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Report on the expert workshop on Environment held in Brisbane (Australia) on July 5-7 2011

Biodiversity (Ecosystems management)

Work Package 4: Deliverable Report 4.1.4

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I. General context

PACE-Net aims to establish a Europe-Pacific S&T cooperation platform that will promote the participation of the Pacific region in the international cooperation activities and programmes of the EU's FP7. To achieve this, PACE-Net sets up dialogue fora, bringing together relevant S&T experts and stakeholders to establish the priority areas for FP7, including SICAs (Specific International Cooperation Actions). In terms of natural resources, ACP countries in the region control more than 20 million km² of Exclusive Economic Zone (EEZ) and the 4 OCTs have a further 7.5 million km². This provides the region with remarkable biodiversity resources, both marine and terrestrial, and a huge challenge for S&T research to contribute to its conservation and sustainability. One of the world's centres of marine biological diversity, the Pacific has immense potential for human health in terms of biotechnology, and its marine resources are the highest in the world in terms of fishing grounds. Humid and dry forests are other important resources, and large quantities of various minerals and metals are exploited on many islands (let alone 'promises' from sea-bed mining). The exploitation of these resources sets specific S&T challenges in terms of sustainable development. Furthermore there is a need for renewable and alternative energies to address current dependencies on imported fossil fuel-based energies. Last but not least, 'biodiversity' has become a societal issue involving intertwined questions about local knowledge, intellectual property rights, environmental policy and political sovereignty.

1. Background of the workshop

Further to work undertaken in developing the framework of the project (which identified some agreed S&T focal areas that support regional development goals for ongoing collaboration between the European Union (EU) and the Pacific), the PACE-Net partners identified "Biodiversity" as a priority theme for present and future research in the region. This theme is well supported by Pacific research teams and offers opportunities to develop Pacific expertise as an international competence/reference.

This workshop report was prepared by a group of experts in biodiversity in the Pacific[1], and summarises their views on key research issues and suggested research themes. These were identified through a structured and democratic process (see methodology section) that produced a restricted set of research issues considered to be a priority for Pacific ecosystems.

The EC considers that research on biodiversity and other natural assets of the OCTs and the Pacific group of ACPs should be the basis for strengthened cooperation between the Pacific and the EU. Benefits from collaboration in S&T for the Pacific could include increased capacities in areas essential for the sustainable development of the region, such as fisheries management and biodiversity.

2. EU priorities in the field « Biodiversity »

According to the European Commission, the challenge of biodiversity is presented as follows: "biodiversity is the complex web of life on Earth, incorporating humans and our social and economic systems. The number of life-forms on Earth is unknown, but it may be some 20–30 million species, of which only about 1.8 million are known to science. Biodiversity can be studied at the level of the whole

[1] Experts list appended to this document.

planet or specific ecosystems or sites. Whatever the level, the organisms present interact in a complex, dynamic manner – both among themselves and with the non-living environment they share. Animals, plants and micro-organisms are a vital resource for humans, forming important elements in many of the processes on which we depend."[2]

Specifically considering biodiversity in FP7: "European research is directed towards assessing and forecasting changes in biodiversity and understanding the dynamics of ecosystems, particularly marine ecosystems. The relationships between environment, society and economy are analyzed in order to identify and mitigate potentially harmful effects on the environment and on human health and society, as well as related political issues (the interplay of sovereignty, decolonization and globalization). Risk assessments based on European research allow us to better manage, conserve and rehabilitate our ecosystems in a sustainable manner for future generations."[2]

II. Workshop methodology

After initial introductions, the discussion between the experts addressed the title and focus of the workshop, initially "biodiversity". A short discussion resulted in an agreement to entitle the session "ecosystems" rather than "biodiversity" in order to encompass issues from a livelihood perspective and better recognize the interactive processes critical to ecosystem functioning. This allowed 'ordinary' and 'exceptional' biodiversity to be taken into account within the same framework. There was agreement that the conceptual framework proposed by the Millennium ecosystem assessment could provide us with sound guidelines (see annex 1).

The workshop was organised in four steps: issue mapping, priority mapping, prioritisation (importance and personal interest) and finally project development.

The two first sessions comprised a brainstorming and collaborative discussion. Using coloured post-it notes, each expert wrote down her or his views and priorities. Each member of the expert panel (Philip Cowan, Colin Filer, Johanna Johnson, Angela Jokhan, Hervé Jourdan, James Leach, Pierre-Yves Le Meur, Porer Nowbo, Claude Payri and Morgan Pratchett) identified 3-5 specific research topics, and the 31 distinct suggestions were subsequently arranged through further discussion into major research themes:

i) Knowledge of ecosystems
ii) Benefits from ecosystems (goods and services)
iii) Ecosystem management
iv) Drivers of environmental change.

Several research topics, mostly related to education or policy, did not fit clearly within the major research themes, and these were subsequently ascribed to theme (ii) Benefits from ecosystems (goods and services) and (iii) Ecosystem management, respectively.

[2] http://ec.europa.eu/research/environment/index_en.cfm?pg=bio

Each expert then chose the topics in each theme that represented the most important questions for the region and the most feasible to be addressed by S&T. Research questions within each major theme were prioritized against two criteria; First, *importance* (based on both significance and lack of prior research in the Pacific); and second, *feasibility and capacity*. The latter criteria was based on the willingness and capacity of assembled experts (and the institutions they represent) to undertake research relevant to addressing each species question. This process identified one research question within each theme that was considered to be the highest priority. According to the votes and interest expressions, the expert panel selected 4 research priorities.

As the next step, the expert panel was expected to develop a project according to the workshop methodology (answering various questions –see below for details). The panel preferred, however, to promote and develop a comprehensive framework (following the methodology proposed for the workshop) that may apply to various ecosystem types.

III. Workshop outcomes

1. Emerging biodiversity and ecosystems topics in the Pacific (including cross-thematic topics)

Below the 31 issues identified by the experts are listed, organised according to the 4 major identified research themes.

KNOWLEDGE OF ECOSYSTEMS - LOCAL & TRADITIONAL USES, REPRESENTATIONS OF BIODIVERSITY
Subtitle: Document its current value/ Confront Social vs Scientific categories / Models / Explore future value based on collaborative research with local people

- Improve knowledge of the biodiversity of Pacific terrestrial, freshwater, coastal (mangroves, sea grasses & intertidal flats) and reef habitats
- Set up a regional data bank of marine & terrestrial biodiversity
- Document forest resources, knowledge and uses. Presentation of this data to contribute to local education: awareness and valuation of forests
- Local knowledge on biodiversity: cognitive/normative dimension (categorisation), territorialisation (land/marine tenure), "local" *vs* "scientific" categories, ownership, transmission, protection
- Biodiversity inventories across all groups: countries (underpinning information for NBSAPs, trade, natural resources uses
- Benefits: local education of value, knowledge of uses (value of biodiversity): applicable and appropriate science to support/extend biodiversity
- Relationship between local agricultural practises and conservation of terrestrial biodiversity values
- What are the major causes of biodiversity loss in different systems between different regions? (Climate change *vs.* direct human impacts)
- Relationship between cultural and biological diversity (traditional and scientific knowledge)
- Build local knowledge of the importance of biodiversity & conservation

- Prioritise local/traditional uses of biodiversity. Document its current value. Explore future value based on collaborative research with local people

BENEFITS OF BIODIVERSITY – ECOSYSTEM SERVICES/GOODS – POLITICS OF VALUE (WHAT IS "MEASURABLE"?)

Which ecosystems (marine, terrestrial or freshwater) are the most jeopardised by climate change? What will be the effect of loss of these systems?
Which marine, terrestrial species are important to food security, livelihood and important ecosystem services?
How to promote the restoration of ecosystems?

- Conservation needs for emblematic species and habitats
- Implementation of invasive species management plans (applied with NBSAPs + Climate Change (CC))
- Food security (including focus on diversity of used species – genetic resources) and ecosystem management: Need for biodiversity maintenance processes research
- Follow the impacts of CC on one the economical culturally important species with the view of conservation
- What are the major goods and services provided by different ecosystem types?
- Economics: natural capital /ecosystem services /what is measurable (cf. the excess or risk of commoditisation and quantification)
- Information on economic "values" of biodiversity/ecosystem services (benefits of management, inputs of CC)

RESOURCE MANAGEMENT REGIMES AND THEIR ADAPTATION

- Biodiversity policy
  - Law, customary law, "soft laws", international regulation
  - Actors, institutions, arenas (rent)
- Relationship between REDD policies and framework and conservation of native forest ecosystems
- Matching responses to biodiversity loss at different scales
- Pressure on land tenure systems - appropriate supports for customary tenure
- Economics: Natural capital, Ecosystem services, what is measurable

DRIVERS/ THREATS OF ENVIRONMENTAL CHANGE – CLIMATE CHANGE / INVASIVE SPECIES / OVEREXPLOITATION (FOREST, MINE...) / SALINISATION (SOILS AND FRESHWATER)…

- Biodiversity of ocean food webs is not well understood and how this might change under climate change
- Which marine or terrestrial taxa will be positively versus negatively affected by global climate change
- Climate change implications on key components of coastal & marine bio systems & biodiversity in the Pacific

- Understanding evolutionary processes in the context of rapid change (invasive species climate …) marine/terrestrial
- Regional Invasive species database : Threat management / early warning

2. Issues and priority map

The expert discussion that identified the four highest research priorities and research questions within them can be summarised as follows:

2.1. Priorities…

1) ECOSYSTEM KNOWLEDGE
   Documenting biodiversity including local knowledge (species and habitats) and establishing what are key aspects of Pacific biodiversity in the context of global change implications on key components of terrestrial, coastal, marine ecosystems. Mapping significant biodiversity…

2) ECOSYSTEM BENEFITS (GOODS AND ECOSYSTEM BENEFITS)
   Traditional uses /representation of biodiversity
   Document its current values (what is measurable?)…

3) ECOSYSTEMS MANAGEMENT (Adaptation of resources management)
   How to maintain biodiversity or restore it in a context of needs for food security and ecosystem maintenance (services) (Policy and economics)…

4) DRIVERS OF ENVIRONMENTAL CHANGES (not only negative drivers or threats but also potential positive drivers)
   Climate change, invasive species spread, over-exploitation and destruction of resources and habitats, population growth, salinisation of ground waters and soil (marine level change)…

2.2. Specific research questions

1) ECOSYSTEM KNOWLEDGE

a) Document of (existing) local, scientific and other knowledge of ecosystems
b) Do patterns of biodiversity to genetic diversity for ecologically/culturally significant groups
c) The following question *"How do indigenous/cultural grouping of species link/compare with scientific grouping"* was finally abandoned
d) Document unknown diversity for groups that are culturally/ecologically significant
e) What are the best mechanisms for disseminating knowledge for social learning/capacity building?
f) How to best recognise and articulate knowledge in practice?

Question: What does a bottom up priority setting approach look like? Community driven questions are essential to the expert panel.

2) ECOSYSTEM BENEFITS

a) Identify key groups (species, habitats) for food security, livelihood and ecosystem processes
b) Value of key ecosystem goods and services
c) Benefit of coastal habitat mosaics (reefs, mangroves, sea-grass) for food security, livelihood
d) Benefit of terrestrial habitat mosaics for food security, livelihood
e) How does the reliance on different terrestrial and marine ecosystems vary between PICTs
f) Which ecosystem goods and services are at risk? (see drivers of change)

According to later discussion (following the vote) a) & c) & d) are related and may be merged (see below)

3) ECOSYSTEM MANAGEMENT
a) What tenure (customary and others) best supports ecological and cultural diversity and how can they best be adapted?
b) What management strategies (including restoration) are likely to be most effective to support ecosystem and cultural diversity?
c) How do social institutions affect effective land use planning and ecosystem management?

According to later discussion (following the vote) Points a) & c) are very close and may be merged (see below)

4) DRIVERS OF CHANGE
a) Identify the drivers of environmental change in PICTs (commonalities and specificities)
b) Is the relative importance of drivers likely to change in the future?
c) How can significant drivers be managed (if at all)? What adaptation options are available for those drivers that are not amenable to management?
d) What are the synergistic or additive effects of multiple drivers?

3. Prioritisation

The most important questions for the region and the most feasible are listed in the table below. The 4 questions are to be seen as an inter-dependent sequence. As pointed in the roundtable, to address the identified questions, two different research calls should be developed.

TOP WORK PRIORITIES

1- KNOWLEDGE OF ECOSYSTEMS Documentation of local, scientific and other knowledge of ecosystems (and management) in the Pacific	**Call 1**
2-GOODS AND SERVICES Which ecosystem goods and services are at risk? including questions linked to traditional knowledge protection and benefit sharing **3- ECOSYSTEM MANAGEMENT** How do social institutions rule natural resource access and control, and affect effective land use planning and management? **4- DRIVERS OF ENVIRONMENTAL CHANGE** Identify the drivers of environmental change. Commonalities across PICTs and country specific *Points 3 & 4 are Research and Development points*	**Call 2** While progress can be made on these priorities, they will also be informed by new knowledge from (1)

4. Project outline

Instead of developing a project according to the workshop methodology (answering various questions –see below for details), the panel chose to promote and develop a comprehensive framework (following the workshop methodology) applicable to various ecosystem types. No priority was set on a particular ecosystem, as Pacific Island conceptions of environment and territories involve a connected view from mountains to coral reefs, through coastal, freshwater, forest or agricultural ecosystems. However, priorities for research in biodiversity and ecosystem management are likely to be to some extent different for marine, terrestrial and social/cultural systems. For each regional or local setting, one needs consider the relative importance of environment, economics, social and cultural issues and priorities.

The panel also noted that threatened and endangered species issues are of particular significance in the region. Such species are currently the focus of much research but there is need to put this species research into a wider context of ecosystems, social interrelations and processes. The message sent to EU is that EU should concentrate efforts where its S&T input can make the greatest difference.

The panel also emphasised involvement of local actors and institutions and mutual social learning as key for the success of a regional research call.

The following paragraphs give the panellists' answers to the questions defined in the workshop methodology.

Importance of this interest area for the Pacific:

The project call outline will give EU an opportunity to help address the shortage of S&T capacity and infrastructure in the Pacific and enable it to better address the current and future threats to its biodiversity and ecosystems (habitat destruction, invasive species, urbanisation, climate change, overharvesting, cultural degradation, etc…). The project call will promote cooperation in the Pacific region and provide assistance in order to protect and improve its environment and help ensure sustainable development for present and future generations. The Pacific is the world's largest ocean, and includes thousands of islands of varied shape and size, which support diverse cultures and are rich in natural resources. Islands are living laboratories for evolution and represent microcosms which highlight interrelations between human societies and natural ecosystems. PICTs exhibit **high population pressure, resource exploitation issues** and **development needs**. All the priority issues that emerged from the workshop are in accordance with **SPREP Strategic plan/framework** (biodiversity & ecosystem management section), **EU Biodiversity strategy**, **National biodiversity strategy** (such as Great Britain and France for Pacific OCTs), and Millennium Ecosystem assessment criteria which highlight urgent need for sub-global assessments…

Recent projects/research investigations that have taken place in this priority area:

Below, we have provided a brief and selective bibliography of work carried out in the region in relation to the ecosystem/biodiversity issue. The panel recommends that the PACE-Net board should address the issue of potential synergy and collaboration with ongoing work in a systematic manner and produce an comprehensive listing of major research projects that have been recently launched in the region.

In order to meet exercise requirements, a preliminary list of recent relevant works (known from the panel) has been produced: Customary land tenure in the Pacific (FAO), Sub-global assessment of coastal small islands and coral reef ecosystems in PNG (ANU/UPNG), Vulnerability of Pacific fisheries and aquaculture to climate change (SPC), Santo 2006 expedition (MNHN/IRD), Gap analysis on invasive species in Pacific region (Pacific Invasive Initiative), anthropological and ethno-biological works on biodiversity, natural resources management and local knowledge (Hviding in the Solomon Islands, Leach in PNG, among others).

From this justification and state of the art, the key research questions for the region are:

1) ECOSYSTEM KNOWLEDGE

Documenting local, scientific and other knowledge of ecosystems (and management) in the Pacific must be done on the base on a sound prioritisation. The Pacific offers a great scope for teams with S&T expertise across all the necessary disciplines. The panel pleads for the documentation of indigenous environmental knowledge and collaborative work between communities and external researchers. The objective is to develop a deeper understanding and

evaluation of local forms of knowledge, practices and management as regards natural resources.

2) ECOSYSTEM BENEFITS (GOODS & SERVICES)

Which ecosystem goods and services are at risk? Answering this question implies jointly taking into account the issues of traditional knowledge protection and benefit sharing. This includes sustainable resource use. A key issue is how to measure changes in ecosystems and the benefits of alternative management regimes

3) ECOSYSTEM MANAGEMENT

How do social institutions manage resource access and use, and ensure effective land use planning and management. The key issue for local communities is how to adapt longstanding resource tenure systems (both land and marine), so they can be maintained under new, and often destructive external pressure (resource extraction projects and population increase).

4) DRIVERS OF ENVIRONMENTAL CHANGE

The drivers of environmental change must be identified, emphasising commonalities across PICTs as well as country-specific features. One needs to go beyond the sole drivers' identification: there is a need to assess their changing impacts and propose recommendations and proposals about these changes.

Proposed research methodology:

The panel of experts estimated that research in the field of ecosystems/biodiversity should favour comparative multi-scale and multi-sites approaches, multidisciplinary integration combining social and natural sciences, local stakeholders' involvement, and (where appropriate) bottom up/community driven priority setting.

Who would be required to carry out the project?

A preliminary list of institutions and potential partners already involved in ecosystem/biodiversity issues in the region has been assembled. The list is already long but the panellists recommend that PACE-Net board review this list to ensure completeness.

Key research leaders / partners
ANU, National Marine Science Centre, James Cook University, GOPS, IRD, Landcare Research, University of Aberdeen, IAC and other OCTs Research institutions, Pacific studies centres in Europe, USP, UPNG, Institute of Papua New Guinea studies, National University of Samoa, Pacific students (Honours)…

Key Stakeholders and operational partners
Local governments, departments (development, agriculture, environment, culture …), SPREP, SPC, SOPAC, various NGOs…

Level of funding and project timeframe:

Funding

Answering this question was beyond the scope of the panel. Advice from, and dialogue with the European Commission is needed in this respect.

As a complementary source of funding to the research call, potential co-funding from the European Development Fund (on Research and Development issues) should be investigated.

Timeframe

A medium-long term involvement is necessary if one hopes to achive signficiant outcomes in the ecosystem/biodiversity and deliver significant benefits. The initial programme should be funded for a minimum of 5 years.

5. Objectives and expected impacts

Major outcomes that have been identified by the panel:

- increase scientific knowledge
- promote social learning
- providing policy-makers and environment practitioners with management tools
- mitigating of effects of climate change
- assisting development and policy decision-making at local and regional scales
- developing in-country capacities for analysing
- protecting and valuing natural substances (innovation promotion and technology transfer)
- increasing pacific S&T capacity and infrastructure in key areas.

Other opportunities for international collaboration

This preliminary list details international collaboration opportunities in the field of ecosystem/biodiversity. As already pointed out, the panellists recommend that the PACE-Net board produce an exhaustive list of the major international collaboration opportunities.

IUCN OCEANIA (such as red list update, invasive species issues…)
http://www.iucn.org/about/union/secretariat/offices/oceania/

Netbiome (ERANET) for OCTs (http://www.netbiome.org),

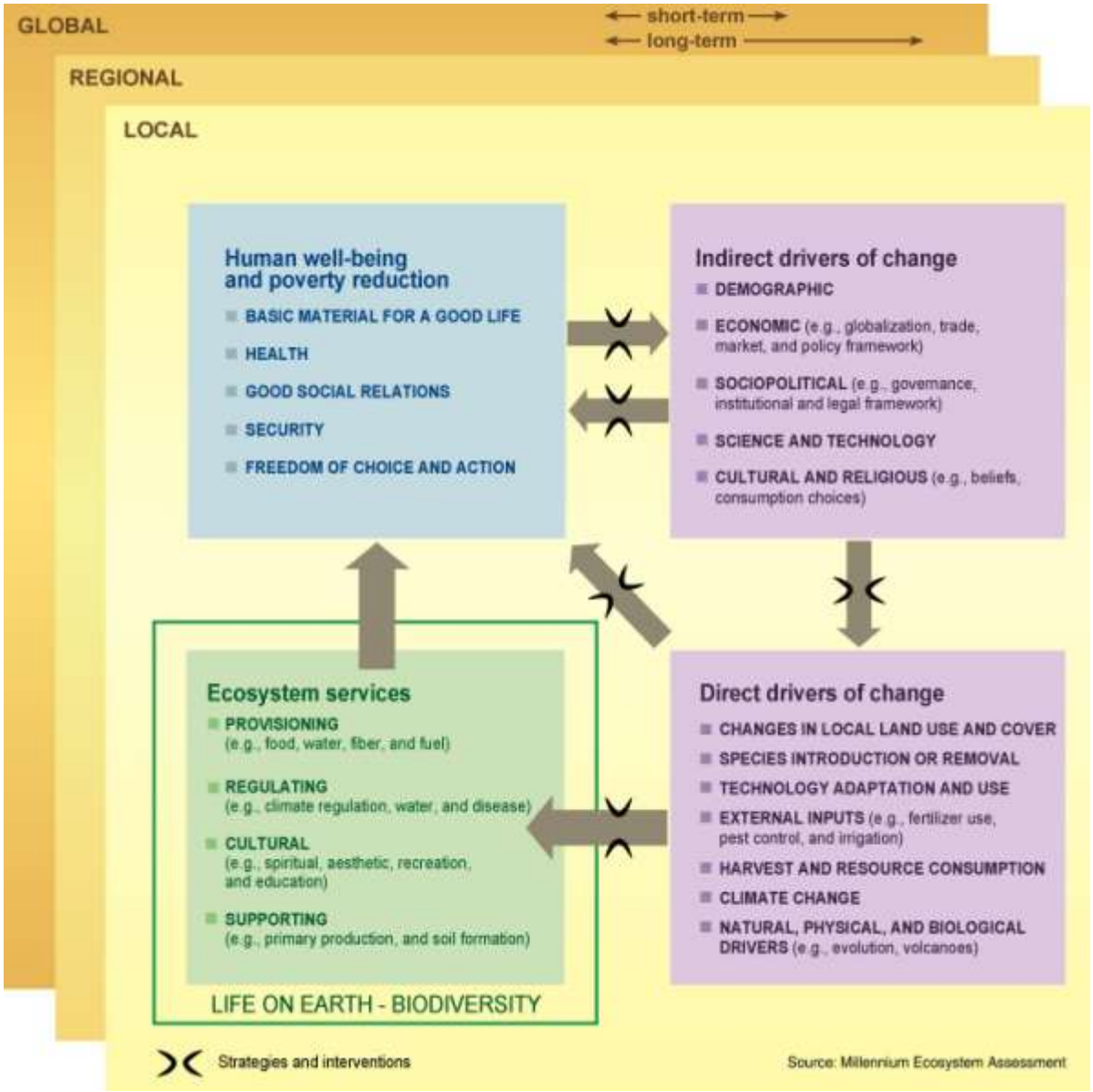
DIVERSITAS INITIATIVE (http://www.diversitas-international.org/),

Pacinet (http://www.pbif.org/PACINET/default.html),

Pacific studies Centres network in Europe…

Figure 1: Conceptual framework from Millennium ecosystem assessment

The expert panel considered this guideline as the most relevant of the research needs in the Pacific region as regards ecosystem and biodiversity issues. See http://www.maweb.org/en/index.aspx



VI. Provisional calendar

1. Experts consultation and validation of the report draft version

This draft report will be circulated among all experts of the workshop panel (until October 15. 2011 at the latest). The final report will be then submitted to Mr Armand Beuf (PACE-Net project officer at EC).

2. EC contacts

Lead by M. Beuf, a PACE-Net delegation should meet the concerned thematic Directorates in order to introduce the SICA proposals and the topics that should be prioritized. This initiative should be developed in March 2012, during the project second bi-regional platform, in Brussels.

Appendix 1: Selected bibliography on "Biodiversity – Ecosystems management"

Descola, Philippe 2005, *Par-delà nature et culture*, Paris: Gallimard.

Gudeman, Stephen 2001, *The Anthropology of Economy. Community, Market, and Culture*, London: Blackwell Publishing.

Hirsch, Eric and Marilyn Strathern (eds.) 2004, *Transactions and Creations. Property debates and the stimulus of Melanesia*, New York-Oxford: Berghahn Books.

Hviding, Edvard 1996, *Guardians of Marovo Lagoon. Practice, Place, and Politics in Maritime Melanesia*, Honolulu: University of Hawai'i Press.

Ingold, Tim 2000, *The Perception of Environment: Essays in Livelihood, Dwelling, and Skill*, London-New York: Routledge.

Kalinoe, L and J. Leach (eds.) 2001, *Rationales of Ownership: Transactions and Claims to Ownership in Contemporary Papua New Guinea*, New Delhi: UBS Publishers' Distributors Ltd (re-issued in 2004).

Leblic, Isabelle 2008, *Vivre de la mer, vivre avec la terre…. Savoirs et techniques des pêcheurs kanak du sud de la Nouvelle-Calédonie*, Paris: Société des Océanistes.

Malinowski, Bronislaw 1935, *Coral Gardens and their Magics. A Study of the Methods of Tilling the Soil and of Agricultural Rites in the Trobriand Islands*, London: Georges Allen & Unwin Ltd.

Nombo, Porer & James Leach, 2010, *Reite Plants: An Ethnobotanical Study in Tok Pisin and English*. Asia-Pacific Environment Monograph 4, ANU E-PRESS

Salomon, Christine, 2000, *Savoirs et pouvoirs thérapeutiques kanak*, Paris: INSERM-PUF.

Appendix 2: List of experts who participated in the workshop "Ecosystems management" in Brisbane, July 5-7 July 2011

First name	Last-name	E-mail	Organisation	Keywords	Short bio
Philip E.	COWAN	cowanp@landcareresearch.co.nz	Landcare Research (New Zealand)	- Biosecurity - Invasive species management - Biodiversity conservation - Application of new technologies to pest management - Research management	Leader of a team of 20 staff that includes researchers with expertise in wildlife ecology, wildlife management, animal welfare, modelling, molecular biology, immunology and toxicology. Our focus is on improved strategies and technologies for the management of invasive vertebrate species that impact on native biodiversity or agricultural production. Our aim is to develop approaches that are more cost effective, humane, and environmentally safer than current techniques. We work in New Zealand, the pacific and internationally. Much of our international work is focused on feasibility studies for and reviews of progress of island pest eradications
Colin	FILER	colin.filer@anu.edu.au	Resource Management in Asia-Pacific Program, ANU Crawford School of Economics and Government (Australia)	- Cultural and biological diversity - Socio impacts of extractive industry - Forest management and conservation policy - Customary land tenure & modern land policy - Traditional environmental knowledge	RMAP Program aims to play key role in regional and international networks of institutions which undertake or use research on the social, political and economic aspects of environmental and resource management issues in the Asia-Pacific region. Current staff and students mainly conducting research in four areas: (1) social and economic sustainability of extractive industry; (2) local knowledge, common property, and community practice; (3) climate change, natural hazards, and forest management; and (4) environmental policies, regimes and institutions. Primary regional focus on South Asia, Indo-China, Indonesia, Philippines, and Melanesia. My own research has been in PNG and rest of Melanesia.
Johanna	JOHNSON	j.johnson@c2o.net.au	C_2O coasts/climate/oceans & National Marine Science Centre (Australia)	- Marine tropical ecosystems - climate change vulnerability and adaptation - water quality monitoring and catchment management - fisheries research - marine protected areas	Marine research and monitoring primarily in tropical ecosystems, specialising in climate impacts and vulnerability assessment, climate change adaptation, coral reef monitoring, water quality and impact monitoring, fisheries research, capacity building, and providing practical management recommendations.
Hervé	JOURDAN	herve.jourdan@ird.fr	IRD Noumea (New Caledonia)	- Insular biodiversity - invasive species	Master & Post graduate diploma (DEA) in Ecology and Population Biology and PHD in Tropical ecology on the Ecological impacts of the

				- terrestrial ecology - insect communities - restoration ecology	spread of the invasive ant *Wasmannia auropunctata* in various New Caledonian terrestrial ecosystems. Postdoctoral fellow with the US001 ENBIOPAC, IRD Orléans/Nouméa (Tropical ecology, invasive species) & with *Institut de Recherche Biologie de l'Insecte,* Université de Tours (France) (Behavioural ecology, Chemical ecology). Lecturer at the P. Sabatier University Toulouse (France) (Tropical ecology, invasive species); Post-doctoral researcher for Applied Zoology Lab., IRD Noumea (Invasive ants and insect communities' ecology. **Since 2005**, **Research engineer** and **Head** of Applied Zoology Laboratory (IRD, Noumea). *Research focus*: Invasive process; invasive ant ecology, insect communities' ecology, Ant Taxonomy; Molecular phylogeny, evolution of endemism. Numerous field trips in/to the Pacific (New Caledonia, Vanuatu, French Polynesia, Fiji, Wallis and Futuna). More than 30 international scientific publications; 4 chapters in scientific books; scientific editor of one scientific book, 20 communications to international conferences; 3 international expertises on biological invasions in insular ecosystems (IRD/MNHN: New Caledonia, Espiritu Santo, Wallis & Futuna). **RESEARCH DIRECTION and REFEREEING:** 2 PhD. Thesis Co-advisor and Supervision of 17 university students in France (Master II). Regular referee for peer-reviewed International Journals, for national and international grant applications (ANR, Cech Academy of Science), Regular member of PhD Thesis Comities, in France and New Caledonia. Since 2006, Expert with the **Pacific ant Prevention Program** network held and support by the SPC (Secretariat of the Pacific Community) in Suva, Fiji.
Pierre-Yves	LE MEUR	pierre-yves.lemeur@ird.fr	IRD Noumea (New Caledonia)	- Politics - Policy - Natural resources governance - Development - Environment and local knowledge	Anthropologist. He has been working in the field of political and development anthropology for 20 years or so, first in West Africa and for a few years in the Pacific region (mainly New Caledonia) on land and mining issues, natural resource governance, environment and local knowledge. The team comprises two PhD students working on environmental governance in New Caledonia. Main current project: mining governance in New Caledonia (IRD/IAC/UNC/Melbourne University/Rutgers/EHESS-CNRS/CIRAD/ INSERM, funded by CNRT "Nickel and its environment"); local

					knowledge on biodiversity in the Marquesas Islands (with ADKC/IAC /IRD/CRIOBE; GOPS funding) Future project: Land policy in the Northern Province, NC (funded by French Agency for Development-AFD/Northern Province); local knowledge and biodiversity in Moorea, French Polynesia (funded by the government of Polynesia) He has recently published in *Politique de la terre et de l'appartenance. Droits fonciers et citoyenneté locale dans les sociétés du Sud* (2010, co-edited with Jean-Pierre Jacob) and *Anthropologie politique de la gouvernance. Acteurs, ressources, dispositifs* (2011).
James	LEACH	james.leach@abdn.ac.uk	University of Aberdeen (Scotland)	- Knowledge production and ownership	James Leach is Senior Lecturer and Head of the Department of Anthropology at the University of Aberdeen. He has undertaken long-term field research in Madang Province, Papua New Guinea, and in the UK with people utilising new technologies for collaborative knowledge production. His publications include: *Creative Land: Place and Procreation on the Rai Coast of Papua New Guinea* (2003) and *Rationales of Ownership: Transactions and Claims to Ownership in Contemporary Papua New Guinea* (2004).
Porer	NOMBO	c/o James Leach	Mit 1 District Local Government (Papua-New Guinea)	- Ethno-botanic (forest environments - Subsistence regimes, biodiversity and changes affecting these areas)	Porer Nombo is the Local Government representative (Komiti) for the villages of Reite, Sarangama and Marpungae in Mit 1 District on the Rai coast of Papua New Guinea; a position he has held since the early 1980s. He is recognised as a leading local authority on plants, healing and kastom. In 2009 Porer visited the UK at the request of the British Museum to assist the Museum with understanding the history and meaning of their collection from the North Coast of PNG and the future value of these collections to the people of Melanesia. He recently published with James Leach *Reite Plants: An Ethno-botanical Study in Tok Psiin and English* (2010).
Claude	PAYRI	claude.payri@ird.fr	Coral reef biocomplexity team (COREUS), IRD Noumea (New Caledonia)	- Biology and ecology of macrophytes associated to coral reefs. - Diversity magnitude analysis in coral reef macroalgae - Population outbreak and dynamics of macroalgae.	Prof. Claude Payri, Coral reef ecology and algae specialist at the University of French Polynesia since 1989, is seconded to the Noumea IRD research centre since 2004. She is head of a research team dedicated to the biocomplexity of coral reef ecosystem in the Indo-pacific region (www.ird/coreus). She leads a research programme dedicated to the marine flora of the Western Pacific and published various publications related to the taxonomy and the phylogeny of several algal groups. Current research is focused on interaction between macroalgae and corals as part of the ERANET-Netbiome

					programme. In addition, she led several scientific expeditions in the South Pacific region (Clipperton, Polynesia, Fiji, Wallis, Vanuatu, Solomon and New Caledonia) studying coral reef ecosystem and marine flora.
Morgan	PRATCHETT	morgan.pratchett@jcu.edu.au	ARC, Centre of Excellence for Coral Reef Studies, James Cook University, (Australia)	- Impacts of climate change on coral reef ecosystems - Population outbreaks of crown-of-thorns starfish - Population dynamics of *scleractinian* corals - Ecological versatility in coral reef fishes - Biology and ecology of butterfly fishes (*Chaetodontidae*)	Broad interests in population and community ecology of coral reef organisms, especially corals and fishes. Dr Pratchett's current research focuses on major disturbances that impact coral reef ecosystems, with a view to understanding differential responses and vulnerabilities among coral reef organisms. He has written several seminal papers describing direct and indirect effects of coral bleaching and outbreaks of crown-of-thorns starfish, considering impacts on both coral assemblages and associated assemblages of coral reef fishes. He has undertaken extensive field-based on Australia's Great Barrier Reef, but also in French Polynesia, Fiji, Papua New Guinea and southern Japan.