



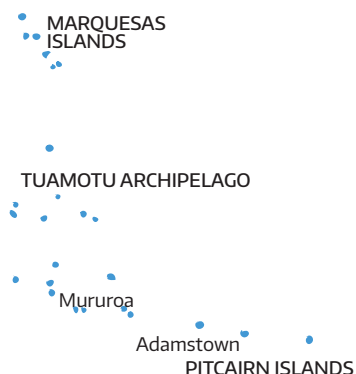
PACIFIC-EUROPE NETWORK for science, technology and innovation OUTCOMES REPORT

PACE-NET Plus is a project funded by the European Commission
to reinforce EU-Pacific cooperation on Science, Technology and Innovation.
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STATEMENTS

Editorial team:
 PACE-NET Plus partners
Coordination: Fadhila Le Meur [Institut de Recherche pour le Développement, France]
Graphic conception and layout editing:
 Christine Bourgois [Cédille, New Caledonia]
Photos: unless otherwise specified, all photos are the property of PACE-NET Plus partners
Printing: Quality Print, Fiji



*PACE-Net Plus
partners,
Project kick
off meeting,
Oct. 2013*

PACE-Net Plus consortium members

Institut de recherche pour le développement (IRD), France
 Association of Commonwealth Universities (ACU), United Kingdom
 The Australian National University (ANU), Australia
 CNRT Nickel and its Environment, New Caledonia
 Technical Centre of Agricultural and Rural Cooperation (CTA), Netherlands
 Institut Louis Malardé (ILM), French Polynesia
 Landcare Research (LCR), New Zealand
 Montroix Pty Ltd, Australia
 National University of Samoa (NUS), Samoa
 Secretariat of the Pacific Community (SPC), New Caledonia
 Sociedade Portuguesa de Inovação (SPI), Portugal
 United Nations Industrial Development Organization (UNIDO), Austria
 University of Papua New Guinea (UPNG), Papua New Guinea
 University of the South Pacific (USP), Fiji
 Vanuatu Cultural Centre (VKS), Vanuatu
 Leibniz-Zentrum für Marine Tropenökologie (ZMT), Germany



FOREWORD



As Senior Policy Officer responsible for the Pacific-Europe Network for Science and Technology (PACE-Net Plus project), I am very pleased to firstly praise all partners for their full commitment to our network's life and events and delivery of high quality outputs and recommendations as well.

I would also like to pay tribute to all stakeholders who actively participated in the PACE-Net Plus events and thus contributed to their success providing our audiences with useful information about their on-going programmes and actions developed for researchers and students in the Pacific and in Europe.

I am also grateful to colleagues and institutions located in Pacific islands for their hospitality and welcome during my missions and for helping me to understand the «social fabric» of their societies, to discover the extraordinary variety of Pacific cultures and landscapes of their «Sea of Islands» and how they show their resilience in front of continuous threats endangering their daily livelihoods.

Considering future common societal challenges in Europe and the Pacific, PACE-Net Plus partners and stakeholders altogether have intrinsically promoted a high profile and meaningful policy dialogue encompassing important domains such as health and biodiversity, water, fisheries and aquaculture, agriculture and natural hazards in relation to climate change.

Indeed, our network has succeeded to date to facilitate the setting up of a specific integrated EU-Pacific S&T policy framework for the mutual benefit and interest of research communities and societies in the Pacific and Europe.

I am deeply convinced we have laid solid foundations for future research and innovation activities and I have no doubt that our unique policy dialogue has paved the way for fruitful bi-regional cooperation in the years to come.

Let us enjoy our vibrant dialogue with all our partners and readers of that booklet, and share our tremendous experience and results over this three-year period!

Armand BEUF

Senior Policy and Project Officer

European Commission

DG Research

PACE-NET PLUS: A BRIDGE OVER EUROPE AND THE PACIFIC REGION FOR SCIENCE, TECHNOLOGY AND INNOVATION

The opportunities for European and Pacific researchers to collaborate are many and diverse. The European Union (EU) policies and scientific strategies aim at reinforcing these collaboration opportunities, notably through Horizon 2020, the European framework programme dedicated to research and innovation. Strengthening the Europe-Pacific bi-regional dialogue in science, technology and innovation (ST&I) is a key step in achieving increased collaboration towards the societal challenges identified in Horizon 2020.

This compendium presents the outcomes of PACE-NET Plus, a project funded by the European Commission (EC) under the 7th Framework Programme*, which united 16 partners in the Pacific and the EU, coordinated by the French Research Institute for Sustainable Development (IRD), to strengthen ST&I cooperation between the Pacific island countries and Europe. This partnership involved a comprehensive collection of Pacific and European ST&I actors, including institutions from the two largest Pacific players, Australia and New Zealand, the French overseas countries and territories (New Caledonia and French Polynesia), European countries, Pacific island countries (Samoa, Vanuatu, Papua New Guinea), international multilateral institutions and Pacific regional bodies.

This project promoted the integration of the Pacific region and its interests into a number of EC roadmaps and actions. One of the core missions of PACE-NET Plus was to raise the visibility of the Pacific within the EU. In particular, this included the EC Directorates-General for Research and Innovation and for International Cooperation and Development, through illuminating the role of ST&I for development aid and better governance. Also included was the European Exterior Action Service, through “science diplomacy”. Conversely, PACE-NET Plus also aimed at assisting greater integration of EU activities into the research and development policies of the Pacific countries. The project was also a significant contributor to a bi-regional dialogue between the two regions.

PACE-NET Plus analysis of the research priorities of mutual interests for Europe and the Pacific highlighted three major societal challenges:

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy
- Climate action, environment, resource efficiency and raw materials.

ST&I approaches play an important role in assisting Pacific nations to address these challenges which, compounded by geographic and socio-economic issues unique to the region, are also key developmental priorities.

Actions taken by PACE-NET Plus in the perspective of these multiple expectations are presented in this document. Also presented are major policy recommendations of the project, in collaboration with influential Pacific regional bodies, such as the need to institutionalize the dialogue for ST&I between the Europe and Pacific. We also suggest the launch of two concrete support actions: the first one dedicated to a multidisciplinary call for research (based on the PACE-NET Plus seed funding scheme) in order to stimulate cooperation between the PICTs, and with the European and Pacific larger countries (this call is endorsed



* Grant agreement: 609490 | Project Lifetime: 2013 - 2016

by the ACP Secretary); the second action is dedicated to climate science through an interdisciplinary “observatory system of climate change and its impacts in the Pacific” (a pilot project on this topic was presented to the European Parliament and we are hopeful that it will be initiated during 2017).

On behalf of IRD, the coordinator of this project, we would like to wholeheartedly thank our partners as well as the three members of our External Advisory Board (Dr Raghunath Ghodake, APAARI; Dr Geoffroy Lamarche, NIWA; and Dr Christophe Yvetot, UNIDO) for their deep and fruitful involvement in PACE-Net Plus, which has allowed us all to carry out this project successfully, and to surpass our goals.. We would also like to sincerely thank the European Commission, particularly Mr. Armand Beuf, our scientific officer for his efficient and benevolent support for PACE-NET Plus.

On behalf of the 16 partners of the PACE-NET Plus Consortium, we would also like to thank all those who took part in this network and dialogue and supported us in one way or another. We very much hope that the growing research community that we have mobilized together during the 3 last years in the region and in Europe, will remain ready to continue this regional and bi-regional cooperation and dialogue, while contributing to the well-being of Pacific and EU citizens.

Pr Jean-Francois Marini

PACE-Net Plus coordinator (IRD)

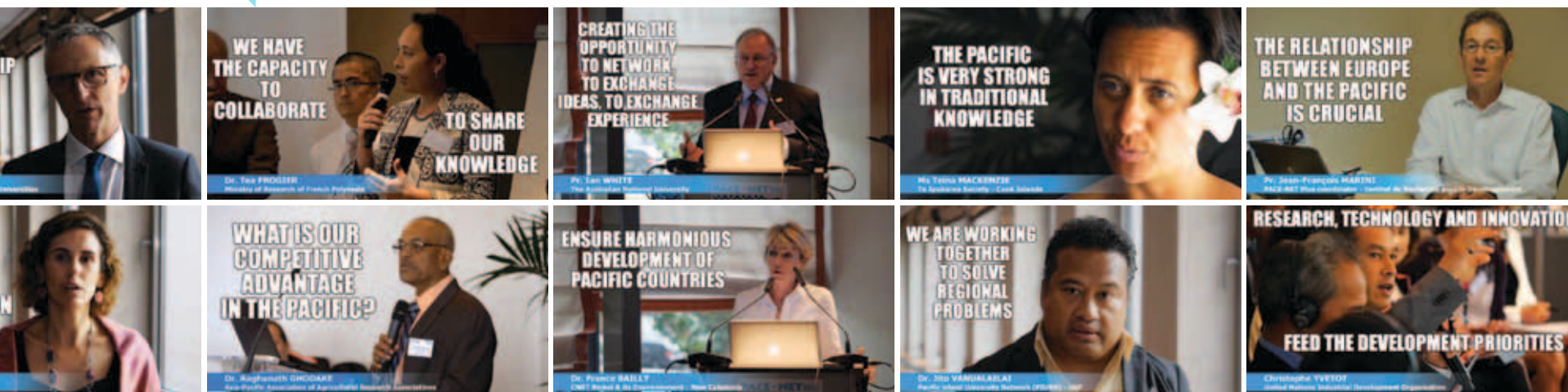
Fadhila Le Meur & Nejma André

EU Project Managers (IRD)

PACE-NET Plus key stakeholders viewpoints...

This film shows how the 16 partners of the PACE-NET Plus consortium have cooperated during these 3 years, mobilizing key stakeholders from the North and from the South who have participated in many scientific think tanks and workshops as well as in the project’s dialogue platforms. It also suggests future cooperation opportunities as well as the need to consolidate this dialogue in the interest of the research community in order to better address societal challenges in Europe and in the Pacific (Film maker: Jean-Michel Boré/IRD).

<https://youtu.be/pmW2b8PMx6M>



Excerpts
from the film
on PACE-NET Plus

THE PACIFIC: BETWEEN GLOBAL CHANGE AND INSULARITY

A note from the Pacific Community (SPC) on the regional context

As islands, Pacific countries and territories are particularly vulnerable to climate change and (natural) disasters, as well as to the social and economic difficulties inherent in the region's relatively small and isolated population.

Development levels vary across countries, but Pacific Island countries and territories (PICTs) all have to deal with major worldwide changes that are influencing on the regional landscape and impact on their development, so they must constantly find innovative solutions to such challenges.

While life expectancy has increased in many countries, and infant mortality rates are falling, water and food insecurity is still a major problem, as is the high prevalence of infectious diseases and life-style disorders, such as obesity, diabetes and heart conditions. The PACE-NET Plus project has focused its discussions on these areas. Climate change and environmental damage are also threatening factors, posing threats to island economies.

Regional cooperation is essential for meeting the challenges that the Pacific faces, as is getting all development partners involved, and in that way, mobilising high-quality scientific and technical knowledge and innovation. By doing so, PACE-NET Plus has been able to propose avenues of work and discussion, designed to lead to proposals on concrete solutions.

SPC wants to highlight the crucial importance of taking a united regional approach and forming partnerships with the right stakeholders, who will be able to accompany the region in the future. Research and innovation centres form a vital group of stakeholders. SPC applies science and knowledge through effective and innovative approaches, some of which have been tested as part of PACE-NET Plus. SPC also works to add value to the scientific and technical capacities of its members, as part of a change process.

As the region's centre for science and information, not only in tuna fisheries but also in land resources through the Centre for Pacific Crops and Trees (CePaCT) - which assists PICTs to conserve and use the region's genetic resources - SPC aims to continue to develop areas of excellence. Developing areas of excellence will involve strengthening linkages with other institutions, leveraging

complementarities with other sectors, and developing more innovative ways of working. So, the networks formed through PACE-NET Plus and the enhanced knowledge of experiences elsewhere in the world will be very useful in this aim. High-quality, innovative programmes that meet the development needs of SPC's members will continue to be designed and implemented.

While the Pacific is one of the largest regions in the world by surface area, it is one of the most isolated, and needs to remain connected to the rest of the world in order to adapt to global changes. It is also essential to maintain and strengthen bridges with major centres of knowledge, particularly in Europe, in order to have access to tools that do not exist in this region. That is why projects like PACE-NET Plus, which promote closer ties between both scientists and development agencies across the world, are vital for the Pacific.

SPC's involvement in PACE-NET Plus has proven its worth by highlighting the importance of innovation in the organisation's 2016–2020 Strategic Plan. The think tanks within the PACE-NET Plus project have allowed SPC to test new work methods and better understand how to use them to develop its centres of excellence. PACE-NET Plus has contributed to more in-depth thinking about the partnerships to be enhanced in the future with research and development centres.

While the project's impact may not be readily visible, it has sowed seeds in many areas, which will grow and develop over the coming years. The project has clearly provided substantial benefits to SPC and all of its partners.

SPC is now, more than ever, able to inscribe '***Sustainable Pacific development through science, knowledge and innovation***' boldly in its strategic plan.

Cameron Bowles,

Director of Strategy, Performance and Learning
Pacific Community

EUROPE: A KEY PLAYER IN THE PACIFIC

The important role of IRD in the regional integration of the OCTs

Through the PACE-NET Plus network and IRD, European-Pacific research cooperation has produced a joint and visible dynamic of movement towards greater science, technology and innovation for sustainable development in New Caledonia and throughout the Pacific.

The successes presented in this compendium report are not the result of a fortuitous encounter, but rather based on geopolitical and historical realities. To some Europeans, the Oceania region of the planet seems “lost” at the other end of the world. However, this is simply not the case, as powerful giants such as Japan, China, the USA, Russia and Australia join their forces or compete to support and/or control resource access in this important global region. Europe also has interests and a need to be present in the Pacific region, including for science and research, which is an important strategic issue.

For IRD, which represents France - through both the French Ministry of Higher Education and Research and the Ministry of Foreign Affairs and International Development - promoting and accompanying the European presence in the region has been one of its core activities, particularly in New Caledonia, French Polynesia and the South Pacific, where IRD is custodian of valuable assets (including research infrastructures and capacities).

In essence, IRD was acknowledged as an essential partner for this European-Pacific project, given its history and its capacities to federate and generate dynamics of North/South partnerships based on Interdisciplinarity and a mix of stakeholders.

For IRD and the others research operators in New Caledonia, united in a consortium for research, higher education and innovation (CRESICA¹), tackling climate change and promoting sustainable development are

major strategic objectives. These are in response to, and consistent with the development goals of the French overseas territories and other Pacific countries. The involvement of IRD and PACE-NET Plus in the “Oceania 21 & 22 Sustainable Development Summits” is just one example of such strategic engagement. The rich terrestrial and marine biodiversity, the singular social evolution between local populations, and historical and modern migrants, make the Pacific region a remarkable insular area. It is, however, also a vulnerable “sentinel” site, compared with the rest of the world, which must not be overlooked!

Beyond the infrastructure and logistical capacities offered by the IRD campus in Noumea, PACE-NET Plus has benefitted from the support of high-performing research teams in order to strengthen its scientific and diplomatic networks. The cooperation has also triggered new avenues for reflection and developed a comprehensive strategy of regional networking. Among new themes, the promotion of environmental observatories, which combine and add to other topics also sponsored by PACE-Net Plus (such as the knowledge and sustainable use of biodiversity, human health and deep sea mining; and the implementation of a survey on innovation, the first of its kind in the Pacific region by the United Nations Industrial Development Organization (UNIDO)) are key joint achievements for the development of Pacific countries and territories and the establishment of local scientific communities.

IRD is proud of the added-value it has contributed

to the project. Firstly, because it is a privilege and an honor to showcase European research at sites in the Pacific that have been established by one of the most internationally dynamic countries in Europe (i.e. France). Secondly, because PACE-NET Plus has contributed to the implementation of research missions of IRD teams and their partners, by optimizing the definition of their objectives and structuring the research teams. PACE-NET Plus has also had a real input in the arena of scientific diplomacy: the relationships with the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme (SPREP) have been reinforced, as have the relationships with important Australian and New-Zealand universities. The project of the national research centre in Vanuatu, shaping a future local university - the first one in this country - involves PACE-NET Plus and members of CRESICA. Finally, the signature of important agreements between IRD and the University of the South Pacific (USP) and the National University of Samoa (NUS) concretely illustrate the development of shared regional dynamics.

The launch of a broad Europe-Pacific programme on observation systems of climate change and its impacts would allow the outcomes achieved to be further pursued and promoted. It would help to underpin sustainable development in the Pacific, and also of Europe and world.

Georges De Noni

Former Director of IRD centre in Noumea
& Regional Coordinator for the Pacific
Institut de Recherche pour le Développement

1 BRGM, CHT, CIRAD, CNRS, IAC, IFREMER, Institut Pasteur, IRD and the University of New Caledonia.

UNDERSTANDING THE STATE-OF-THE-ART IN ST&I COOPERATION

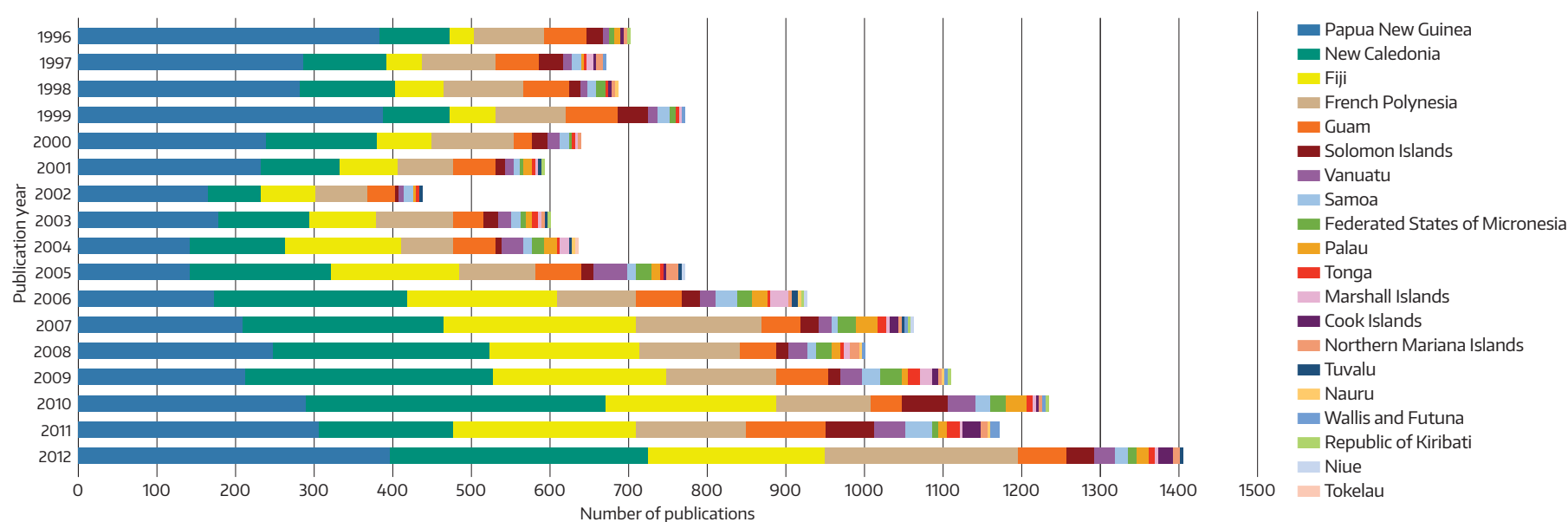
Bibliometric analyses on Pacific-EU scientific cooperation

This work was undertaken as a contribution to the PACE-Net Plus project's monitoring and updating of information of Pacific-European (EU) Science, Technology and Innovation (ST&I) collaboration. Bibliometric analyses were carried out using Scopus data of Pacific publications and co-authorship patterns over the period 1996-2013 (partial year). The analyses also went further to understand the potential for collaboration between Europe and the Pacific that could occur in the three EU societal challenge areas of 1) health, demographic change and wellbeing; 2) food security, sustainable agriculture, marine and maritime research and the bio-economy; and 3) climate action, the environment, resource efficiency, and raw materials.

The analyses showed that Pacific Island Countries and Territories (PICTs) had 7341 publications referenced in the Scopus database over the study period (see figure 1 for a break-down over PICT and year). Approximately a third were in the domains of the aforementioned societal challenges (2) and (3) and 20% relate to societal challenge (1). The remainder are on other topics. Papua New Guinea, New Caledonia and Fiji produce the largest numbers of PICT publications with over 1500 publications each. PICTs also have high levels of co-authorship with countries including France (especially with New Caledonia and French Polynesia), Australia

(especially with Papua New Guinea, Fiji and to a lesser extent New Caledonia) and the USA (especially with Papua New Guinea, Guam and to a lesser extent with New Caledonia and French Polynesia). The United Kingdom also co-publishes with Papua New Guinea at a similar level to these lesser relationships (Figure 1).

By using topic modelling on these publications and matching these results to the societal challenge areas, over 1.4 million similar European (and Australian and New Zealand) publications were extracted from the Scopus database, with



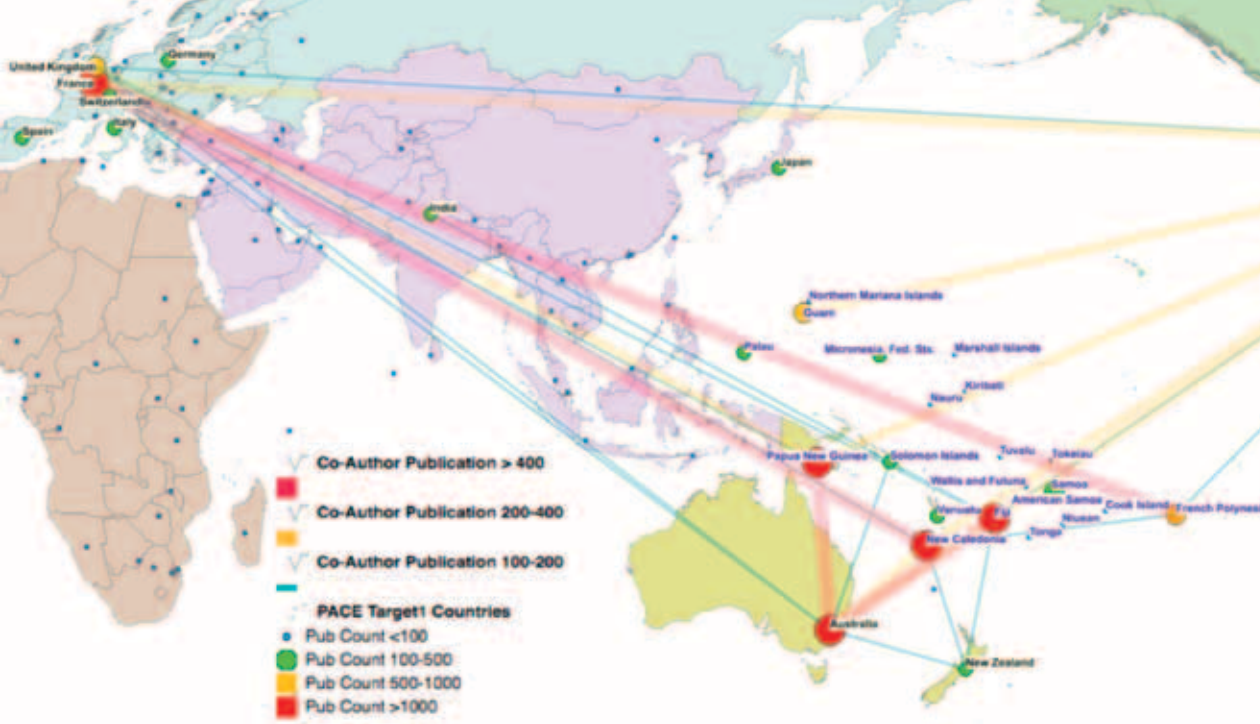


Figure 2: Pacific publication co-authoring volumes with Europe.

Data source: Scopus custom data 1996–2013 (partial year) (Daniell, 2015¹)

¹ Daniell, K.A. (2015) PACE-NET Plus State-of-the-Art: “Bibliometric analyses on Pacific-EU scientific cooperation”, PACE-Net Plus EU Project, FP7, The Australian National University, Canberra.

approximately 45% found challenge (1), 35% in challenge (2) and 20% in challenge (3). Further analyses of these publications showed that the United Kingdom and Germany consistently published the highest numbers of relevant publications across all three areas, followed by France and Italy. Co-publishing relationships showed that Australia and New Zealand have strong additional research collaborations in these areas that do not always include a PICT co-author, as well as many that do. Despite its research strength, Germany had surprisingly few strong institutional-level relationships with any PICTs.

It was concluded that although there are large mismatches of scale between numbers of Pacific and European researchers (and institutions) working and publishing on Pacific-relevant issues in these societal challenges, there is strong potential for enhancing existing relationships (e.g. between France, the UK and PICTs), as well as developing new ones. These might be facilitated by using “brokering” partners such as Australia, New Zealand, France or the UK, which have existing cultural understanding and working collaborative relationships, to develop new multi-lateral research partnerships. Such a mechanism is likely to lead to greater volumes and quality of research quicker than individual EU countries building new relationships with PICTs from scratch.

MAPPING THE DIVERSITY AND QUALITY OF RESEARCH IN THE PACIFIC

Pace-net Plus directory of research capabilities in the Pacific

Many societies around the world face challenges in the areas of health and wellbeing, food-security, agriculture and marine resources management, and the impact of climate change. In the South Pacific, some of these challenges are compounded by geographic and socio-economic issues unique to the region. Scientific research, technological development, and innovative approaches all play important roles in assisting Pacific nations to address these challenges.

One of the tasks in the project was to update the information already collected in the previous project about key stakeholders, including experts, research organizations, industry, academia, policy makers, professional organisations, civil society and think tanks.

All information, resources and contacts collected in the Directory of Research Capabilities in the Pacific produced in the framework of PACE-NET Plus can be used to identify priority regional or bi-regional cooperation areas and common challenges, and identify possible joint activities and innovation niches to strengthen and make better use of ST&I competences in the socioeconomic development of Oceania countries..



📍 PACE-NET Plus Directory of Research Capabilities in the Pacific:

http://plus.pacenet.eu/system/files/documents/Pacific_research_directory_2015.pdf

NON-COMMUNICABLE DISEASES IN THE PACIFIC

A global challenge

Many Pacific Island states are affected by excessive premature adult mortality with consequent decrease in life expectancy from Non-Communicable Diseases (NCDs). NCDs are recognized by the World Health Organization (WHO) as the currently leading cause of death in the world. More than 80% of all deaths due to NCDs happen in low-to-middle-income countries, including in the Pacific Island Countries and Territories (PICTs), where the prevalence rates of diabetes, for example, as well as the number of non-diagnosed NCDs are among the highest in the world.

Monitoring trends of NCD in populations is important to document the magnitude of the problem, to stimulate preventive and control activities, and to assess effectiveness of interventions at a population level. Efforts to effectively respond to this crisis have been made within PACE-NET Plus scope for tackling the NCD issue in Pacific Islands. For that matter, a Think Tank was organised in 2014 called "Tackling Non-Communicable Diseases (NCDs): Lifestyle options for improved nutrition and well-being". The Think Tank was held in Bremen, Germany, with 32 participants representing different types of organizations (government, research, policy, non-government and civil society), and aimed at addressing the Non-Communicable Diseases (NCDs) Crisis in Europe and the Pacific, the key challenges and the solutions. In addition, the Bremen Think Tank was not designed as a classical scientific conference based on presentations but rather as an interactive workshop offering involvement opportunities to each participant.

MAIN OUTCOMES AND CONCLUSIONS

The participants summarized the main outcomes and conclusions of the Think Tank in five major points, detailed below:

- There is a complexity of different realities in terms of public health policies, major health problems, as well as initiatives across the (South) Pacific region meaning that one-size-fits-all approaches are unlikely to be successful;
- There is strong interest from both the Pacific and the EU in research collaboration, and the first step is a real understanding on the current situation to make communication and cooperation happen;
- Some 'strengths' may also be 'weaknesses' among Pacific countries region: small size will mean that novel policies could be implemented quickly, but international trade policies might be difficult to change;
- Lack of resources (money, human resources, links between sectors, and evaluation and surveillance) seems to be one of the biggest concerns in terms of weaknesses, along with associated lack of political power in the global food marketplace;
- Main challenges include turning policies into real actions; achieving multi-sectoral cooperation targeting specific needs of different countries; engaging and mobilizing local communities; and better communication between stakeholders.



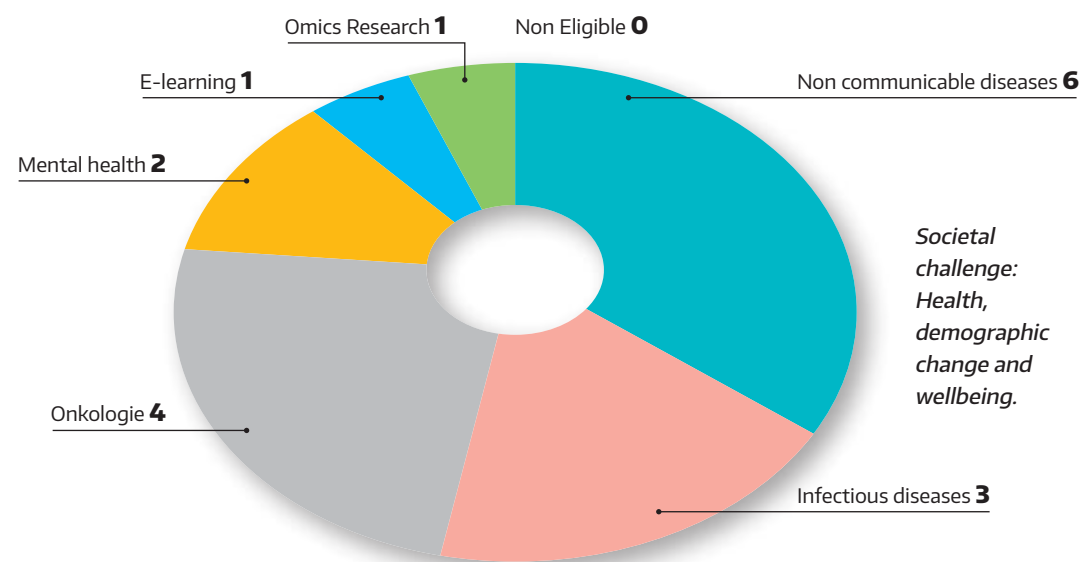
The participants also highlighted the following ways in which bi-regional cooperation could contribute:

- Advocating better trade/donor relations;
 - Providing support, not just in terms of money but also in terms of stimulating cooperation;
 - Sharing knowledge – a mutual understanding of cultural factors and priorities between Europe and the Pacific is the key and the first step for cooperation;
 - Developing a better understanding of individual countries in the Pacific region.
- In general, participants gave positive feedback on the PACE-NET Plus project as a bridge between the two regions. This provides significant encouragement for the project to take more responsibility in enhancing cooperation.

Moreover, it is known that research from the Pacific could benefit the EU region, as both face similar challenges, including both NCDs and food security. In this, Pacific countries could be good 'test sites' for trialling new and innovate health research and policy, and generating evidence required for positive policy change in larger countries.

In addition, few crosscutting issues emerged in the Think Tank that was deemed important to be addressed and looked forward in the next steps for EU and Pacific cooperation:

- Across cultures: transcultural research and issues;
- Across disciplines: transdisciplinary research;
- This is inextricably linked to cultural considerations (e.g. local perspectives, differing understandings of terms like innovation);
- Across scales: consider different segments of society so implementation is sustainable;
- Taking things forward and keeping accountable within PACE-NET Plus.



SEED FUNDING CALL

Out of the 17 applications to the PACE-NET Plus seed funding, six were related to NCDs, and of these six, two were selected to be funded 10,000 euros each. The two selected projects were:

- 1 | Monitoring non-communicable disease (NCD) Mortality in Pacific Island States:** The project involved networking of contacts within Pacific and European countries, involving two multi-lateral meetings and intensive data analysis. Findings included incomplete enumeration of deaths in some states, irregularities in placement, and sequencing of cause of death recording on death certificates, which affects selection of underlying cause of death.
- 2 | The Pacific MANA (Monitor Analysis for NCD action) Hub:** The MANA is a collaboration of Pacific Islands and is concerned with NCD monitoring and surveillance. It is expected to provide an easy access point for relevant data, linking data from various existing domains/sources.

📍 More info: <http://plus.pacenet.eu/events/pacenetplus-bremen-2014>

GLOBAL THREAT OF EPIDEMIC EMERGENT & RE-EMERGENT DISEASES... Infectious Diseases in the Pacific

In recent decades the Pacific region has experienced rapid socioeconomic development, modernization, urbanization and globalization. Importantly, significant numbers of visitors have been coming in and out of the Pacific region on a daily basis. This movement of people has led to increased exposure of the populations of the Pacific to infectious diseases. Most recently, many of the PICTs (Pacific Island Countries and Territories) have grappled with several epidemics, including dengue fever, zika and chikungunya.

Further complicating the situation is a significant variation in public health systems amongst countries of the region, including diagnostic and treatment methods, and the capabilities of public health organisations. Despite these differences, the Pacific countries share common conditions that are favourable to the emergence of these diseases. In particular, a tropical climate and a pervasive vector in the area, namely mosquitoes. Poverty, poor urban infrastructure and limited access to quality drinking water further exacerbate this emergence.

In November 2014 selected researchers, public health representatives and policy makers from the Pacific and Europe met in Papeete, French Polynesia to discuss latest insights, share their experiences and identify common priorities regarding

infectious diseases. They also identified funding options and institutions for potential partnerships. The think tank was divided into three working sessions on: the state of the art in the field of infectious diseases; pathways of management and control; EU-Pacific regional cooperation. This event was an excellent opportunity for networking between people and organisations working on this topic in the Pacific.

Following this think tank event a seed-funding grant was awarded, by PACE-Net plus via the Institut Louis Malardé (ILM), for a collaborative research project in this area entitled *Nano-biosurfacing & Diagnosis of Infectious Diseases*.

📍 More information on this event:
<http://plus.pacenet.eu/events/pacenetplus-papeete-2014>

*PACE-NET Plus
Think Tank
on Infectious
diseases
in Papeete,
Nov. 2014.*



ZIKA – A NEW PUBLIC HEALTH EMERGENCY?

Policy recommendations for EU and Pacific coordination

One of the expected outcomes of PACE-Net Plus is the identification of policy recommendations that aims to stimulate and engage innovation processes from organisations both from the EU and from the Pacific (for instance property rights protection, standards, regulations, access to innovation financing) with the view to facilitate the deployment of innovative products and services. Within this aim, SPI has produced the Zika virus report, with two different outputs for different target groups: (i) the first output is a policy brief for high level policy makers, (ii) the second output is a set of guidelines for innovative joint initiatives in the medium and long term.

THE ZIKA VIRUS CASE

The Zika fever is a mosquito viral disease caused by the Zika virus that has spread through the South Pacific and in recent months through large parts of Latin America. The symptoms last for 2–7 days and usually include mild fever, skin rash (exanthema) and conjunctivitis. In 2013–2014, the virus started to be transmitted across the Pacific Ocean and reached to the Americas and the Caribbean. So far, the illness cannot be prevented by medications or vaccines, and it can spread from a pregnant woman to the baby, which may result in microcephaly and other severe brain problems.

Regarding its expected outbreak in Europe, the risk of a Zika virus disease outbreak in the European Region is moderate to low because Aedes mosquito is not widely present in Europe.

POLICY RECOMMENDATIONS

The opportunities for European and Pacific researchers to collaborate are diverse and EU policy and scientific strategies aim at reinforcing these collaboration opportunities, notably through Horizon 2020, is very much prevalent. The major finding of the report concerns the identification of several policy recommendations for enhancing EU-Pacific Cooperation on the Zika Virus disease:

- **Support actions for raising awareness:** dissemination of material;
- **Engage communities** to communicate risks associated with Zika;
- **Provide guidance** on women of childbearing age and those who are pregnant;
- **Encourage community participation** to reduce mosquito-breeding sites;
- **Fast-track the research and development** of new products;
- **Expand efforts to educate health workers;**

- **Support the national planning of the health service;**
- **Strengthen vector control plans** to avoid introduction of mosquitoes;
- **Assess the equipment needs** and provide the requested supplies to healthcare facilities;
- **Strengthen clinical and disease surveillance** to detect early transmission of Zika virus.

📍 EC Zika research website:

<http://ec.europa.eu/research/health/index.cfm?pg=area&areaname=zika>



Mosquitoes, including Aedes aegypti, are responsible for the spread of Zika virus. Source: Science.

PROMOTING THE CONVERGENCE OF SCIENCE AND TRADITIONAL KNOWLEDGE

Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and the bio-economy

'Food Security; Sustainable Agriculture and Forestry; Marine, Maritime and Inland Water Research; and the Bio-economy' are interconnected. They have been jointly identified as the second Societal Challenge under Horizon 2020. Scientific excellence and international scientific research and industrial innovation partnerships, are seen as possible solutions for addressing this complex, multi-dimensional, global challenge confronting developed and developing countries. A detailed PACE-NET Plus state of the art analysis of EU funded EU-Pacific bi-regional science, technology and innovation (STI) projects for the period 1997-2018, has determined that the heterogeneous and asymmetrical nature of the scientific capacity within the Pacific region and between the Pacific and Europe, are contributing factors for the limited progress achieved in addressing this challenge through bi-regional cooperation.

PILLARS OF FOOD SECURITY: AVAILABILITY, ACCESS, UTILISATION, STABILITY

The Committee on World Food Security (CFS), has adopted the following definition: *"Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. The four pillars of food security are: availability, access, utilization and stability. The nutritional dimension is integral to the concept of food security."*



PACE-NET Plus
workshop
in Lae (PNG),
May 2016.

The PACE-NET Plus state of the art analysis has confirmed that past EU-Pacific STI collaboration has focused primarily on increasing productivity (availability) with little attention being paid to **access**, **utilisation** and **stability**. Ecological fundamentals e.g. biodiversity conservation was also not prioritized and Bio-energy projects were very few.

In the less developed Pacific Island States, declining crop production, increased dependence on imported foods, growing vulnerability to climate change, overfishing and illegal fishing, and volatility in international commodity prices, failure to enact and enforce food safety and quality standards and adoption of Western-style Intellectual Property Rights regulations are threatening attempts at overcoming this Societal Challenge. Collectively, they hinder agricultural-led socio-economic development: Nutrition and health are also compromised. Through the PACE-NET Plus surveys, Think Tank platform and other dialogues, new research and innovation niches were identified.

The convergence of science and traditional knowledge in aqua - and agriculture was determined to be important for future joint STI cooperation and explored through three lenses; (i) Aquaculture, (ii) Climate resilient agricultural practices and (iii) Linking island microclimate, water and soil management.

AQUACULTURE IS NOT WELL DEVELOPED IN PACIFIC ISLAND COUNTRIES

Barriers to innovation were identified e.g.: (i) proliferation of "research" projects that produced few tangible results and offered little opportunity for stakeholder



ownership; (ii) limited incentives and no clear pathway to commercialization and; (iii) limited access to current information, technologies and land. However, there are opportunities, e.g.; (i) the expanding Chinese market, (ii) breakthroughs in feed science, (iii) the vast untapped EU knowledge base. The Pacific region is 'ready' and open for aquaculture business opportunities.

CLIMATE RESILIENT AGRICULTURAL PRACTICES

Decision support tools which combine and harmonize land and soil data, crop management practices, weather information services and provide advice on crop/region suitability are important first steps for addressing the negative impact of climate change. Some priorities include: (i) scaling-up size of projects to avoid dispersion of scarce teaching and research capacity; (ii) providing data on impacts and the potential of locally available varieties /species; (iii) undertaking life-cycle analysis of food security and other agricultural development projects and introduced technologies; (iv) fine-tuning micro-climatic, land cover and land use models and their integration in relevant data. Opportunities exist for: (i) biotechnology (genetically modified crops including climate resilient and biofortified crops) and; (ii) optimization of Pacific germplasm collections and international gene banks. Public mistrust of modern breeding methods needs to be addressed.

LINKING ISLAND MICROCLIMATE, WATER AND SOIL MANAGEMENT

The environmental, cultural and language diversity, especially in Pacific countries, can be barriers to EU-Pacific scientific collaboration and innovation. Innovative models for weather forecasting such as neuro-networks and artificial intelligence as well as the development of adaptive productive agrosystems, that incorporate nutrient cycling and mulching innovations are opportunities for the future.

LEARNING FROM PAPUA NEW GUINEA

Papua New Guinea (PNG) has several universities, research infrastructure and a nascent enabling policy environment; however, less than 0.1 % of government's budget is invested in research and development. National patent applications are low. Through PACE-NET Plus, diverse stakeholders interacted during a PNG workshop on "Innovation and Agriculture: With a Focus on PNG". Several issues emerged (i) the development and piloting of a National Science and Technology Policy; (ii) the intrinsic knowledge and ability of indigenous people to adapt to the changing environmental conditions which provide opportunities for research and innovation and (iii) the desire and willingness of the private sector to work with the academic and scientific community. These developments augur well for spurring scientific discovery and innovation in PNG and using this as a role model for the other less developed Island States.

AN ENABLING POLICY ENVIRONMENT

For joint EU-Pacific STI collaboration to have the desired impact on this Societal Challenge, **an enabling policy environment** which promotes the convergence of science and traditional knowledge in aqua- and agriculture and facilitates strong interaction between scientists, communities, policymakers and the private sector including farmers is critical. The different world views and knowledge systems of the various actors need to be respected and call for *unique-to-Pacific-countries* holistic approaches. There is also need to **develop agreed indicators** with quantitative and qualitative/intangible dimensions – adapted for the Pacific context – to improve accountability and effectiveness of STI interventions. The **challenge** is to determine "value" of the outcomes given the **transcultural language differences**.

📍 More info: <http://plus.pacenet.eu/wp2>



COASTAL ECOSYSTEMS DISTURBANCES, FISH AND SHELLFISH POISONING AND THEIR SOCIO-ECONOMIC IMPLICATIONS

Innovations and cooperation with the EU in those areas

The Pacific Community (SPC) is well known for its fisheries and aquaculture work in the Pacific and is always looking for innovations to provide the best answers to the challenges the Pacific has to face. One of SPC's approaches is to be involved in the right networks and work closely with its members, partners and research centres. So PACE-NET Plus offered SPC a good framework to host a think-tank which met in Noumea from 18 to 20 November 2014 and focussed on coastal ecosystem disturbances, fish and shellfish poisoning, and their socio-economic implications.

A GROWING NEED FOR MULTI-DISCIPLINARY RESEARCH

Fish and shellfish poisoning outbreaks have long been widespread in the Pacific and can lead to severe illness and even death, with detrimental effects on food security, local economies and traditional practices. With cases of seafood poisoning projected to increase due to the effects of population growth, climate change and other factors of man-made stress on coastal ecosystems, there is a growing need to urgently carry out prioritised multi-disciplinary research into this issue.

Fifty participants representing a variety of organisations from Europe and the Pacific (government, research, policy, NGOs and civil society, and the private sector) evaluated the effectiveness of current levels of cooperation and proposed new innovation and research methods. They also sought to explain why it is so important to improve cooperation between Europe and the Pacific. One of the unique aspects of this think-tank is that this was the first time such an event was held in the Pacific with participants from both the fisheries and public health sectors.

The think-tank participants discussed the latest knowledge and identified priority areas for future joint research and innovation designed to address global challenges. Four key thematic areas were identified for discussion:

- 1 | Marine toxins
- 2 | The effects of climate change and environmental disturbances on fish and seafood poisoning
- 3 | Health
- 4 | Societal, cultural and economic aspects

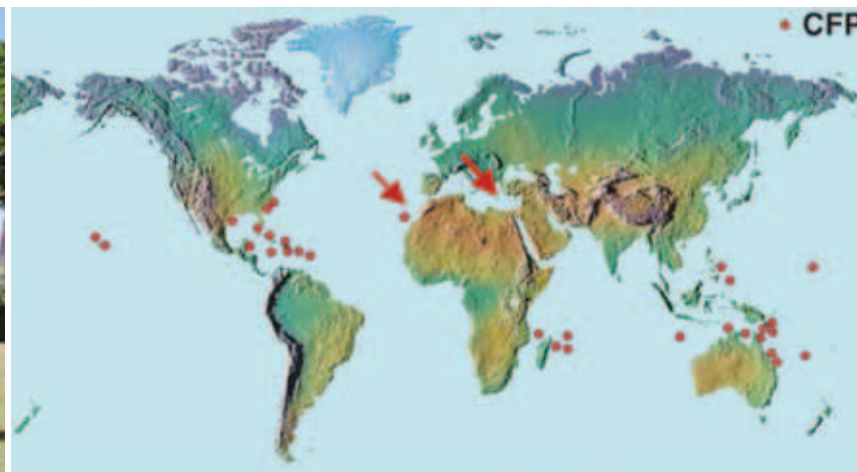
NO TREATMENT FOR CIGUATERA YET!

A situational analysis was undertaken based on the participants' experience in order to identify the problems and gaps but also what was working well. Four main categories of problems and gaps were identified:

- **Data:** No or poor quality data and certain gaps, e.g. the ability to predict when blooms will occur, understanding the drivers and consequences of climate change; ocean acidification, information on affected species and locations, research and monitoring capacities
- **Origins:** toxicity mechanisms, interactions with the physiology of harmful blue algae bloom communities, allelopathy genetic factors
- **Human impact:** impacts on health, subsistence, and the economy are not well known, no treatment for victims of ciguatera
- **Tools:** lack of diagnostic tools and reliable detection tests

And five main categories of what had worked well up till now were identified

- Local knowledge is thought to be effective in identifying toxic species, seasons and locations
- Good general understanding of the ciguatera phenomenon
- Some ciguatoxins already identified
- Sampling protocols
- Training on ciguatoxin extraction already offered



1 - Think Tank on Ciguatoxins, Noumea, 18-20 Nov. 2014.

2 - Global incidence of ciguatera fish poisoning, 2014.

The group noted the highest priorities for responding to the problem, i.e. quantifying/collecting traditional knowledge using science to validate observations, curative treatments, epidemiology, clinical aspects and reporting, developing risk indicators/predictors, standardized sampling protocols, and toxin levels in fish and shellfish: identifying the toxins involved.

On innovation and links to the private sector and policymakers, the participants have also highlighted the main work to be done:

- Set up cost-effective rapid detection tests
- Integrated metadata web portals or similar data-sharing systems
- Samples/databank of T cells from affected people
- Mass production of toxin standards
- Awareness tools for the public and resource managers and public health
- Greater synergy within countries between the ministries of fisheries and health: cross-disciplinary approach
- More communication between practitioners and local communities
- Develop a regional response network.

70% OF THE TUNA SOLD IN EUROPE COMES FROM THE PACIFIC REGION

Poisoning incidence is higher in tropical regions but cases of poisoning are emerging in Europe, so the participants highlighted the importance of improving

Europe-Pacific cooperation. Such cooperation is not only crucial for Pacific but for Europe, too, since, for example, 70% of the tuna sold in Europe comes from the Pacific region.

NO TOXIC TRIDACNA IN PARISIAN RESTAURANTS!

For Europe, research in the Pacific region offers opportunities for European scientists, as well as for economic returns on technology (e.g. toxin testing kits) and patented techniques (e.g. precipitation of CaCO_3 for reef restoration 'bio-rock'). It is also a way to ensure seafood safety (local testing and research capacities can protect both local and foreign [high-end European] markets: no toxic *Tridacna* in Parisian restaurants!). It leads to bio-prospecting and potential medical benefits derived from organisms that live in the Pacific. Toxins extracted from fish and shellfish poisoning organisms may have medical applications with benefits for the global community. And Pacific region could act as a window or natural laboratory into the future for the EU (e.g. climate change, food security issues).

For Pacific countries and territories, Europe is important, for example, for drug and vaccine development and inputs from European institutions may help to find solutions. Europe also offers economic opportunities for sales of Pacific fish and shellfish and ways of diversifying funding resources.

📍 More info: <http://plus.pacenet.eu/events/pacenetplus-noumea-2014>

PROGRESS ON THE SOCIETAL CHALLENGE OF CLIMATE ACTION

Enhancing community resilience: managing environment, water and wastes under a changing climate

*Figure 1:
the enhancing
community
resilience
think-tank
in action
(in Bremen,
Germany, 2014).*



THE PACIFIC CAN BE CONSIDERED AS A 'WINDOW' ON THE REST OF THE WORLD'S CLIMATE

Following preliminary work on water and energy in relation to climate change in the PACE-Net project, PACE-Net Plus sought to strengthen bi-regional dialogue and cooperation in the related area of enhancing community resilience. Specifically, community resilience related to the management of environment, water and wastes under a changing climate. This was and remains of interest to both Europe and the Pacific, in particular as the Pacific can be considered as a 'window' on the rest of the world's climate and environmental future. The Pacific and its people have been shown to be particularly resilient to extreme climatic events and changes over long and recent history, having developed flexible and easily re-buildable habitation structures and means of accessing vital resources such as water and food, either directly (e.g. through using coconuts instead of salt-contaminated water lenses caused by storm overtopping) or through migration to other islands. Yet, island communities are also today often under intense population pressures, waste loads and exhibit competition for scarce resources including water and land. In this context, over 30 participants from research, government and business met to 'think-tank' the knowledge and actions necessary to enhance human and ecological community resilience under variable and changing climates, as well as

policies and practices required for mitigation of impacts and adaptation to changing climates (Figure 1).

Through interactive group work, the participants identified important innovation niches and priority areas for further research and cooperation that could strengthen their bi-regional relationships. Seed-funding projects in many of these areas were subsequently developed and a number funded. The participants also formulated a number of policy recommendations for Pacific and European decision-maker levels linked to the thematic topic which fed into the Auckland and Brussels policy dialogues.

BASELINE CLIMATE, WATER, WASTE AND ENVIRONMENTAL DATA ARE NEEDED

In particular, the participants noted the importance of the Pacific Ocean as a significant driver of global climate and the need for baseline climate, water, waste and environmental data for decision-making and action, due to a current lack thereof in the Pacific. The biological and cultural diversity and its value in the Pacific, as well as the need for its maintenance, were recognised. The participants also noted the importance of securing community involvement in ST&I development related to climate resilience (including youth and traditional



knowledge owners). This then resulted in a number of recommendations including: the development of Pacific protocols for data management, access and sharing be developed, drawing on lessons of EU protocol implementation; encouraging Project pre-financing and seed-funding to develop effective project partnerships be encouraged; developing better coordination of research and development activities within PICTs and the region; taking advantage of policy learning to fast-track policy development and resulting sustainable development outcomes; employing pilot projects or experiments of processes and technologies to help develop effective wider policies and projects; encouraging a Pacific approach to developing policy in the field of community resilience that maintains equity and community sharing; developing supporting policies for climate initiatives and technologies (e.g. REDD schemes, payments for ecosystem services); and Increasing the visibility of Pacific importance for ST&I in Europe linked to global climate change, biodiversity and food security.

PILOT PROGRAM TO RECORD INDIGENOUS YOUTH RESPONSES TO WATER AND WASTE MANAGEMENT

Through the resulting project proposals and some of the successful seed-funding projects, a number of these recommendations were realized in small part. Just one example being through the Kuchuwa community project on the Chuuk island in



the Federated States of Micronesia, where European and Australian academics worked with a local Chuuk community to establish a pilot program to record indigenous youth responses to water and waste management and enhance community resilience to climate change in the village of Kuchuwa, in Chuuk Lagoon (Figure 2). The project focused on the impacts of climate change at a grassroots level in a relatively understudied region in the Pacific, with an inclusive approach that incorporated traditional community practices and knowledge and encouraged youth innovation and leadership. This project consisted of a youth-led needs assessment and gap analysis in Kuchuwa, followed by a local workshop designed to mobilise youth and community leaders to build their capacity to understand and respond to climate change.

Future work on climate action will require the multiplication of such community-focussed ST&I programs across the community, coupled with other technical work to develop water, waste and environmental management options for Pacific conditions and constraints.

📍 More info: <http://plus.pacenet.eu/wp3>

Figure 2:
Kuchuwa youth participants mapping the water and waste sites in their village (in Chuuk, FSM).
Source:
© MAFA (2016).

RECONCILING MINING AND SUSTAINABLE DEVELOPMENT IN THE PACIFIC COUNTRIES

Facilitate scientific and technical cooperation between Europe and the Pacific and the emerging of innovative proposals to address the numerous environmental, societal and technological challenges linked with mining development in the Pacific region.

The Pacific region is a wide area with rich natural resources, including mineral resources both terrestrial and deep marine mineral resources. It's also an area with a rich cultural heritage, countless languages and a wide diversity of traditional way of life and live customs.

The diverse mining history of the Pacific countries is paved with success as well as mistakes, including dramatic examples of failed development (Nauru) and environmental disasters (Ok Tedi in PNG). The development of the mining industry can be seen as a significant economic opportunity for the Pacific countries, but also as a major source of risks of environmental and social damage, and of societal change. Particularly, with the emerging potential of deep sea mining, new issues and challenges appear, and innovative ways must be found to grow the mining industry in a way that fosters harmonious development of hosting areas and ensures an equitable consideration between environmental and social costs and economic benefits.

*PACE-NET Plus
think tank
on Mining & the
Environment,
Auckland,
Dec. 2014.*



More specifically the question is: how to ensure that industry and economic growth will not jeopardize some pillars of sustainable development, like access to other natural resources, particularly clean and potable water, preservation of community livelihoods, development of other community activities, social and economic equity?

To facilitate the emerging of innovative proposals to address these challenges, three mining topics were discussed during a think-tank session (Auckland, 2014):

TERRESTRIAL MINING: ENHANCING ENVIRONMENTAL CONSIDERATION IN MINING WHILE ANSWERING SOCIETAL NEEDS

The creation of knowledge and efficient skill base able to drive mining industry and economic prosperity in a way that fosters sustainable development of hosting areas, is of growing importance in many Pacific countries. The think tank explored how scientific knowledge, technologies, capacities and practices, policies and regulations may be improved and may open up innovative ways regarding mining project planning and mining activities management, in the overall objective to preserve biodiversity, natural resources integrity and ecological services for current and next generations.

DEEP-SEA MINING: INCREASING KNOWLEDGE OF ENVIRONMENTAL AND SOCIAL IMPACTS OF DEEP-SEA MINING

Deep-sea mineral deposits within territorial waters and EEZ of a number of Pacific Nations are recognized by local governments as a potential source of revenue able to strongly fasten the economic development of their country. Legitimate questions about the potential effects of that emerging industry are lacking response from such recent activity. The potential environmental impacts (effects on biodiversity, fishery resources, nuisances and pollutions...) as well as social effects of deep-sea mining are not documented enough or at inadequate scale. The think tank contributed to identify the knowledge gaps to fill to enable efficient decision-making process in the Pacific countries vis-a-vis the development of deep-sea mining. There is room for improvement of knowledge that could guide informed decisions aiming to

ensure an equitable share between environmental and social or societal costs and benefits for private companies, local government and communities.

SOCIAL ISSUES: MINING INDUSTRY AND CORPORATE SOCIAL RESPONSIBILITY (CSR) AS A VECTOR OF SOCIETAL INNOVATION

Mining activities lead deep social and environmental changes in the hosting areas. The projects acceptability by communities is highly dependant on the mechanisms of disclosure, consultation and integration of people in the decision-making processes. Changes occurring in affected communities, strategies put in place by communities to cope with industrial activity, local capacities to share economic opportunities and benefits, relationships between communities and mining companies, are all in need of improvement and may be source of innovative approaches. The long mining history in some Pacific countries (New Caledonia, PNG), and the more recent or potential development of the sector in other countries (Vanuatu, Salomon Islands) open the opportunity to consider a regional specificity and to learn from past experiences, successes and mistakes, to guide the development of the mining sector in the Pacific region. The think tank discussed ways of identifying and analysing such societal innovations as well as the need to promote policies and best-practices to support a better consideration of needs, well-being and harmonious development of local communities, respecting local way of life and traditional customs.

Priority research areas were highlighted from this participative works: (i) the need to strengthen governance and regulation of mining activities and imagine financial mechanisms to assure offsets, decommissioning and “after-mining” local

economy; (ii) the necessity of mining projects disclosure and systematic integration of communities into the decision-making process all along the projects life-cycle; (iii) the urgent need to consolidate regional databases and to enhance knowledge access and sharing (regional resource center) on natural and human environment and to develop suitable methodology for risks assessment (comprising cumulative and trans-boundary risks and impacts); (iv) the need to support innovative and green technology transfer to facilitate the development of mining projects in a sustainable sound.

The issues associated with deep sea exploitation were then specifically explored through the seed-grant project “Identifying ecological risk assessment tools and approaches for deep sea mineral activities to support communities, government and developing industries in the South Pacific”. The project highlighted the need for a holistic multidisciplinary approach that connects science, management industry and community involvement and recognized that sometimes, perceived intangible can result in the rejection of marine development projects.

📍 More info: <http://plus.pacenet.eu/events/thinktank-auckland-2014>



FOREWARNED IS FOREARMED

Observation systems of climate change and its impact in the Pacific

Among various initiatives dedicated to climate change adaptation, a Think Tank was organised by PACE-NET Plus on “Strengthening of the Observation systems of Climate change and its impacts in the Pacific, for a sustainable management of resources and adaptation” in Noumea, in June 2015.

PACE-NET Plus was also invited to present its recommendations on the “Requirements for interdisciplinary observatory systems in the South Pacific region” on the European Commission's initiative during the session on Ocean Observations and the GEO Blue Planet Initiative, at the Twelfth Plenary Session of the GEO - GEOSS (Group on Earth Observations - Global Earth Observation System of Systems) in Mexico City, in November 2015¹.

Several elements to be included in roadmaps for cooperation in ST&I with the Pacific were proposed to the European Commission during the three last years and, finally, PACE-NET Plus proposed to the Pacific Islands Forum and to the European Parliament, a joint action on this topic, to establish a dedicated “Interdisciplinary Observatory of Climate Change and its Impacts in the Pacific”.

THIS MULTIDISCIPLINARY PILOT PROGRAMME WOULD ADDRESS:

- the global challenge of climate science and climate actions in as much the Pacific Ocean is a science model for research, as well as an urgent necessity for Pacific islands societies which consider climate issues as a threat to their own security;
- the social and economic development of the Pacific region linked to vital economic interests of Europe and 'like-minded' countries - USA, Australia, New Zealand - in the Pacific;
- the global political partnership of EU within the Pacific region, in the vicinity of Asian emerging countries.

This programme aims at increasing temporal and geographic coverage of observational data in the Pacific Ocean. It integrates standardised *in-situ* key marine observations into process models and forecast systems, and improves modelling outputs and reduced costs of data collection in support of ocean-related industrial and societal activities.

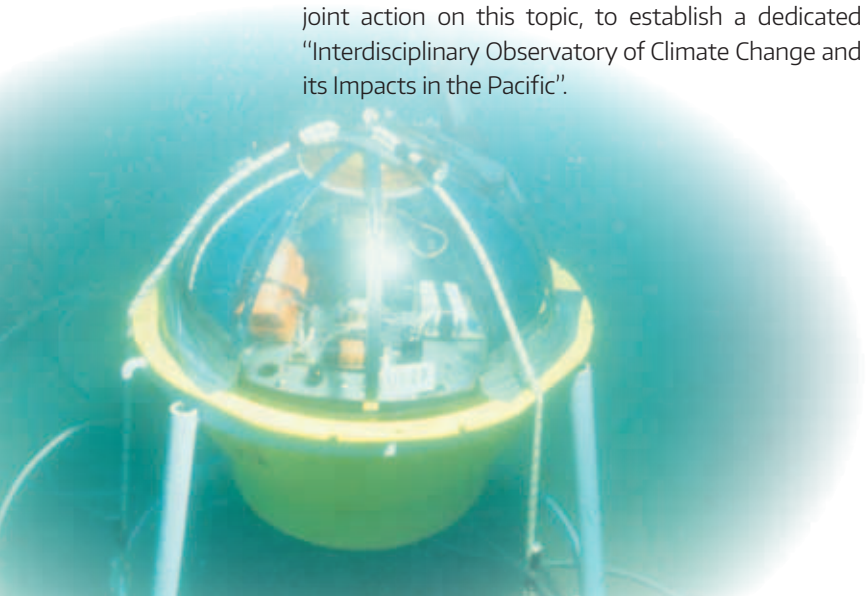
This proposition is based on three important facts:

- The tropical Pacific is the gestation site of the ENSO phenomenon that can drive global climate variability and cause economic impacts in regions far from the Pacific

- Pacific island communities are some of the most vulnerable and resilient, to global changes. Climate change (including sea-level rise, ocean acidification, extreme events and climate shifts) threatens the existence of traditional societal structures and livelihoods, as well as the ecosystems underpinning them
- There is also a lack of ‘critical mass’ of research capacities in the region, which requests joint action from all main actors in Pacific: it is against this backdrop that Pacific climate-related research and climate actions are core tasks urgently required.

THE PACIFIC REGION IS ONE OF THE MOST SEVERELY AFFECTED IN THE WORLD

It is affected by climate change, variability and extreme events (including the Winston cyclone, which struck Fiji with devastating effects in 2016), and droughts (such as the one being currently experienced by Palau). However, Pacific Island countries and territories' emissions account for merely 0.03% (8 million tons) of global GHG emissions and are suffering from climate change that is not of their own making. Indeed, the region is in fact beneficial to the world in the fight against climate change with the Pacific Ocean absorbing 776 million tons of CO₂². With climate change impacts in the Pacific region come tough decisions about migration, withdrawal



from traditional lands and ways of living, as well as a forced need to re-imagine the way to live as Pacific Islanders and globally engaged citizens.

So severe are these consequences, that the Heads of Pacific States consider climate issues as a threat to their own security (cf. statement at the 40th Pacific Islands Forum Summit held in Cairns 2014 ³- to address the security implications of climate change (cf. General Assembly of the United Nations 2009 ⁴, and of course more recently, leaders, Ministers and representatives of 15 of the Member States and Territories of the Oceania 21 Initiative (New Caledonia, April 2015), which brought together the customary authorities, research bodies and Youth, strongly and resolutely committed to the ambitious and legally binding Agreement on Climate Change in Paris of December 2015.

Researchers of the Pacific region are tackling this societal challenge through scientific cooperation in the framework of existing initiatives (from USP, SPREP, SPC, institutions from New Zealand and Australia, European laboratories, etc.) but a regional coordination mechanism is required to fill the gaps in terms of knowledge and capacity, infrastructure, and data, which will help better support policy-makers and communities of the Pacific Islands Countries and Territories with decisions about their futures.

THERE IS A NEED FOR A COORDINATED OBSERVATORY

Investigations on existing gaps and requirements for observation systems of the South Pacific Ocean, its littorals and ecosystems, in relation to global



climate change and its regional impacts on food security, health, and natural resources, reinforce the need of such a coordinated Observatory.

This Observatory will contribute to a sustainable EU-Pacific partnership for research and innovation policies and propose concretely a global innovative ocean observation integrated system covering multiple sectors including climate science, climate action, health and management of marine and maritime resources, strengthening partnership with key international actors on sustainable management of ocean resources.

This Observatory would also, for example, aim to enhance cooperation in the field of the Blue Economy in the Pacific region - see the Marine Science Strategy recently adopted by Australia and the national science challenge 'Sustainable Oceans' launched by New Zealand - and outside the Pacific region.

This proposal builds on the PACE-NET Plus experience and presents an opportunity to develop ongoing dialogue that will improve the basis for informed policy development (in complementation

to traditional knowledge and practices) through cooperation and the development of targeted joint research projects. It builds on existing initiatives from SPREP, SPC, institutions from New Zealand and Australia, European laboratories, European Institutions, etc. This does mean, first, optimising the use of existing ST&I resources to tackle challenges addressed, and creating and adding new components if appropriate; secondly, launching specific calls for ST&I projects to fill the gaps in knowledge.

This opportunity allowed our project to cover requirements/gaps for South Pacific Ocean and littorals and ecosystems observations linked to climate and to societal benefit areas. The perspective is now to follow up the previous PACE-NET Plus proposals to the EU actions in the Pacific region, to reinforce these needs to the GEOSS (Global Earth Observation System of Systems) and to obtain a Pilot Project from the European Parliament, to make concrete tools which will help scientific community from Pacific, Europe and others countries to feed this "Interdisciplinary Pacific Research Observatory of Climate Change and its Impacts".

1: Flooded wharf in Vanuatu

©B. Pelletier/IRD

2: Coastal erosion in Est Maewo

©B. Pelletier/IRD

¹ See <http://www.iisd.ca/geo/12/about.html>

² Lifou Declaration, 3rd Oceania 21 Summit, Loyalty Islands, New Caledonia, 30 April 2015.

³ <http://www.daghammarskjold.se/wp-content/uploads/2014/12/40th-PIFS-Cairns-Outcome.pdf>, which is in line with the intensification of UN efforts

⁴ <http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/res%2063%20281.pdf>

📍 More info: <http://plus.pacenet.eu/events/pacific-observation-systems-2015>

TURNING OPPORTUNITIES INTO REALITIES

Innovation in the Pacific and the Role of the European Union (EU)

INNOVATION OPPORTUNITIES AROUND IN THE PACIFIC

These are found in the agricultural, marine, and mining sectors. Examples of very promising products in these domains are breadfruit flour, avocado margarine, sea cucumber (bêche-de-mer), fruit wines, kava, taro chips, noni juice, and cassava beer. The incredibly rich biodiversity that characterizes all Pacific countries also provides great unexplored potential for innovation, particularly in the development of new drugs using endemic plants. The region's incipient Information and Communication Technologies (ICT) and software industries have come up with some innovative solutions in the field of satellite imaging.

Interest on innovation is significant among the private sector. While innovation is generally perceived as risky and now and then leading to

failure, more than 50% of firms have done some kind of innovation-related activity in the last five years and there is evidence that this trend is increasing. The immense financial and knowledge benefits that innovation can bring to companies' bottom lines are well known to the region's private sector. As firms began exploring the growth potential of foreign markets attention shifted towards new products and processes so that they could progressively gain competitive advantage. Governments, for their part, have started to emphasize the importance of innovation as they attempt to diversify their economies in order to sustain long-run growth.

INNOVATION IN THE PACIFIC, HOWEVER, FACES NUMEROUS OBSTACLES

The region is very heterogeneous in its capacity to innovate, with some countries having technological capabilities closer to those of advanced developed countries while others face severe difficulties to build basic abilities. Remoteness and small size of the economy causes high cost of operations and economies tend to have high market power concentration and are specialized in natural-resource based goods. The financial system is underdeveloped and does not provide the range of services required for new product development. Investment in human capital is way below necessity and there is a large brain drain to more advanced countries in the region and beyond. The requirements, complexities and interactions of the innovation process are still

not fully understood by the private sector, which is partially reflected in small investments in formal research and development (R&D) by companies. Innovation efforts by firms tend to be isolated and there are weak knowledge links between private sector, government and universities. Innovation support over the years by government was haphazard, plagued by administrative inefficiencies and biased towards basic rather than applied research.

Growing demands to improve economic conditions and generate jobs have recently led governments across the region to have a fresh look at the role of innovation in their economies and engage in different ways of promoting it. For the first time governments are involved in designing innovation policies including establishing government agencies and introducing specific mechanisms and incentives to support and fund innovation. New credit lines dedicated to innovation projects are being introduced and governments have begun providing innovation grants to businesses and researchers. Foreign investors are being attracted into new areas of economic activity and are being encouraged though financial incentives to cooperate with local firms. Domestic investors are being provided with training on how innovation works but more importantly, on how to access and prepare applications for innovation grants. Public procurement is now targeted to attract new high quality products from

*PACE-NET Plus
at the OCTA
Pacific Regional
Seminar on
Innovation,
SPC,
5-6 Nov. 2015.*



the domestic private sector. On the whole, despite the wide disparity in capabilities across the region, governments are attempting to create a more innovation and business friendly environment.

A STEP IN THE RIGHT DIRECTION

Current government efforts to improve the innovative capacities of the Pacific are a step in the right direction but more needs to be done. At the policy process level improvements could be made in the policy design phase through an extensive and well-conducted analysis of the needs of the potential innovators. This includes both the collection and interpretation of data as well as an engaging dialogue with stakeholders. Policy processes need to be organized transparently and inclusively so that they include strong support from stakeholders and the population at large. Continuous monitoring and evaluating of the policy process progress in turn allows governments and stakeholders to understand what is working and what is not and for which reasons. Adaptability to changing conditions provides the flexibility necessary to cope with changes in external conditions and priorities. In terms of the content of policy making additional direct policy measures could include: tax rebates or direct subsidies for innovation activities, direct funding of R&D activities, larger loan and grants for innovation activities, publicly provided technical

support for innovation, public investment in ICT, and publicly funded training for workers.

THE EU CAN PLAY A PIVOTAL ROLE IN CRYSTALIZING INNOVATIVE EFFORTS IN THE PACIFIC

The EU can play a pivotal role in crystalizing innovative efforts in the Pacific. Information about innovative opportunities in the Pacific is lacking and the EU can support uncovering and disseminating these options. The PACE-NET projects have contributed to identify opportunities in certain sectors but these may just be scratching the surface of what is really there. The EU can collaborate with local universities and research institutions as well as companies located in the region to tap and promote their innovative potential. Again the different PACE-NET projects have already made a useful contribution in this regard but the potential far outstrips the efforts made thus far. More importantly, the EU and its firms can increase their investments in innovative ventures in the region, either directly or in partnership with local entrepreneurs.

- 📍 More info: <http://plus.pacenet.eu/events/pacenetplus-fiji-2016>
- 📍 See also: <http://plus.pacenet.eu/events/octa-innovation-pacific-regional-seminar>



SMALL PROJECTS TO GROW BIG! PACE-NET Plus seed funding scheme

A core concept of the PACE-NET Plus approach was to not only define areas of mutual interest to Pacific and European researchers and enable networking, but also to foster collaboration by the targeted funding of initial joint projects that were to lead to further fruitful collaboration. In 2015, the PACE-NET Plus consortium announced the seed funding call to support this vision. The target of this seed funding opportunity was to enable and encourage Pacific and European researchers to network and to set up collaborative projects in order to fill scientific gaps and make use of knowledge exchange capacities.

Prior to the call for proposals, the PACE-NET Plus consortium organized a series of Think Tanks events for scientists, policy makers and civil society. These experts brought together their knowledge and perspectives to identify a range of scientific and innovation gaps in the South Pacific. Each event produced a large number of new collaborative project ideas, and we are pleased to note that a significant proportion of the seed-funding applications are a direct result of the Think Tank outcomes. The seed funding represents approx. 6% of the total EC contribution (i.e. 170,000€).

ENCOURAGE PACIFIC AND EU RESEARCHERS TO SET UP COLLABORATIONS

As our aim is to encourage lasting cooperation between the stakeholders from Europe and from the South Pacific, prerequisites for the proposals were the participation of partners from both the Pacific and Europe, and a demonstrated potential to lead to further joint activities. A total of 65 proposals were submitted, of which 21 have been successfully evaluated by external evaluators and consortium members in the following broad areas:

- Health, Demographic Change and Wellbeing
- Food security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the Bio-economy
- Climate Action, Resource Efficiency and Raw Materials

RESPONSE WAS OVERWHELMING

The overwhelming response to the seed-funding call demonstrates significant interest by researchers worldwide in the South Pacific. Different political stakeholders, prestigious European scientific institutions as well as the remarkable

civil society and scientific actors of the South Pacific, New Zealand and Australia submitted outstanding project ideas to this call. This is a selection of European institutions which were involved in the proposals: Oxford University, University of Copenhagen, University of Southampton, German Aerospace Center, Universitat Autònoma Barcelona, Stockholm Environment Institute, Vienna University of Economics & Business.

The topics that were submitted addressed the wide range of challenges that the South Pacific faces. For example: solar energy, deep sea mining, observation systems, sustainable transport, science policy development processes, indigenous approaches to agriculture, pollution and human health, algae blooms, and fish poisoning.

The seed-funding submissions proposed a wide variety of modalities for future-oriented collaborations, including workshops, consultations, risk assessments, community-based projects, collaboration projects between different stakeholders, capacity development in the area of leadership, and more.

All proposals were evaluated by independent experts appointed by the consortium according to the following criteria:

- Scope of the project and impact, interest for the Pacific region and for Europe
- Capacity of the project to create a bi-regional network and/or contribute to PACE-NET Plus goals
- Scientific quality of the proposal, scientific background/knowledge on the issue
- Capacity and qualification of the project leader and partners
- Innovative nature of the project or capacity to generate innovation
- Feasibility of the project and clarity of the deliverables

- Adequacy and justification of the proposed budget
- Probability/likelihood/potential that the applicant will raise funds for follow-on projects/ initiatives/ innovation

A HARVEST OF COLLABORATIVE PROJECTS

The success of the seed funding scheme was overwhelming and proved the broad interest and the relevance of the region when considering that for each project only 10,000 EUR were granted. The approach to combine think tanks and follow-up seed funding calls turned out to be very fruitful. Excellent ideas and contacts are often developed in workshops, but are lost when no immediate chance of a financed project appears. The outcome also underlines that the atmosphere of

the think tanks led to a high motivation to conduct joint scientific projects and merge ideas and thoughts although the financial support is low, the time period is short and the effort is high.

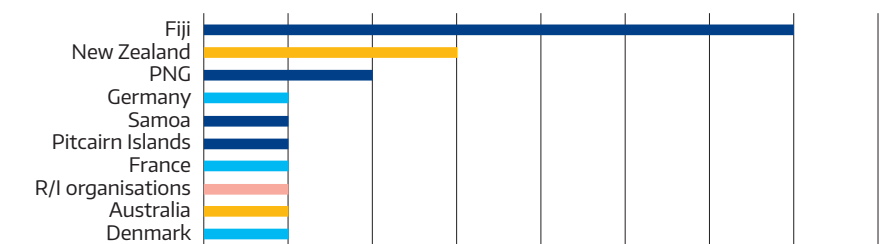
Representatives from the funded projects showcased their outcomes during the final PACE-NET Plus platform event in Fiji in June 2016. The results presented during the conference led to synergies between the Principle Investigators of the seed funding projects, who recognized the potential of combining topics. Most of the members of the projects have concrete plans for future proposals to submit to specific funding organisations, including the EU.

More info:

<http://plus.pacenet.eu/news/pacenetplus-seed-funding-outcomes-2015>

Origin of Principle Investigators

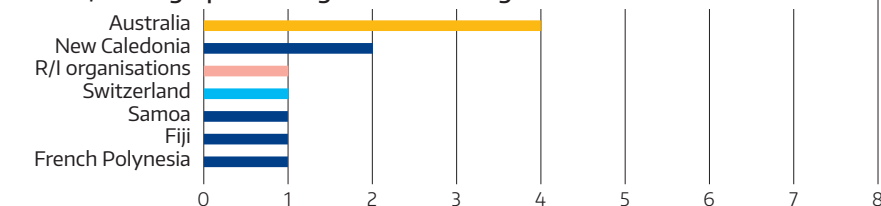
Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy



Climate Action, Environment, Resource Efficiency and Raw Materials

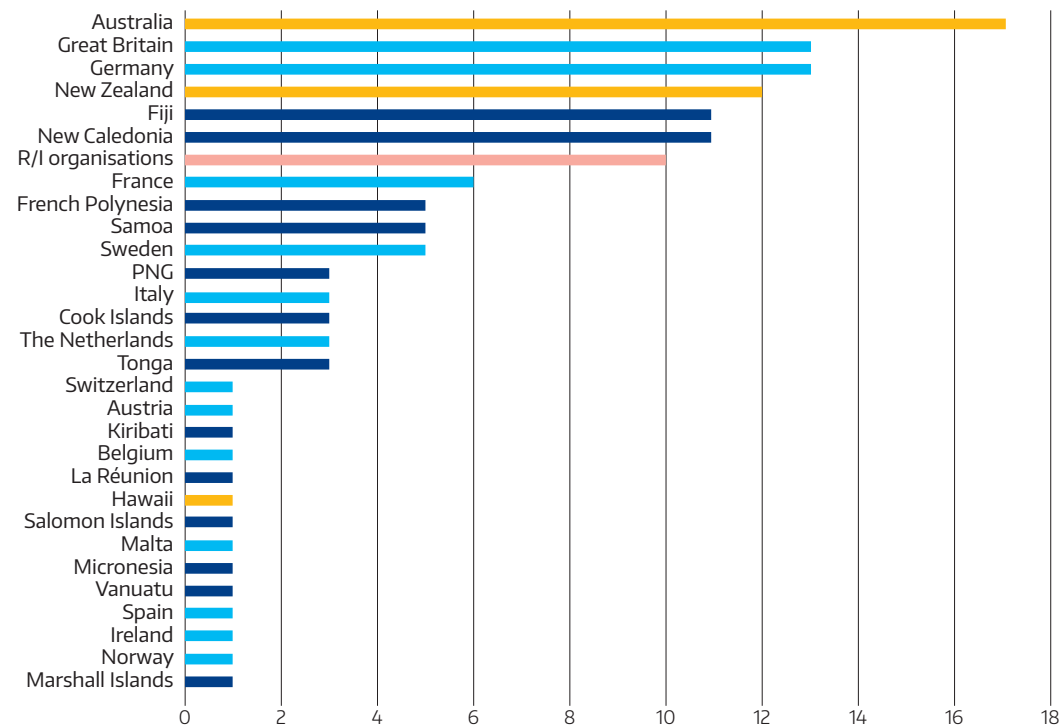


Health, Demographic Change and Wellbeing



■ Institutions from the South Pacific ■ Institutions from Europe ■ Regional/International organisations ■ USA, Australia, New Zealand

Origin of Co-applicants



SUPERCHARGED COLLABORATION TO ACHIEVE THE SDGS

Recommendations for enhanced bi-regional partnerships

In the Pacific, widespread agreement was established by PACE-NET Plus that the Sustainable Development Goals (SDGs) can only be achieved through the implementation of a regional science agenda fostering collaboration.

Perhaps the most visible aspects of the PACE-NET Plus project have been the think-tanks and the seed funding scheme (both are addressed in detail elsewhere in this compendium).

Whilst both activities were designed to enhance bi-regional engagement between researchers, the combination of the two has resulted in more significant partnerships than otherwise.

A RAFT OF PROJECT IDEAS AIMED AT SOLVING KEY PROBLEMS

The think tanks brought together relevant experts around identified topics of concern, and enabled them to expand their professional networks, articulate specific problems, the capacities (including critical mass of researchers) available to address these problems, and a raft of project ideas aimed at solving these key problems.

ESTABLISHING THE LEVELS OF TRUST TO PURSUE GRANDER MISSIONS

Subsequently, the seed funding provided a simple mechanism through which these project ideas could be comprehensively defined and planned, and enabled the key actors to establish working relationships with one another. The purpose of these simple, low-key, activities (planning and relationship building), are critical

building blocks for individuals and organisations to establish the levels of trust and interaction required to subsequently pursue grander project missions. It is anticipated that many of these seed-funding engagements have (and will) result in the development of fully-fledged, and costed, project proposals.

This mechanism is not unlike what happens via the long-standing COST (European Cooperation in Science & Technology) scheme within Europe, to great effect.

By bringing a critical mass of people together, with a specific intent, such mechanisms serve to establish necessary foundations upon which large, significant, and highly impacting projects can be pursued.

Our most significant recommendation in this regard, therefore, is to learn the lessons of the PACE-NET Plus think-tanks and seed funding – as well as other mechanisms such as COST – in order to build enduring schemes that enable the continuation of such productive (and affordable!) pathways to addressing regional and global problems (SDGs) through bi-regional partnerships.

In anticipation of the development of such activities (including projects), consideration also needs to be given to delivering information and support on how to utilise relevant funding mechanisms (such as Horizon 2020). The presence of French OCTs in the Pacific is of particular benefit in this regard, as they have direct access to European funding and support mechanisms (such as the National Contact Point networks).



REGIONAL KEY "BROKER" ACTORS

Additionally, larger regional actors (such as Australia and New Zealand) that have a strong regional presence as well as a long history of formal collaboration with Europe, are key "brokers" and participants in many successful Europe-Pacific partnerships, hence similarly these connections can be leveraged to deliver support to Pacific actors with regards to larger international projects and funding initiatives. This is reflected in bibliometric data, where most joint publications with European and Pacific authors overwhelmingly also include Australian and/or New Zealand authors.

Regardless of the topics and mechanisms utilised to jointly implement solutions to problems, there are many simple action items that individual researchers (and institutions) providing options in support of the SDGs can undertake in order to assist with building bi-regional partnership and advance their own research agendas.

The first action item is to clearly articulate their value to potential partnerships. This can be in the form of unique expertise and capabilities, access to specialised equipment or data, specific geographic advantages, or strong connections with regional networks, as well as many other things. By drawing specific attention to the value they bring to a partnership, they present a clear reason for engagement and investment.

MAINTAIN COMMUNICATION WITH COLLEAGUES ON THE OTHER SIDE OF THE WORLD

Secondly, make a habit of maintaining communication with colleagues on the other side of the world. Too often there are excellent opportunities for bi-regional partnerships in major projects, however proposal partners limit the consortia to local or regional actors because they are the ones they interact with on a regular basis, hence the notion of bi-regional engagement is not something that comes to the fore without prompting.

Maintaining bi-regional communication with colleagues ensures that objective-driven project ideas and other opportunities for collaboration are not passed up by default.

LEARN MORE ABOUT THE EU FRAMEWORK PROGRAMMES

And finally, we encourage all Pacific researchers to register their interest to be expert evaluators for Horizon 2020 – even advanced PhD students. If selected to evaluate a particular call, not only will they gain the opportunity to learn more about the European Framework Programmes, i.e. Horizon 2020, from the inside, they will build new and highly relevant professional connections with other evaluators.

Anecdotal evidence suggests that an overwhelming majority of non-European evaluators return the following year as partners in successful proposals. Hence, this avenue cannot be underestimated as an excellent pathway to build successful bi-regional partnerships.

📍 Contact: *Montroix Pty Ltd*, pacenet@montroix.com

*PACE-NET Plus
Partners and Key
Stakeholders.*



AN ENDURING IMPACT

Regional and bi-regional dialogue

Since 2010, the *PACE-NET* and *PACE-NET Plus* projects have been the organisers and custodians of the only bi-regional dialogues on ST&I between the European Union and the Pacific island nations. In total, six dialogue platforms have been held - Brisbane (2011), Brussels (2012), Suva (2013), Auckland (2014), Brussels (2015) and Nadi (2016) - and have attracted a wide variety of participants, including heads of regional organisations and senior national government ministers.

These events have enabled project participants to present the outcomes of specific project activities, and the lessons learned, as a means of contributing to the structural and policy discussions of the dialogues.

One of the primary issues that has consistently emerged from the bi-regional dialogues is acknowledgement of a lack of capacity in the Pacific region with regards to ST&I, including policies and national frameworks.

**1 - PACE- NET +
Platform
in Brussels,
June 2015.**

Whilst there have been numerous bi-regional partnerships and research undertakings, the lack of regional ST&I capacities, policies and frameworks has curtailed the ability of decision-makers from Europe and the Pacific to conduct effective discussions leading to agreed actions.

**2 - PACE- NET +
at the EU
Parliament,
June 2015.**

The culmination of the *PACE-NET Plus* project activities was to directly address this significant issue by making recommendations to Pacific leaders based on the experiences and findings of the *PACE-NET Plus* project. This has been facilitated through a *ST&I working group* of select project partners, as well as other important actors in the Pacific, including several ministers.

**3 - PACE- NET +
Platform in Fiji,
July 2016.**

The primary motivation for improving ST&I capacities throughout the Pacific is to enable individual nations to better contribute to their own national, as well as

regional, solutions via the leverage of national and regional ST&I resources, and to make positive progress towards the Sustainable Development Goals (SDGs).

Solving many local, national and regional, as well as international challenges requires national and regional approaches to ST&I, in order to leverage limited resources, build much needed capacities to assist well-informed and autonomous decision making, to identify new economic opportunities and jobs, and to enhance social stability and livelihoods in the region in an equitable manner.

The overarching *Framework for Pacific Regionalism* identifies development as the highest regional priority. There are many challenges in development and in the societies of the Pacific that can benefit from relevant community and national - as well as regionally coordinated - ST&I initiatives. In particular, addressing the SDGs is impossible without adequate ST&I capabilities and activities.

However, many nations lack the necessary ST&I capacities to be able to address their own concerns in a manner consistent with local values and customs. This includes a lack of adequately trained scientists and STEM (science, technology, engineering and mathematics) teachers, a lack of scientific job prospects for graduates, and too few people with skills in critical thinking based on scientific principles.



A regional vision for ST&I in the Pacific will enable nations to define their joint future. It will also assist to inform decision-making - that will impact on future generations - on national and regionally derived findings of scientific research.

One of the key recommendations of the ST&I working group is to bring together senior officials and chief scientific advisors, from across the Pacific, on a regular basis in order to facilitate regional discussion and knowledge sharing. This will support development of national ST&I policies and frameworks, and importantly help to identify the areas where regional approaches will be of benefit. In particular, the *Framework for Pacific Regionalism*, and other relevant frameworks, as well as the priorities of the CROP agencies (such as SPC, SPREP, USP, etc.), will all benefit from and contribute to a dedicated regional approach to ST&I.

Such efforts to support the development of national and regional policy approaches for ST&I subsequently need to be followed-up with capacity-building and education activities. Education gives people the power and knowledge they need to make sound decisions and to have a good life. It is the key to gender equality, economic growth, and the advancement of societies. Education is the most basic insurance against poverty, to give people the knowledge and skills to shape their future for themselves.

The Pacific region suffers from a lack of internal opportunities for scientific activities to address many of the questions and challenges it faces. Creating the critical mass required for generating the science and research to work towards

the SDGs is a challenge for the relatively small populations in the Pacific region. At the same time, it is recognised that there are many Pacific science graduates now working outside the region or within the region in fields unrelated to science. Also, indigenous science embodies centuries of knowledge about the region, and there is a significant 'national endowment' in each country (local knowledge and capabilities, as well as natural resources) that is often underutilised in the teaching of science and in addressing broader scientific questions. Hence, it is critical to initiate endeavours to boost the region's capacities in a range of areas of science, including how ST&I is collaboratively developed from multiple sources of knowledge.

Beyond boosting resources and skills training for school teachers in STEM areas, concerted efforts to bring the region's ST&I institutions - as well as institutions from outside of the region - together with teachers and community leaders will significantly address these issues, through ideas such as 'citizen science', 'living laboratories', 'national endowments', and 'natural history museums'.

For the research actors themselves, the PACE-NET Plus project's experience with the linked activities of think-tanks and seed-funding provides an excellent model for how to identify regional problems, bring experts together to develop pathways to solutions, and then mobilise promising ideas with limited financial resources.

📍 For information about ongoing efforts towards a Pacific ST&I Framework, visit: <http://pacenet.plus/>

*PACE-NET Plus
platform
in Auckland,
Dec. 2014.*



ST&I NETWORKING SUCCESS STORIES

The case of Water Governance in Oceania: a Fonds Pacifique co-financed project



As discussed in the PACE-Net project, freshwater in Oceania is variably distributed and not always accessible in the places and volumes required for human and ecological needs and desires, including drinking and sanitation, agriculture, industry and a range of other land-based economic, social and cultural purposes¹. There are additionally management issues in many areas of Oceania due to conflicting values and understandings about how water should be used and managed, and whose rights it should be to do so—for example, the Government, landholders (indigenous or non-indigenous), private businesses or even a river itself, as is the case for the Whanganui River in New Zealand. Prime examples are the Bonriki groundwater reserve in Kiribati, or Honiara's Kongalai water supply catchment in Solomon Islands. These issues have led to a range of water conflicts and present part of the reason why deciding on water policies and management plans, as well as implementing them,

is such a challenge in some parts of Oceania². In response to these issues, a cooperative international project on “*Water Governance in Oceania: water uses, access, management tools and policies*”³ was set up as a result of the PACE-Net project and French-Australian initiative on water and land management, co-funded by the French Ministry of Foreign Affairs and many organisational project partners⁴.

The project, which has run from 2014–2016, took a transdisciplinary and participatory approach to understanding water and land management conflicts. It has also sought to develop learning exchanges between countries and territories and train participants in the use of participatory tools⁵ to start to transform them. The project focussed on three main case study sites in a first instance: the VKP region of New Caledonia, Tarawa in the Republic of Kiribati; and the Mardoowarra in the Kimberley

region of Australia; complemented later by additional interactions with cases in Fiji (Gau Island), Tonga and Samoa.

The three major case studies of the water governance project were carried out in collaboration with local water management authorities and/or traditional owners of the area. They each set out to support an investigation of the local water governance, politics and conflicts, through a lens of practical interest to the local partners. These included: improving water services provision and health in Kiribati, working with the Public Utilities Board; developing participatory water planning, in light of a new planned dam in VKP (New Caledonia), working with the Northern Province; and investigating Mardoowarra water futures and stewardship in light of energy, mining and agriculture development pressures in the West Kimberley, working with the region's traditional owners.

1 White, I., Daniell, K.A., Ruecker, G., Robinson, R. (2012) *Climate Change and Freshwater in the Pacific: adapting to global change in the freshwater and sanitation sector “Better water, better life, better world”*, Policy Brief No 1., Report from the PACE-Net Key Stakeholder Conference, Brussels, 20–23 July 2012, PACE-Net, FP7, Europe, 27p: http://brussels-conference.pacenet.eu/sites/default/files/PACE-NET_Policy_Briefno1_Water.pdf

2 White, I., & Falkland, T. (2015). Integrated management of urban water supply and water quality in developing Pacific Island countries. In: Grafton, Q., Daniell, K. A., Nauges, C., Rinaudo, J. D., & Chan, N. W. W. (Eds.) *Understanding and Managing Urban Water in Transition* (pp. 489–526). Springer Netherlands.

3 Officially titled: *La gouvernance de l'eau dans le Pacifique: usages, dispositifs, politiques publiques*

4 This work was co-funded by the Fonds Pacifique (French Ministry of Foreign Affairs) and many of the partners including the PACE-Net Plus EC project, ANU, IRSTEA, IRD, IAC, LISODE and Majulla Inc. The input of all local case study partners and participants in all activities and workshops is gratefully acknowledged.

5 Information on the CoPLAaGE/Wat-a-game participatory toolkits can be found at <https://sites.google.com/site/waghistory>

6 <https://sustainabledevelopment.un.org/sdg6>

The project has also had an important component of knowledge exchange and comparison, which have taken place through a range of participatory workshops and meetings between project partners in Canberra, Auckland, Montpellier, Broome, Noumea and Fiji. At some of these meetings, further cases of water governance, such as from the Solomon Islands, Fiji, Tonga, Samoa and Vanuatu were discussed, including with representatives from the Pacific Community and UNESCO, with the potential for larger collaborative projects and thematic gaps identified.

The results have demonstrated that despite small gains in some regions of the Pacific into improving water governance systems and knowledge on their functioning, there remains an enormous task to meet the sustainable development goals for water⁶ across Oceania, which will require much greater coordinated action across water-related stakeholders, including between the Francophone and Anglophone parts of Oceania. A number of actions have been identified through the

project, some of which, including two PhD projects and representation of Oceanian water issues in COP22 side events in Morocco, have already begun. The water governance in Oceania project, although only one step in a much longer journey, shows the contribution to understanding and supporting improved water governance that was stimulated in large part by the bi-regional Europe-Pacific ST&I dialogue through the PACE-Net and PACE-Net Plus projects.



Figure 3:
Participatory simulation of water use in the Kiribati case study.
Source:
©Nils Ferrand, IRSTEA (2016).

PACE-NET Plus at the United Nations Conference on Small Island Development States



In September 2014, PACE-NET Plus took part in the third International UN Conference on Small Developing States (SIDS) dedicated to “Sustainable Development through Genuine and Durable Partnerships”.

During a side event co-organised by the National University of Samoa (NUS), the Australian project partner Montroix Pty Ltd presented the opportunities and benefits of Horizon 2020 for SIDS, gave an overview of the bi-regional cooperation involving the PICTs (Pacific Island Countries and Territories) and updated the audience with the upcoming calls from the European Commission (EC).

UNIDO (the UN Organization for Industrial Development), the partner coordinating the core

component of the project which is Innovation, outlined the main features of innovation in the SIDS of various regions, noting that the mapping undertaken in the Pacific on this topic was the first of its kind.

In the framework of its support to regional partnerships, PACE-NET Plus also gave the floor to representatives of two regional observatories, the GOPs (the South Pacific Integrated Observatory for Environment and terrestrial and marine Biodiversity) and O2C3 (the Oceanian Observatory on the Consequences of Climate Change), thus demonstrating some existing and potential benefits of regional cooperation in this field.

In order to better contribute to the EU/Pacific policy

dialogue, the project also intends to facilitate the regional integration and cooperation. In this context, the representative of Oceania 21 Summit (member of the Government of New Caledonia) presented this initiative and its focus on the relationship between traditional knowledge and heritage and research in ST&I.

Officials of the EU delegation in Fiji and the EC in Brussels attended this side event as well as delegates of the Government of New Caledonia. Among other participants, IRD, SPC, USP, SPREP, ANU also took part in this SIDS side event.

📍 More about the SIDS Action Platform:
<http://www.sids2014.org/>



*PACE-NET Plus
at the SIDS
Conference,
Apia 2014.*

The Pacific Islands Universities Research Network (PIURN)

Triggered by the PACE-Net project, the Pacific Islands Universities Research Network (PIURN) was founded and launched in July 2013 after eleven universities in the Pacific region agreed to set up a regional network to facilitate and encourage academic research in the region.

The eleven founding universities included three from Fiji (USP, FNU and The University of Fiji); five from Papua New Guinea (UNITECH, UPNG, UoG, UNR&E and PAU); two from the French territories (UNC in New Caledonia and UPF in French Polynesia), and one from Samoa (NUS, the National University of Samoa). In 2014, the Solomon Islands National University (SINU) joined PIURN as a member, hence a total of 12 current PIURN members.

These institutions agreed to work together to “strengthen their strategic scholarly collaboration and institutional cooperation to better contribute to the development of the region, promote the well-being of local peoples and create a real regional platform to support public policies beyond language differences, through research, education and exchange”.

PIURN held its inaugural conference from the 3-7 November 2014, hosted by the University of New Caledonia in Noumea with funding assistance from the French Pacific Fund.

The second PIURN conference comprised three colloquiums on the following themes:

- I. The evolving principles and practices in customary land tenure systems in the Pacific in the context of development pressures and climate change.
- II. Pacific Regional Cooperation in the 21st century.
- III. Pacific Indigenous Art form and Languages in the 21st century – the challenges of sustainability.

These are some of the current issues which continue to dominate the development debates among the governments and citizens of the Pacific region. They also impact on how development partners in the Pacific decide to prioritise the various forms of assistance they are offering the Pacific countries.

The aims of PIURN Conferences are to:

- I. Bring together scholars from the Pacific region to collectively address the changes in the Pacific region in the context of the three themes.
- II. Enable graduate students to develop knowledge and connections with other scholars and to share research data and methodologies on these three themes.
- III. Raise awareness about the work and existence of PIURN and enhance its profile and visibility as a potential regional research “think tank” organisation for technical and professional advice on (specific) research areas concerning the Pacific.

📍 More about the PIURN (and this conference):
<http://samoanstudies.ws/news/tag/2nd-piurn-conference/>



The University of the South Pacific



National University of Samoa



Pacific Adventist University



PNG University of Natural Resources and Environment



PNG University of Technology



Fiji National University



University of Fiji



Université de la Polynésie française



Université de Nouvelle-Calédonie

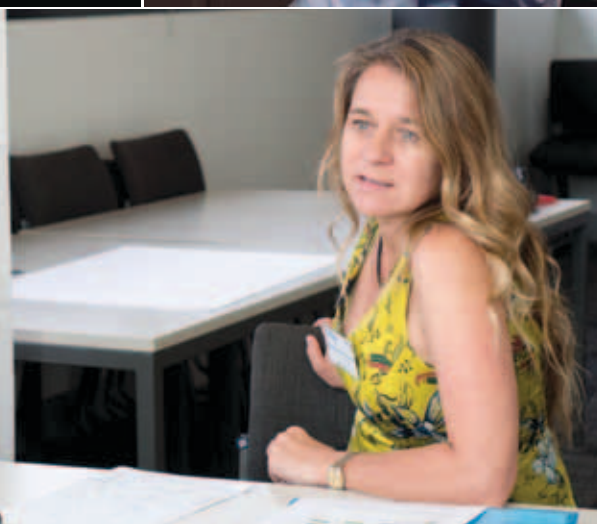


University of Papua New Guinea



PNG University of Goroka





CONSORTIUM PARTNERS



<http://www.ird.fr/> Jean-François Marini, jean-francois.marini@ird.fr



<http://www.acu.ac.uk/> Andy Cherry, Andy.Cherry@acu.ac.uk



<http://www.anu.edu.au/> Katherine Daniell, katherine.daniell@anu.edu.au



<http://www.cnrt.nc/> France Bailly, france.bailly@cnrt.nc



<http://www.cta.int/> Judith Francis, Francis@cta.int



<http://www.ilm.pf/> Edouard Suhas, esuhas@ilm.pf



<http://www.landcareresearch.co.nz/> Jane Lattimore, lattimorej@landcareresearch.co.nz



<http://www.montroix.com/> Rado Faletic, rado.faletic@montroix.com



<http://www.nus.edu.ws/> Ioana Chan Mow, i.chanmow@nus.edu.ws



<http://www.spc.int/> Olivier Auguin, oliviera@spc.int



<http://www.spi.pt/> Sara Medina, saramedina@spi.pt



<http://www.unido.org/> Augusto Luis Alcorta, a.alcorta@unido.org



<http://www.upng.ac.pg/> Anna Joskin, ajoskin@upng.ac.pg



<http://www.usp.ac.fj/> Bibhya Sharma, bibhya.sharma@usp.ac.fj



<http://www.vanuatuculturalcentre.vu/> Marcelin Abong, amarcelin@vanuatu.gov.vu



<http://www.zmt-bremen.de/> Corinna Harms, c.harms@zmt-bremen.de

