacific island region have been considered and thereby their air routes.
[11] Unfortunately, no information was obtained from the research organisations of the Pacific ACP group that were contacted for the questionnaire.

Table 1: Greenwich Mean Time (GMT) and time difference between the countries of the Pacific zone and between those of Pacific and European

	GMT (H)	American Samoa	Australia	Cook Islands	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	Niue	New Caledonia	New Zealand	Norfolk Island	Northern Manana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Salomon Islands	Tokelau	Tonga	Vanuatu	Wallis & Futuna	France, Germany, Italy, Malta
Pacific Zone																											
American Samoa	-11																										
Australia	+10	+21																									
Cook Islands	-10	+1	-20																								
Federated States of Micronesia	+11	+22	+1	+21																							
Fiji	+12	+23	+2	+22	+1																						
French Polynesia	-10	+1	-20	0	-21	-22																					
Guam	+10	+21	0	+20	-1	-2	+20																				
Hawai	-10	+1	-20	0	-21	-22	0	-20																			
Kiribati	+12	+23	+2	+22	+1	0	+22	+2	+22																		
Marshall Islands	+12	+23	+2	+22	+1	0	+22	+2	+22	0																	
Nauru	+12	+23	+2	+22	+1	0	+22	+2	+22	0	0																
Niue	-11	0	-21	-1	-22	-23	-1	-21	-1	-23	-23	-23															
New Caledonia	+11	+22	+1	+21	0	-1	+21	+1	+21	-1	-1	-1	+22														
New Zealand	+12	+23	+2	+22	+1	0	+22	+2	+22	0	0	0	+23	+1													
Norfolk Island	+11.5	+22.5	+1.5	+21.5	+0.5	-0.5	+21.5	+1.5	+21.5	-0.5	-0.5	-0.5	+22.5	0.5	-0.5												
Northern Mariana Islands	+10	+21	0	+20	-1	-2	+20	0	+20	-2	-2	-2	+21	-1	-2	-1.5											
Palau	+9	+20	-1	+19	-2	-3	+19	-1	+19	-3	-3	-3	+20	-2	-3	-2.5	-1										
Papua New Guinea	+10	+21	0	+20	-1	-2	+20	0	+20	-2	-2	-2	+21	-1	-2	-1.5	0	+1									
Pitcairn Islands	-8	+3	-18	+2	-19	-20	+2	-18	+2	-20	-20	-20	+3	-19	-20	-19.5	-18	-17	-18								
Samoa	-11	0	-21	-1	-22	-23	-1	-21	-1	-23	-23	-23	0	-22	-23	-22.5	-21	-20	-21	-3							
Salomon Islands	11	+22	+1	+21	0	-1	+21	+1	+21	-1	-1	-1	+22	0	-1	-0.5	+1	+2	+1	+19	+22						
Tokelau	-10	+1	-20	0	-21	-22	0	-20	0	-22	-22	-22	+1	-21	-22	-21.5	-20	-19	-20	-2	+1	-21					
Tonga	+13	+24	+3	+23	+2	1	+23	+3	+23	1	1	1	+24	+2	1	+1.5	+3	+4	+3	+21	+24	+2	+23				
Vanuatu	+11	+22	+1	+21	0	-1	+21	+1	+21	-1	-1	-1	+22	0	-1	-0.5	+1	+2	+1	+19	+22	0	+21	-2			
Wallis & Futuna	+12	+23	+2	+22	+1	0	+22	+2	+22	0	0	0	+23	+1	0	+0.5	+2	+3	+2	+20	+23	+1	+22	-1	+1		
European Zone																											
France, Germany, Italy, Malta	+1	+12	-9	+11	-10	-11	+11	-9	+11	-11	-11	-11	+12	-10	-11	-10.5	-9	-8	-9	+9	+12	-10	+11	-12	-10	-11	

NB: This table does not take into account the daylight saving hours. Information was gathered from http://www.timeanddate.com/worldclock/

Table 2: Two-way hour slots for conference calls between countries of the Pacific region (in red), and between countries of Pacific and Europe (in green and/or blue)

GMT (H)	Time Zones (Countries)	Decent Hours of Conference Calls for All Parties												
		8H	9H	10H	11H	12H	13H	14H	15H	16H	17H	18H	19H	20H
+13	1 (Tonga)													
+12	2 (Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Norfolk Islands and Wallis & Futuna)													
+11	3 (Federated States of Micronesia, New Caledonia, Salomon Islands and Vanuatu)													
+10	4 (Australia, Guam, Northern Marianna Islands and Papua New Guinea)													
+9	5 (Palau)													
-8	6 (Pitcairn Islands)													
-10	7 (Cook Islands, French Polynesia, Hawai'i and Tokelau)													
-11	8 (American Samoa, Niue and Samoa)													
+1	9 (France, Germany, Italy and Malta)													

NB: The hours that are considered 'decent' in this Study for making conference calls for all parties are between 8h in the morning to 20h in the evening.
This table does not take into account the daylight saving hours.
Abbreviations:

between Pacific countries of zones 1, 2, 3, 4, 5, 6, 7 and 8
optimal hours for multiple party conference calls between Pacific countries of zones 1, 2, 3, 4, 5, 6, 7 and 8
between Pacific countries of zones of 1, 2, 3, 4, 5 and 8 and European countries (zone 9)
optimal hours for multiple party conference calls between countries of zones 1, 2, 3, 4, 5 and 8 and European countries (zone 9)
between Pacific countries of zones of 1, 6, 7 and 8 and Europe countries (zone 9)
optimal hours for multiple party conference calles between Pacific countries of zones 1, 6, 7 and 8 and European countries (zone 9)

Table 3: Existing air routes between countries of the Pacific and further, and number of stop-overs

	American Samoa	Australia	Cook Islands	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	Niue	New Caledonia	New Zealand	Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis and Futuna	Korea	France	La Reunion	Japan	United States	Singapore	Hong Kong
Pacific Zone																																	
American Samoa								0												0													
Australia			0		0	1	0	0	0		0		0	0	0			0		0	0		0		0		0	1	0	0			
Cook Islands		0												0																	0		
Federated States of Micronesia							0,1																										
Fiji		0					0	0	0		1		0,1	0				0		0	0,1		0	1	0	0	0			0			0
French Polynesia		1						0					0	0														1		0			
Guam		0		0,1	0			0		0						0	0										0			0	0		0
Hawaii	0	0			0	0	0			0																	0			0	0		
Kiribati		0			0						0										0												
Marshall Islands							0	0																									
Nauru		0			1				0												0												
Niue														0																			
New Caledonia		0			0,1	0								0											0	0,1	0	1	1	0			
New Zealand		0	0		0	0						0	0		0					0			0		0		0	1		0	0		0
Norfolk Island		0												0																			
Northern Mariana Islands							0																										
Palau							0																										
Papua New Guinea		0			0																0											0	0
Pitcairn Islands																																	
Samoa	0	0			0									0																			
Solomon Islands		0			0,1				0		0							0							0								
Tokelau																																	
Tonga		0			0									0																			
Tuvalu					1																												
Vanuatu		0			0								0	0							0												
Wallis and Futuna					0								0,1																				
Nº of liaison within the region	**2**	**15**	**2**	**1**	**14**	**4**	**7**	**6**	**4**	**2**	**4**	**1**	**6**	**10**	**2**	**1**	**1**	**3**		**4**	**6**		**3**	**1**	**5**	**2**	**6**	**4**	**2**	**7**	**5**	**1**	**4**
Further than the Pacific Zone																																	
Korea		0			0		0	0					0	0																			
France		1				1							1	1																			
La Reunion		0											1																				
Japan		0				0	0	0					0	0				0															
United States			0		0		0	0						0																			
Singapour																		0															
Hong Kong					0		0							0				0															
Nº of liaison wider than the Pacific	**2**	**4**	**1**		**3**	**2**	**4**	**3**					**4**	**5**				**3**															

NB: The above matrix includes information on existing air routes of 20 national and commercial airlines that frequently serve the Pacific island region. Smaller and chartered airlines have been considered in the present Study. The above information was collated for the month of May 2011 from the website of the airlines considered for the Study. Efforts have been made to present complete and valid information; however, this information is subject to change. For further and valid information, please contact the appropriate airline or your travel agency.

Abbreviations:

0, 1 – number of stop-overs or transits between destinations

Table 4: Airlines operating in the Pacific island region

	American Samoa	Australia	Cook Islands	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	Niue	New Caledonia	New Zealand	Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis and Futuna	Further than the Pacific re
American Samoa								HA												PA							
Australia			NZ		AP JT PB		AM	JT QA HA	OA		OA		QA AC	NZ JT QA PB	NA			AN QA PB		PO	SA OA PB		PB		AV PB		QA KA AA JN
Cook Islands		NZ												NZ PB													NZ
Federated States of Micronesia							AM																				
Fiji		JT AP PB					AM	AM	AK AP		OA		AC	NZ AP				AN		AP	SA		AP	AP	AV		KA AP
French Polynesia								HA					AC	AT NZ													JN AT
Guam		AM		AM	AM					AM						AM	AM										AM KA JN
Hawaii	HA	JT HA QA			AM	HA				AM																	HA JN
Kiribati		OA			AP AK						OA										OA						
Marshall Islands							AM	AM																			
Nauru		OA			OA				OA												OA						
Niue														NZ													
New Caledonia		QA AC			AC	AC								NZ AC											AC AV	AC	AA AC
New Zealand		JT NZ QA PB	NZ PB		NZ AP	NZ AT						NZ	NZ AC		NZ					NZ PO			NZ PB		AV NZ		NZ KA JN
Norfolk Island		NA												NZ													

	American Samoa	Australia	Cook Islands	Federated States of Micronesia	Fiji	French Polynesia	Guam	Hawaii	Kiribati	Marshall Islands	Nauru	Niue	New Caledonia	New Zealand	Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea	Pitcairn Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis and Futuna	Further than the Pacific re
Northern Mariana Islands							AM																				
Palau							AM																				
Papua New Guinea		QA AN PB			AN																AN						AN
Pitcairn Islands																											
Samoa	PA	PO			AP									NZ PO													
Solomon Islands		SA OA PB			SA				OA		OA							AN							AV SA		
Tokelau																											
Tonga		PB			AP									NZ PB													
Tuvalu					AP																						
Vanuatu		PB AV			AV								AC AV	AC NZ							SA AV						
Wallis and Futuna													AC														
Further than the Pacific region		QA KA AA JN	NZ		KA AP	JN AT	AM KA JN	HA JN					AA AC	NZ KA JN				AN									

NB: The above matrix includes information on 20 national and commercial airlines that frequently serve the Pacific island region. Smaller and chartered airlines have been considered in the present Study. The above information was collated for the month of May 2011 from the website of the airlines considered for the Study. Efforts have been made to present complete and valid information; however, this information is subject to change. For further and valid information, please contact the appropriate airline or your travel agency.

Abbreviations:

AA – Air Austral
AC – Air Calin
AK – Air Kiribati
AM – Continential Air Micronesia
AN – Air Niugini
AP – Air Pacific
AT – Air Tahiti Nui
AV – Air Vanuatu
HA – Hawaiian Airlines
JN – Japan Airlines
JT – Jetstar Airways
KA – Korean Air
NA – Norfolk Air
NZ – Air New Zealand
OA – Our Airlines
PA – Polynesian Airlines
PB – Pacific Blue
PO – Polynesian Blue
QA – Qantas Airways
SA – Solomon Airlines

Table 5: Details of flights serving the Pacific island regionally and internationally (frequency, stops, durations and days of service)

Departure	Arrival	Frequence	Stops	Duration	Days of Service
Airline: Air Calin					
Noumea Auckland	Auckland Noumea	2/week 2/week	0 0	2h 35 3h 00	Thu, Sun Thu, Sun
Noumea Nandi	Nandi Noumea	2/week 2/week	0,1 (Wallis) 0	1h 55 2h 10	Mon, Sat Mon, Sat
Noumea Papeete	Papeete Noumea	1/week 1/week	0 0	5h 25 6h 40	Fri Fri
Noumea Port Vila	Port Vila Noumea	2/week 2/week	0 0	1h 10 1h 05	Mon, Fri Mon, Fri
Noumea Sydney	Sydney Noumea	3/week 3/week	0 0	3h 15 2h 40	Wed, Thu, Fri Wed, Thu, Fri
Noumea Tokyo	Tokyo Noumea	2/week 2/week	0 0	9h 50 9h 35	Mon, Sat Mon, Sat
Noumea Wallis	Wallis Noumea	3/week 3/week	0,1 (Nandi) 0,1 (Nandi)	2h 55 3h 10	Mon, Wed, Sat Mon, Wed, Sat
Wallis Nadi	Nadi Wallis	2/week 1/week	0 0	1h 30 1h 30	Mon, Sat Sat
Airline: Air Pacific					
Nadi Apia	Apia Nadi	3/week 3/week	0 0	1h 50 1h 50	Tue, Fri, Sun Tue, Fri, Sat
Nadi Auckland	Auckland Nadi	10/week 10/week	0 0	3h 10 3h 10	Mon – Sun Mon – Sun
Nadi Funafuti	Funafuti Nadi	2/week 2/week	1 (Suva) 1 (Suva)	3h 40 3h 35	Tue, Thu Tue, Thu
Nadi Hong Kong	Hong Kong Nadi	3/week 3/week	0 0	10h 25 10h 10	Mon, Thu, Sat Mon, Thu, Sat
Nadi Los Angeles	Los Angeles Nadi	4/week 4/week	0 0	10h 20 10h 40	Tue, Thu, Sat, Sun Tue, Thu, Sat, Sun
Nadi Nuku'alofa	Nuku'alofa Nadi	2/week 2/week	0 0	1h 20 1h 30	Tue, Sat Tue, Sat
Nadi Sydney	Sydney Nadi	7/week 7/week	0 0	4h 40 3h 45	Mon - Sun Mon - Sun
Nadi Tawara	Tawara Nadi	2/week 2/week	0 0	3h 00 3h 00	Tue, Thu Tue, Thu

Airline: Air Tahiti Nui					
Papeete Auckland	Auckland Papeete	2/week 2/week	0 0	5h 55 4h 55	Wed, Sat Wed, Sat
Papeete Los Angele	Los Angeles Papeete	9/week 9/week	0 0	8h 15 8h 20	Mon – Sun Mon - Sun
Papeete Tokyo	Tokyo Papeete	2/week 2/week	0 0	11h 55 11h 30	Fri, Sun Mon, Sat
Airline: Air Vanuatu					
Port Vila Auckland	Auckland Port Vila	2/week 2/week	0 0	3h 00 3h 15	Wed, Sat Wed, Sat
Port Vila Fiji	Fiji Port Vila	2/week 2/week	0 0	1h 25 1h 40	Tue, Sun Tue, Sun
Port Vila Honiara	Honiara Port Vila	1/week 1/week	0 0	2h 00 1h 55	Tue Tue
Port Vila Noumea	Noumea Port Vila	3/week 3/week	0 0	1h 35 1h 35	Wed, Fri, Sun Wed, Fri, Sun
Port Vila Sydney	Sydney Port Vila	6/week 5/week	0 0	3h 45 3h 25	Mon, Wed, Thu, Fri, Sat, Sun Mon, Wed, Fri, Sat, Sun
Airline: Air Niugini					
Port Moresby Hong Kong	Hong Kong Port Moresby	2/week 2/week	0 0	6h 35 5h 45	Mon, Thu Tue, Thu
Port Moresby Honiara	Honiara Port Moresby	3/week 3/week	0 0	2h 20 2h 20	Tue, Fri, Sun Mon, Wed, Sat
Port Moresby Manila	Manila Port Moresby	3/week 3/week	0 0	6h 05 5h 25	Wed, Fri, Sun Wed, Fri, Sun
Port Moresby Nadi	Nadi Port Moresby	3/week 3/week	0 0	5h 10 6h 10	Tue, Fri, Sun Mon, Wed, Sat
Port Moresby Singapore	Singapore Port Moresby	4/week 4/week	0 0	6h 20 6h 35	Mon, Tue, Thu, Sat Mon, Tue, Thu, Sat
Port Moresby Sydney	Sydney Port Moresby	2/week 2/week	0 0	3h 05 2h 50	Fri, Sun Mon, Sat
Port Moresby Tokyo	Tokyo Port Moresby	2//week 2//week	0 0	6h 35 6h 35	Wed, Sat Wed, Sat

Airline: Air Kiribati					
Tawara Nadi	Nadi Tawara	1/week 1/week	0 0	3h 04 3h 06	Mon Wed
Airline: Solomon Airline					
Honiara Brisbane	Brisbane Honiara	4/week 4/week	0 0	3h 30 3h 15	Mon, Wed, Fri, Sun Mon, Wed, Fri, Sun
Honiara Nadi	Nadi Honiara	2/week 2/week	0 0	3h 00 3h 00	Fri, Sun Mon, Sat
Honiara Nadi	Nadi Honiara	1/week 1/week	1 (Port Vila) 1 (Port Vila)	4h 20 4h 40	Tue Tue
Honiara Port Vila	Port Vila Honiara	1/week 1/week	0 0	1h 55 2h 00	Tue Tue
Airline: Hawaiian Airlines					
Honolulu Los Angeles	Los Angeles Honolulu	2/day 2/day	0 0	5h 30 5h 25	Mon – Sun Mon - Sun
Honolulu Manila	Manila Honolulu	4/week 4/week	0 0	10h50 10h 20	Mon, Wed, Fri, Sun Mon, Tue, Thu, Sat
Honolulu Pago Pago	Pago Pago Honolulu	3/week 3/week	0 0	5h 40 5h 20	Mon, Tue, Thu Mon, Tue, Thu
Honolulu Papeete	Papeete Honolulu	1/week 1/week	0 0	5h 50 5h 45	Sat Sun
Honolulu Seoul	Seoul Honolulu	4/week 4/week	0 0	10h 20 8h 35	Tue, Thu, Sat, Sun Mon, Wed, Fri, Sun
Honolulu Sydney	Sydney Honolulu	4-7/week 4-7/week	0 0	10h 40 9h 40	Mon – Sun Mon - Sun
Honolulu Tokyo	Tokyo Honolulu	7/week 7/week	0 0	8h 50 7h 25	Mon – Sun Mon - Sun
Airline: Our Airline					
Brisbane	Honiara	1/week	0	4h 10	Sun
Brisbane Nauru	Nauru Brisbane	1/week 1/week	0 0	5h 46 4h 34	Sun Wed
Brisbane Tawara	Tawara Brisbane	1/week 1/week	0 0	8h 01 6h 49	Sun Wed

Honiara	Nauru	1/week	0	0h 51	Mon
Honiara	Tawara	1/week	0	3h 06	Mon
Nadi Nauru	Nauru Nadi	1/week 1/week	1 (Tawara) 1 (Tawara)	4h 21 4h 19	Wed Mon
Nauru Tawara	Tawara Nauru	1/week 1/week	0 0	1h 15 1h 15	Mon Wed
Airline: Norfolk Air					
Norfolk Island Sydney	Sydney Norfolk	3/week 3/week	0 0	2h 50 2h 35	Thu, Sat, Sun Thu, Sat, Sun
Airline: Continential Air Micronesia					
Guam Cairns	Cairns Guam	2/week 2/week	0 0	4h 30 4h 25	Thu, Sun Mon, Fri
Guam Hong Kong	Hong Kong Guam	2/week 2/week	0 0	4h 45 4h 35	Mon, Fri Mon, Fri
Guam Koror	Koror Guam	6/week 6/week	0 0	2h 00 2h 00	Mon, Tues, Wed, Thu, Fri, Sun Mon, Tues, Wed, Thu, Fri, Sun
Guam Majuro	Majuro Guam	1/week 1/week	0 0	4h 00 3h 55	Sat Mon
Guam Manila	Manila Guam	9/week 9/week	0 0	3h 35 3h 35	Mon – Sun Mon - Sun
Guam Nadi	Nadi Guam	2/week 2/week	0 0	6h 35 6h 30	Mon, Fri Tue, Sun
Guam Pohnpei	Pohnpei Guam	4/week 4/week	1 (Truk) 1 (Truk)	3h 38 3h 25	Mon, Wed, Fri, Sun Mon, Tue, Thu, Sat
Guam Saipan	Saipan Guam	37/week 37/week	0 0	0h 50 0h 50	Mon – Sun Mon - Sun
Guam Tokyo	Tokyo Guam	3/day 3/day	0 0	3h 35 3h 30	Mon – Sun Mon - Sun
Guam Truk	Truk Guam	4/week 4/week	0 0	1h 40 1h 30	Mon, Wed, Thu, Fri, Sun Mon, Tue, Thu, Sat
Guam Yap	Yap Guam	2/week 2/week	0 0	1h 35 1h 30	Tue, Sat Wed, Sun

Honolulu Majuro	Majuro Honolulu	4/week 4/week	0 0	5h 09 4h 45	Mon, Wed, Fri, Sat Mon, Wed, Fri, Sat
Honolulu Nadi	Nadi Honolulu	1/week 1/week	0 0	6h 46 6h 35	Fri Sun
Koror Manila	Manila Koror	2/week 2/week	0 0	2h 35 2h 40	Tue, Fri Tue, Fri
Airline: Air New Zealand					
Auckland Apia	Apia Auckland	6/week 7/week	0 0	3h 50 4h 10	Mon, Tue, Wed, Thu, Fri, Sat Tue, Wed, Thu, Fri, Sat, Sun
Auckland Hong Kong	Hong Kong Auckland	7/week 7/week	0 0	11h 30 10h 50	Mon – Sun Mon – Sun
Auckland London	London Auckland	12/week 12/week	1 (Hong Kong or Los Angeles) 1(Hong Kong or Los Angeles)	24h 30 24h 55	Mon – Sun Mon - Sun
Auckland Los Angeles	Los Angeles Auckland	12/week 12/week	0 0	12h 15 13h 00	Mon – Sun Mon – Sun
Auckland Nadi	Nadi Auckland	1/day 1/day	0 0	3h 00 3h 00	Mon – Sun Mon - Sun
Auckland Niue	Niue Auckland	1/week 1/week	0 0	3h 40 3h 50	Sat Sun
Auckland Noumea	Noumea Auckland	2/week 2/week	0 0	3h 00 2h 35	Tue, Sat Tue, Sat
Auckland Norfolk Island	Norfolk Island Auckland	1/week 1/week	0 0	1h 55 1h 45	Sun Sun
Auckland Nuku'alofa	Nuku'alofa Auckland	5/week 5/week	0 0	2h 50 3h 00	Mon, Tue, Wed, Thu, Fri Mon, Tue, Wed, Sat
Auckland Papeete	Papeete Auckland	2/week 2/week	0 0	4h 45 5h 55	Mon, Fri Fri, Sun
Auckland Port Vila	Port Vila Auckland	1/week 1/week	0 0	3h 15 3h 00	Sun Sun
Auckland Rarotonga	Rarotonga Auckland	9/week 9/week	0 0	3h 45 4h 30	Mon – Sun Mon – Sun
Auckland Sydney	Sydney Auckland	29/week 29/week	0 0	3h 30 3h 00	Mon – Sun Mon – Sun
Auckland Tokyo	Tokyo Auckland	4/week 4/week	0 0	11h 10 10h 45	Tue, Thu, Sat, Sun Tue, Fri, Sat, Sun

Australia Rarotonga	Rarotonga Australia	>4/week >4/week	0 0	8h 05 10h 20	Tue, Fri, Sat, Sun Mon, Tue, Fri, Sat
Rarotonga Los Angeles	Los Angeles Rarotonga	1/week 1/week	0 0	9h 30 9h 45	Sat Sun
Airline: Jetstar Airways					
Sydney Auckland	Auckland Sydney	7/week 7/week	0 0	3h 05 3h 30	Mon – Sun Mon - Sun
Sydney Honolulu	Honolulu Sydney	4/week 4/week	0 0	9h 45 10h 35	Mon, Tue, Thu, Sat Mon, Tue, Thu, Sat
Sydney Nadi	Nadi Sydney	4/week 4/week	0 0	3h 45 4h 40	Mon, Wed, Fri, Sat Mon, Wed, Fri, Sat
Airline : Qantas Airway					
Sydney Auckland	Auckland Sydney	5/day 5/day	0 0	2h 55 3h 30	Mon – Sun Mon - Sun
Sydney Honolulu	Honolulu Sydney	3/week 3/week	0 0	9h 45 10h 45	Wed, Fri, Sun Wed, Fri, Sun
Sydney Noumea	Noumea Sydney	3/week 3/week	0 0	2h 50 3h 25	Mon, Sat, Sun Mon, Sat, Sun
Cairns Port Moresby	Port Moresby Cairns	12/week 12/week	0 0	1h 45 1h 50	Mon – Sun Mon- Sun
Sydney Tokyo	Tokyo Sydney	1/day 1/day	0 0	9h 35 9h 30	Mon – Sun Mon - Sun
Airline : Pacific Blue					
Auckland Nuku'alofa	Nuku'alofa Auckland	2/week 2/week	0 0	2h 50 3h 05	Mon, Thu Mon Thu
Auckland Rarotonga	Rarotonga Auckland	5/week 5/week	0 0	3h 50 4h 45	Mon, Tue, Fri, Sat, Sun Mon, Tue, Fri, Sat, Sun
Brisbane Honiara	Honiara Brisbane	2/week 2/week	0 0	3h 10 3h 10	Tue, Thu Tue, Thu
Brisbane Port Moresby	Port Moresby Brisbane	4/week 4/week	0 0	3h 15 3h 00	Mon, Wed, Fri, Sun Mon, Wed, Fri, Sun
Brisbane Port Vila	Port Vila Brisbane	3/week 3/week	0 0	2h 35 3h 05	Mon, Wed, Sat Mon, Wed, Sat
Sydney Auckland	Auckland Sydney	1/day 1/day	0 0	3h 00 3h 45	Mon – Sun Mon – Sun

Sydney Nuku'alofa	Nuku'alofa Sydney	2/week 2/week	0 0	4h 30 5h 50	Mon, Thu Mon, Thu
Sydney Nadi	Nadi Sydney	8/week 10/week	0 0	4h 05 5h 00	Tue – Sun Mon - Sun
Sydney Port Vila	Port Vila Sydney	2/week 2/week	0 0	3h 30 4h 05	Thu, Sun Thu, Sun
Airline: Polynesian Blue					
Auckland Apia	Apia Auckland	6/week 6/week	0 0	3h 50 3h 15	Tue, Wed, Thu, Fri, Sat, Sun Mon, Tue, Wed, Thu, Sat
Sydney Apia	Apia Sydney	3/week 3/week	0 0	5h 15 5h 35	Wed, Fri, Sun Wed, Fri, Sun
Airline : Polynesian Airlines					
Apia Pago Pago	Pago Pago Apia	>3/day >3/day	0 0	0h 35 0h 35	Mon – Sun Mon - Sun
Airline : Korean Air					
Seoul Auckland	Auckland Seoul	6/week 6/week	0 0	11h 20 12h 05	Tue, Wed, Thu, Fri, Sat, Sun Mon, Wed, Thu, Fri, Sat, Sun
Seoul Guam	Guam Seoul	1/day 1/day	0 0	4h 20 4h 35	Mon – Sun Mon - Sun
Seoul Nadi	Nadi Seoul	3/week 3/week	0 0	10h 10 10h 40	Tue, Thu, Sun Mon, Wed, Fri
Seoul Sydney	Sydney Seoul	1/day 1/day	0 0	10h 15 10h 45	Mon – Sun Mon – Sun
Airline : Air Austral					
La Réunion Noumea	Noumea La Réunion	2/week 2/week	1 (Sydney) 1 (Sydney)	14h 30 17h 55	Thu, Sun Tue, Sat
La Réunion Sydney	Sydney La Réunion	2/week 2/week	0 0	10h 30 12h 22	Thu, Sun Tue, Sat
Airline : Japan Airlines					
Narita Auckland	Auckland Narita	6/week 6/week	0 0	10h 45 11h 10	Mon, Tue, Wed, Fri, Sat, Sun Mon, Tue, Wed, Fri, Sat, Sun
Narita Guam	Guam Narita	1/day 1/day	0 0	3h 35 3h 45	Mon – Sun Mon - Sun
Narita Honolulu	Honolulu Narita	3/day 3/day	0 0	7h 20 8h 10	Mon – Sun Mon - Sun

Narita Papeete	Papeete Narita	2/week 2/week	0 0	11h 30 11h 55	Mon, Sat Fri, Sun

NB: The above matrix includes information on the frequency, number of stops, duration and days of service of flights of 20 national and commercial airlines that frequently serve the Pacific island region. Smaller and chartered airlines have been considered in the present Study. The information was collated for the month of May 2011 from the website of the respective airlines. Efforts have been made to present complete and valid information; however, this information is subject to change. For further and valid information, please contact the appropriate airline or your travel agency.

Abbreviation:

Flights out of the Pacific region

Table 6: Internet connections, email capacity and video conferencing facilities of research organisations in the Pacific islands

Name of organisation	Country	Internet bandwidth and source	Maximum internet speed limit per staff	Internet usage limit per month	Average data download and upload speed	Frequency and duration of internet disruption	Maximum data capacity per email per staff	Video conference facilities	VoIP/messaging software used
Institut Pasteur de la Nouvelle-Calédonie	New Caledonia	1-8 Mb dependent on location (ADSL – local provider)	Unlimited	>2 GB	1-8 Mb/s download 800 KB/s upload	1/week for 10-20 mins	10 Mb	Tandberg video-conference	None
Institut de Recherche pour le Développement	French Polynesia	2 Mb (RENATER[1])	Unlimited	>2 Gb	500Kb/s download 200 Kb/s upload	None	>10 Mb	H323 - Polycom V500	None
Institut de Recherche pour le Développement	New Caledonia	8 Mb (local provider - RENATER[1])	Unlimited	Unlimited	Depends on the traffic	None	>10 Mb	H323 - internet and EVO webconference	MSN, SIP telephony and EVO web conference
Institut Louis Malardé	French Polynesia	2 Mb (ADSL – local provider)	Depends on the traffic	>2 Gb	Unlimited (download is higher than upload)	3/month for 1 h	10 Mb	None	Skype
Secretariat of the Pacific Community	New Caledonia	2 Mb (leased line) or 8 Mb (ADSL)	Unlimited	Unlimited		None	2 Mb	Polycom	Skype, MSN
Université de la Nouvelle-Calédonie	New Caledonia	4 Mb	400 Ko	> 2Gb	300Ko	1/day	5Mb	H323 - Polycom	None
Université de la Polynésie Française	French Polynesia	10 Mb (local provider) or 128 Kb with RENATER[1] (local provider)	Unlimited	>2Gb	256 to 512Kb/s	None	10Mb	IP H323 and ISDN H320 - Polycom VSX-7000	None

[1]RENATER: French National Telecommunication network for Technology, Teaching and Research

ANNEX 1 Questionnaire on Internet-based Communication Technology of Organisations in the Pacific involved in Research

PACE-Net Questionnaire on Internet-based Communication Technology of Organisations in the Pacific involved in Research

Introduction

The Pacific Europe Network for Science and Technology (PACE-Net) is an European Union-funded project that intends to create a network of scientific and social science researchers within the Pacific and between the Pacific and Europe.

To create an effective network, communication between the researchers and other interested parties is pre-requisite. Given the geographical spread of the Pacific island countries and territories and the distance between the Pacific and Europe internet-based communication technologies (email, video conference, chat, etc) is vital.

This questionnaire aims to find out the internet-based communication capacity of different organisations in the Pacific that are involved in research.

The questionnaire is targeted to Information Technology Departments of research and academic organisations based in the Pacific island region.

The responses from the questionnaire will be collated in a report to inform the European Commission and the PACE-Net consortium and key stakeholders.

The survey is entirely voluntary for respondents. Any information deemed confidential can be refused.

We request you to please return the completed questionnaire no later than **11th April, 2011**.

Further information or inquiries; please do not hesitate to contact:

- Izzal Azid, PACE-Net Research Officer at University of South Pacific on email azid_s@usp.ac.fj or telephone (679) 32 32859

- Shilpa Kumar-Roiné, PACE-Net Research Officer at Secretariat of the Pacific Community on email shilpakr@spc.int or telephone (687) 26 20 00

1. Please provide the name of your organisation.

2. What is you bandwidth size and source of internet in your company?

3. Please provide the maximum data capacity per email per staff (Please tick in appropriate box)

   Less than 2MB ☐ 5MB ☐ 10MB ☐ More than 10MB ☐

4. Please provide the maximum internet speed limit per staff?

5. Please indicate staff internet usage limit per month. (Please tick in appropriate box)

   Less than 500MB ☐ 1GB ☐ 2GB ☐ More than 2GB ☐

6. Please provide the download and upload speed of the data?

7. Do you face regular internet disruption? Yes ☐ No ☐

   7.1 If yes, please indicate the approximate frequency of the disruption?

   7.2 Please provide the average duration of this disruption in a month?

8. Do you have video conference facilities? Yes ☐ NO ☐

   8.1 If yes, what technology you use for video conferencing?

5 Do you have restriction for staff to install VoIP/instant messaging software such as Skype? Yes ☐ NO ☐

   5.1 If no, please indicate which VoIP/instant messaging software (s) are being used in your organisation?