

Strengthening in-country tropical marine resources management training capacity in Papua New Guinea and the Solomon Islands

*Managed by The Nature Conservancy
as part of the Australian Government's support to
the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security*

Scoping study

Report for the Australian Government

Department of Sustainability, Environment, Water, Population and Communities

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Australian Tropical Marine Alliance

Coral Triangle Center

The Nature Conservancy



1 Executive Summary

Introduction

Developing local capacity in tropical marine resource management in support of the Coral Triangle Initiative (CTI) strategies has been among the highest priorities identified by six CT countries: Indonesia, Malaysia, Papua New Guinea (PNG), the Philippines, the Solomon Islands (SI), and Timor-Leste. The Australian Government is a Development Partner to the CTI and has funded several projects focussed upon capacity building, including training and education in PNG and the SI.

This report outlines the results of a scoping study for the Australian Government funded project: Strengthening in-country tropical marine resources management training capacity in PNG and the SI. It focuses on training and education priorities for the Solomon Islands and Papua New Guinea relating to tropical marine resource management.

Scoping study objectives

The objectives of the scoping study were to determine, for each country, the:

- Formal training in tropical marine resource management which is already available in country
- Formal training which is already being planned in country
- Formal training that has been done before and lessons learned
- Perceived training priorities
- Training/education institutes that are best placed to partner with (and would be interested)
- Target audiences for training, and
- Suggestions of the four most appropriate subjects to develop in this project.

Methods

The scoping study was conducted during April and May 2012 in both SI and PNG. In SI, the study team met with 27 representatives from 14 organisations involved in deciding training priorities for marine resource management and/or involved in delivery of training. Another three organisations (WWF, University of Queensland and the Coral Triangle Support Partnership, CTSP, via Conservation International, CI) provided input per email. In PNG, 25 representatives also from 14 organisations were met with and an additional two organisations (CTSP, CI) providing information per email¹.

Existing and planned formal training

Whilst there is much training already available and planned in both countries it was determined that much of the training, whilst formal, was not on-going nor linked with existing in-country training institutions. In addition, a significant list of training gaps was also identified per country (~91 topics were identified as missing in PNG and ~61 for SI) although there was overlap in many of the topics mentioned. Some of the perceived training gaps, particularly to do with generic skills (e.g. report

¹ Note: In addition, Dr Apelis, Deputy Secretary of the Department of Education, convened a meeting for us with another 16 of his staff members.

writing, leadership, negotiation) are currently available through, for example, the respective institutes in public administration in each country.

Priority topics

From this exploration, it was determined that the following four topic areas are priority training gaps for both countries and which will be addressed in this project:

- Ecosystem-approach to fisheries management
- Community-based marine resource management
- Management effectiveness
- Integrated ecosystem-based management

These topics were the ones that were mentioned most repeatedly in the scoping studies (and available documents) for both countries AND were considered important gaps in both countries.

Partner institutions

Based upon the scoping study, the main partner teaching institutions that this project will work with in the Solomon Islands will primarily be SNR at SICHE, however, the project will require collaborations also with other teaching institutions such as USP, IPAM and the Curriculum Development Centre within the Department of Education.

In PNG, the main teaching institutions we aim to partner with will be NFC and UPNG with, also, close collaboration with UNRE, IPA and the TVET Division of the Department of Education.

Target audience

The first priority for a target audience for training in this TOT project are, in the Solomon Islands, SNR staff, provincial Fisheries Officers and Extension Officers, one trainer from IPAM and those NGO trainers who are delivering programs for MECDM, Fisheries and SILMMA who would benefit from up skilling in the proposed topic areas. The relevant NGO trainers may be employed with TNC, WWF, Live and Learn, WorldFish, FSPI, SIDT depending on the topic. Other target trainers, if space allows, include interested leaders of established CBOs, teachers in relevant Training Centres and relevant teacher trainers with expertise in Studies of Society and the Environment and Science from the CDC who teach specialist high school teachers, deputy principals and principals in those specialised topic areas.

In PNG, the target audience will primarily be those staff without the relevant training at UPNG, UNRE, NFC, provincial fisheries officers, TVET staff, potentially one trainer from IPA, and NGO trainers who wish to deliver training to communities. NGO trainers may be employed by TNC, WWF, WCS or MND depending on the topic. Other trainers to target, if space allows, include interested leaders of established CBOs, specialised high school teachers or those developing and teaching curriculum for the high schools.

In both countries, for the more holistic ecosystem-based management training, the priority audience will be broadened to include developers and key staff from the Ministries responsible for mines and forestry.

We will also deliver all our materials to the Curriculum Development Centre (in Solomon Islands) and the Department of Education (in PNG) who will use it to include in (or supplement) their curriculum in both schools and vocational training centres.

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2 Acknowledgements

We would like to acknowledge the assistance and contributions made by all those who gave of their time during this scoping study including everyone we met with in Papua New Guinea and the Solomon Islands (please see Appendix 1 for list of names). In particular, we would like to acknowledge the assistance offered by the in-country TNC offices in Solomon Islands (Willie Atu, Seno Mauli, Iris Parisuri) and PNG (Barbara Masike and Kay Robinson) and also special thanks to Jeff Kinch, Paul Lokani and Augustine Mungkaje for their input and assistance.

3 Acronyms and abbreviations

ADB - Asian Development Bank
AIMS – Australian Institute of Marine Science
Alliance – Australian Tropical Marine Alliance
CBA – community-based adaptation
CBO – community-based organisation
CBFM – community-based fisheries management
CBRM – community-based resource management
CC – climate change
CDC - Curriculum Development Centre, Ministry of Education, Solomon Islands
CDU – Charles Darwin University
CT - Coral Triangle
CTC – Coral Triangle Centre
CTI - Coral Triangle Initiative
DEC – Department of Environment and Conservation, Papua New Guinea
EAFM – ecosystem approach to fisheries management
EBFM – ecosystem-based fisheries management
FSPI - Foundation of the Peoples of the South Pacific International
ICZM – Integrated coastal zone management
IPAM - Institute of Public Administration and Management, Solomon Islands
IPA – Institute of Public Administration, Papua New Guinea
Fisheries - Ministry of Fisheries and Marine Resources, Solomon Islands
JCU - James Cook University
LLG- Local Level Government, Papua New Guinea
MECDM - Ministry of Meteorology, Environment, Climate Change and Disaster Management, Solomon Islands
MLCL - Melanesian Non-Government Organisation Center of Leadership
NFA – National Fisheries Authority, Papua New Guinea
NFC – National Fisheries College, Kavieng
NGO – non-government organisation
NRI – Papua New Guinea National Research Institute
PNG - Papua New Guinea
PNG-CLMA – Papua New Guinea Centre for Locally Managed Areas
SEMRICC - Strengthening Environment Management and Reducing the Impacts of Climate Change Project
SI - Solomon Islands
SICHE - Solomon Islands College of Higher Education
SIDT - Solomon Islands Development Trust
SILMMA - Solomon Islands Locally Managed Marine Areas
SNR- School of Natural Resources, Solomon Islands College of Higher Education
SPREP – Secretariat of the Pacific Regional Environment Program
TVET – Vocational or Technical Education Training Centres, Solomon Islands
TNC- The Nature Conservancy
TOT – training of trainers
UNDP - United Nations Development Program
UNEP – United Nations Environment Program
UNRE – University of Natural Resources and Environment (used to be University of Vidal)
UPNG – University of Papua New Guinea
UQ – University of Queensland

USP - University of the South Pacific
UWA – University of Western Australia
WCS – Wildlife Conservation Society
WWF - World Wide Fund for Nature

4 Introduction

Developing local capacity in tropical marine resource management in support of the Coral Triangle Initiative (CTI) strategies has been among the highest priorities identified by six CT countries: Indonesia, Malaysia, Papua New Guinea (PNG), the Philippines, the Solomon Islands (SI), and Timor-Leste. The Australian Government is a Development Partner to the CTI and has funded several projects focussed upon capacity building, including training and education in PNG and the SI.

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4.1 Project objectives

Based upon in-country consultations by the Australian Government, this project has been developed to address training gaps in PNG and the Solomon Islands. The project objectives are to:

I. **Develop tailored training packages / curricula based on input from scoping studies**

Four training packages will be developed and finalized based upon local input as part of the project's scoping phase, to ensure alignment with priority local needs. These training courses will be designed to be delivered within local institutions, again, being informed by the scoping phase.

II. **Conduct Training of Trainers (TOT) in PNG and SI at local institutions**

Rather than providing training direct to students at these local institutions, this project aims to bolster the capacity of staff the institutions themselves. Therefore our target audience, for this training of trainer project will include:

- Formal Trainers: existing teachers and trainers
- Informal Trainers: influencers, mentors, leaders, managers from government and community-based organizations

4.2 The project team

The project team comprises:

- the Australian Tropical Marine Alliance (the Australian Institute of Marine Science, Charles Darwin University, James Cook University and the Universities of Queensland and Western Australia) via the host organization, James Cook University,
- the Coral Triangle Center (CTC) and
- The Nature Conservancy (TNC).

Team leaders per institution are:

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The project team proposes to work with country partners to initiate and deliver new, tailored and purpose-driven tropical marine resource management training to local trainers.

5 Methods

5.1 Data sources

Human resource capacity building needs and requirements for the CTI have been expressed, to some degree, in various documents and *fora*. We extracted information provided in the available documents and material prior to conduct of the field trips (see References).

This information was collated then summarized and systematically (albeit subjectively) analysed to extract information about formal training which has been done, is available and is planned as well as lessons learned. This information also provides insights to stated priorities of government agencies and others for capacity building. The government agency views include those represented on the respective CTI National Coordinating Committee, for example, in the case of those capacity building needs identified in the National CTI Plans of Action.

5.2 Consultations conducted

The written information collated and analysed in a draft of this report was used as a basis for consultations conducted within countries. It provided both background to our communications with key players within countries and also informed those communications.

In our consultations, open-ended semi-structured interviews were conducted which focussed upon the topics of:

- Formal training which is already available in country
- Formal training which is already being planned in country
- Formal training that has been done before and lessons learned
- Perceived training priorities
- Training/education institutes that are best placed to partner with (and would be interested)
- Target audiences for training
- Suggestions of the most appropriate subjects to develop in this project

Formal training, for the purposes of this project, refers to teacher: student training situations where curriculum is delivered. Therefore, it does not include, for example, mentoring, workplace learning, conferences, work exchanges, learning-by-doing (unless within a curriculum-based training situation), study tours, secondments, delivery of information/materials without a training dimension, use of networks or road shows.

In April-May 2012, consultations were conducted with representatives of the following institutions:

Solomon Islands

- Asian Development Bank (ADB)
- Coral Triangle Support Partnership (CTSP)
- Curriculum Development Centre (CDC), Ministry of Education
- Foundation of the Peoples of the South Pacific International (FSPI)
- Institute of Public Administration and Management (IPAM)

Live and Learn

Ministry of Fisheries and Marine Resources (Fisheries)

Ministry of Meteorology, Environment, Climate Change and Disaster Management (MECDM)

Solomon Islands College of Higher Education (SICHE), School of Natural Resources (SNR)

Solomon Islands Development Trust (SIDT)

Solomon Islands Locally Managed Marine Areas (SILMMA)

The Nature Conservancy, Solomon Islands Field Office (TNC, SI)

United Nations Development Program (UNDP)

University of the South Pacific (USP), Solomon Islands Campus

WorldFish Center

World Wildlife Fund for Nature, Solomon Islands Field Office (WWF)

Papua New Guinea

Conservation International (CI)

Curriculum Development and Assessment Division, Department of Education

Department of Environment and Conservation (DEC)

Institute of Public Administration (runs PNG Education Institute)(IPA)

Mama Graun Conservation Trust Fund

Mahonia Na Dari (MND)

National Fisheries Authority (NFA)

National Fisheries College (NFC)

PNG Community-based Locally Managed Areas (PNG-CLMA)

Seaweb (officer here was MND for 5 years until this year)

Technical and Vocational Training Division, Department of Education

The Nature Conservancy, Papua New Guinea (TNC, PNG)

University of Natural Resources and the Environment (UNRE)

University of Papua New Guinea (UPNG)

Wildlife Conservation Society (WCS)

World Wildlife Fund for Nature, Western Melanesia Office (WWF)

For full list of individuals consulted see Appendix 1.

5.3 Qualitative data analysis

All documents sourced (see References) were reviewed and data extracted that were relevant to the scoping study requirements, namely:

- Formal training which is already available in country
- Formal training which is already being planned in country
- Formal training that has been done before and lessons learned
- Perceived training priorities
- Training/education institutes that are best placed to partner with (and would be interested)
- Target audiences for training
- Suggestions of the four most appropriate subjects to develop in this project

For every interview conducted, meeting notes were taken and sent back to interviewees (per email) to confirm their veracity. Then, information was extracted from each of these interviews to inform results against each of the scoping study requirements as listed above.

In both cases, additional relevant information was extracted from documents and interviews pertaining to best training media and materials to use and an appropriate partnership process to adopt in delivery of the project.

Key findings against every topic listed above were compiled for each country and returned, without attribution, to interviewees. The interviewees were asked, per email, to review the results, asked if they agreed to their name being included in a report that discussed these findings (although not individual interview results), told that they would receive a copy of the final report and the next steps of the process were explained, namely:

Scoping studies complete:	May	2012
Country partners and curriculum needs identified:	May	2012
Draft curriculum for first subject area developed:	July	2012
Deliver first subject curriculum to trainers as a trial:	Mar	2013
Curriculum developed for all four subjects:	July	2013
Delivery of curriculum in all four subject areas:	Oct	2013
Support inaugural delivery of new curriculum by in-country trainers:	Jan	2014

6 Review of existing training needs assessments prior to scoping trips

Independent of this project, PNG and the SI have both undertaken extensive processes, consultations and communications to identify and communicate their priority training needs with regard to tropical marine resource management. We summarise that information here (see also Methods Section 5.1.). This information was used as background to discussions during the scoping phase of this study.

Note that communication skills, governance issues, enforcement as well as generic workplace skills were identified as priority training gaps that impede successful marine resource management occurring within countries. Therefore, for completeness sake, these training gaps are included in this scoping report. For the purposes of this project, however, priority topics must be identified from within the more technical tropical marine resource management training gaps.

Some of the training needs identified from existing documentation were then reconfirmed during discussions during the scoping trip whilst others were not (see Section 6.2 for topics identified as priorities during the scoping trips for this project).

6.1.1 Training needs identified by Papua New Guinea and Solomon Islands in documents

The materials reviewed prior to the scoping study field trips identified that the following training needs to be shared by Papua New Guinea and the Solomon Islands (sources include SI CTI National Plan of Action, PNG Marine Program, Regional Plan of Action, Australian Government CTI Workshop held in Townsville in November 2008). Note that the information reviewed does not offer priorities for these training needs and the list presented here is in no particular order but are grouped into related topic areas:

Resource management topics

- Understanding of the importance of marine and coastal resources (to promote local stewardship)

- Integrated marine and coastal resource management along many dimensions (including MPAs {e.g. benefits of MPAs, planning, zoning, policy review, participatory methods including community entry/exit, sustainable financing, cost recovery, management evaluation, enforcement, management of resource conflicts}, ecosystem-based fisheries management {planning, input and output controls, by-catch reduction}, addressing climate change, threatened species management and how to integrate all these)

- Tuna management including national and trans-boundary controls

- Seascapes

- Climate change mitigation and adaptation measures

- Climate change policy development and policy coordination (e.g. integrate climate change into MPAs, EAFM)

Policy development and/or implementation for conservation of shark, turtle, sea birds, marine mammals, targeted and threatened reef fish, targeted and threatened invertebrates across CT6

How to document and apply traditional knowledge in marine resource management

Monitoring including management impacts upon Regional CTI PoA goals, objectives, targets (e.g. MPAs, cetaceans, turtle nests; use of biodiversity indicators such as status of threatened species in MPAs, marine Key Biodiversity Areas, seascapes)

Marine science (natural and social science)

Fishing gear selectivity and substitution

Fishing pressure

Role of “no-take replenishment zones” in fisheries

Economic benefits of MPAs

Climate change impacts (e.g. vulnerability assessments, Bleachwatch)

Communication topics

Communication/consultation (including engagement with various audiences and public relations, development and application of communication products)

Ability to effectively contribute to international *fora* that pertain to tuna management

Support and information networks for conservation of shark, turtle, sea birds, marine mammals, targeted and threatened reef fish, targeted and threatened invertebrates across CT6

Governance/enforcement topics

Enforcement (including enforcement planning, coordination, patrolling, detection, arrest, prosecution, conviction, payment of fines/penalties). This includes training for the judiciary and for communities on surveillance.

Illegal, unreported and unregulated fishing (IUU) at international, national and local scales

Governance (at national and local levels including agency responsibilities, cross-sectoral and multi-level governance issues)

Institutional arrangements (including organisational strengthening including fund-raising, self-assessment, team building, leadership, networking, collaboration)

Co-management of MPAs

Models of sharing the economic benefits of MPAs with local communities

Sustainable financing mechanisms (including how to write grant proposals) e.g. for MPAs

Development/alterative livelihood topics

Ecotourism

Mariculture/aquaculture

Alternative livelihoods

Sustainable livelihoods (e.g. scaling up around MPAs)

Export marketing approaches

Fish storage techniques

Financial planning and management

Value-added fish processing

6.1.2 Papua New Guinea

Some specific technical or skill gaps identified in documents as being important for Papua New Guinea, in addition to those shared with the Solomon Islands (listed above) were identified (e.g. from PNG Marine Program policy document). Note that the information provided does not offer priorities for these training needs and the list presented here is in no particular order but are grouped into related topic areas:

Resource management topics

- Fisheries status and management (including, but not limited to, tuna, LRFF, ornamental fisheries)
- Promote protection of key spawning areas for tuna (e.g. former Mogardo square), LRFF, ornamentals
- Conservation of seagrass, mangroves and nationally identified threatened species
- Environmental assessment
- Biodiversity of PNG (including biodiversity “hot spots”, locations of rare or threatened species or habitats)
- Socio-economic monitoring

Marine Science (natural and social science)

- Fishers understanding of the importance of protecting juvenile tuna
- Marine science including biology, ecology, conservation
- Sampling design including data: collection, storage, management, analysis, modelling
- Economic and other benefits of the environment

Communication topics

- Social marketing
- Public speaking

Governance/enforcement topics

- Law (especially fisheries law but also other relevant laws, regulations, policies in-country and UN conventions/agreements)
- Community rights and responsibilities

Development/alterative livelihood topics

- Sustainable livelihoods (e.g. product quality)
- Business planning and management (esp. for fisheries co-operatives)
- Marketing

Generic skills

- Skill to harness resources to support required capacity building
- Leadership training
- Human resource management training
- Project planning and management
- Cost-benefit analysis

Report writing
Facilitation
Negotiation/consensus building
Conflict resolution
Scuba diving

6.1.3 Solomon Islands

Some specific technical or skill gaps identified, from documents prior to the scoping study's field trip, as being human resource capacity gaps for the Solomon Islands, in addition to those shared with Papua New Guinea, include a broad range of fields (e.g. SI CTI National Plan of Action) . Note that the information provided does not offer priorities for these training needs and the list presented here is in no particular order but are grouped into related topic areas:

Resource management topics

Community-based fisheries management including: an ecosystem approach; potential climate change impacts to marine resources; threatened species management
Community-based protected areas including: an ecosystem approach; potential climate change impacts to marine resources; threatened species management
Data management and analysis
Monitoring and evaluation
Promotion of mangrove/coastal forest planting
IUCN Red Listing

Governance/enforcement

Fishing regulations (size limits, restricted gear, sale of under-sized fish, community management plans)

Generic skills

Financial management

6.2 Training needs based on field trip findings

6.2.1 Papua New Guinea

From communications conducted during the field trip for this scoping study, some of the training needs identified are already available, for example, IPA provides training in conflict resolution, financial management, organisational administration, human resource management, accounting, leadership, computing and technology. None-the-less, all training needs mentioned as gaps that pertain to all aspects of tropical marine resource management are listed here. Note that the information provided did not offer priorities for these training needs and the list presented here is in no particular order but are grouped into related topic areas.

Training needs specifically mentioned by staff of government agencies are identified with an asterisks(*)).

Resource management topics

- Integrated catchment management /ecosystem-based management (could use New Britain with the palm oil as a case study) – training should be cross-sectoral; aligns with PNG's Medium-Term Development Plan which is cross-sectoral*
- Spatial planning to designate development activities (current and future) as well delineating areas for conservation for ecosystem-based services– training should be cross-sectoral; aligns with PNG's Medium-Term Development Plan which is cross-sectoral*
- Ecosystem-based management (across terrestrial and marine)/ICZM*
- Ecosystem approach to fisheries management including especially how to implement it*
- Community-based fisheries management*
- Environmental impact assessment
- Stock assessment – so that a trained stock assessment team to help communities (and NFA if necessary)*
- Management of LMMAs
- Marine resource planning and management tools*
- Fisheries management including fisheries biology esp. for provincial fisheries officers*
- Monitoring management effectiveness esp. fisheries management e.g. impacts of IFADs upon coastal marine resources*
- Community-based monitoring and management effectiveness especially socio-economic aspects
- Marine Protected Area training*
- An understanding of climate change should be part of any marine resource management training*

Marine science (natural and social science)

- Biology and management of marine resources more generally*
- Data collection, management (including data entry), analysis (statistics) and interpretation for monitoring*
- Sampling design*
- Coral Finder training (for the new Version)
- Impacts of destructive fishing (e.g. use of dynamite, poison)*
- Basic biology and ecology for provincial fisheries officers so they understand the need for fisheries management although there is an argument that, where NGOs are located, this basic training has already been provided
- Socio-economic context of, and human behaviour pertaining to, marine resource management
- Academic writing and publishing

Governance enforcement topics

- Social mapping – with particular regard to which groups own which bits of land/sea*²
- Monitoring, control, surveillance (MCS) i.e. to do with compliance*
- Training in compliance for fishers (i.e. what are the rules and regulations that need to be followed)
- National and international regulations and implications for PNG fisheries (for managers) e.g. the European Illegal, Underreported and Unreported regulations and the

² DEC has a person who is good at this

implications for market access; fisheries trade agreements; implementation and compliance requirements for the Western Central Pacific Fisheries Commission Conservation and Management Measures; developments within the Parties to the Nauru Agreement group in relation to fisheries management and compliance.
Para-legal training for communities so they understand their legal rights
Policy development*

Development/alterative livelihood topics

Alternative livelihoods e.g. aquaculture, building traditional FADs
Value-adding to seafood production*

Generic skills

Project proposal development (to apply for funding)
Report writing*
Proposal writing
Fund raising
Leadership program for communities to deal with technology, impacts of development, etc.
Financial management*
Organisational administration*
Dispute resolution*
Human resource management*

A number specific training needs for the PNG fisheries sector were identified, particularly in the Kinch and Carnie (2011) study. Where they are directly relevant to the management of fish stocks, they are listed above. Some of the training identified pertained more to fisheries development which is outside the scope of this study e.g. purse-seine crew training; mariculture/aquaculture training; value-adding to fishery products via better post-production handling.

6.2.2 Solomon Islands

Some of the training needs mentioned during consultations with representatives from Solomon Islands institutions are either already available or planned (see Section 7.3). For example, training in report writing and in how to teach is available through IPAM, GIS training is being planned by UNDP, training in climate change has been provided through the Coral Triangle Support Partnership's Regional Exchanges and is now being delivered, in turn, at SNR in SICHE. None-the-less, all training priorities identified as gaps are listed here for completeness. Note that the information provided in consultations did not offer priorities for these training needs and the list presented here is in no particular order but are grouped into related topic areas.

Training needs specifically mentioned by staff of government agencies are identified with an astericks(*)).

Resource management topics

Integrated coastal zone management/ecosystem-based management (to help address downstream impacts of, for example, logging and mining)*

Community-based resource and or fisheries management (including how best to enter/exit communities, how to conduct consultations, communication, participatory techniques) including writing management plans*

Management effectiveness*

Ecosystem-based fisheries management*

LMMA/marine protected area planning and management (step by step including explanations of why it's needed, threats)*

Coral Triangle Initiative

Generic vulnerability assessment of coastal communities (not focussed on climate change)*

Pollution management

Waste (including sanitation) management

Management of mining and logging impacts*

Social and economic aspects of resource management (including payment for ecosystem services, value chain analysis)

Marine science (natural and social science)

Data management (although this was usually linked to GIS training)*

Data analysis*

Traditional knowledge*

Ethnobiodiversity*

Coral reef ecology*

Coral reef impacts

Species identification, for example, for the licensing section and also if writing a management plan*

GIS*

Governance enforcement topics

Compliance*

Rules, regulations, laws, policies in place (or needed) to support resource management

Generic skills

Report writing*

Research skills*

Extension (communication, consultation, participatory methods)*

7 Planned and existing formal training

7.1 Existing formal training in Papua New Guinea

Whilst there are many formal and informal training entities within PNG (approximately 17³ and 46 respectively) few provide, or are planning to provide, sustained training in key aspects of tropical marine resource management. All these training entities are, however, likely to offer some training of potential relevance (e.g. project management, scuba diving, teacher training); these are not explored in this document.

Those involved in marine resource management with regard to directing training priorities, delivering training or receiving training in PNG and the relationships between them are illustrated in the following figure.

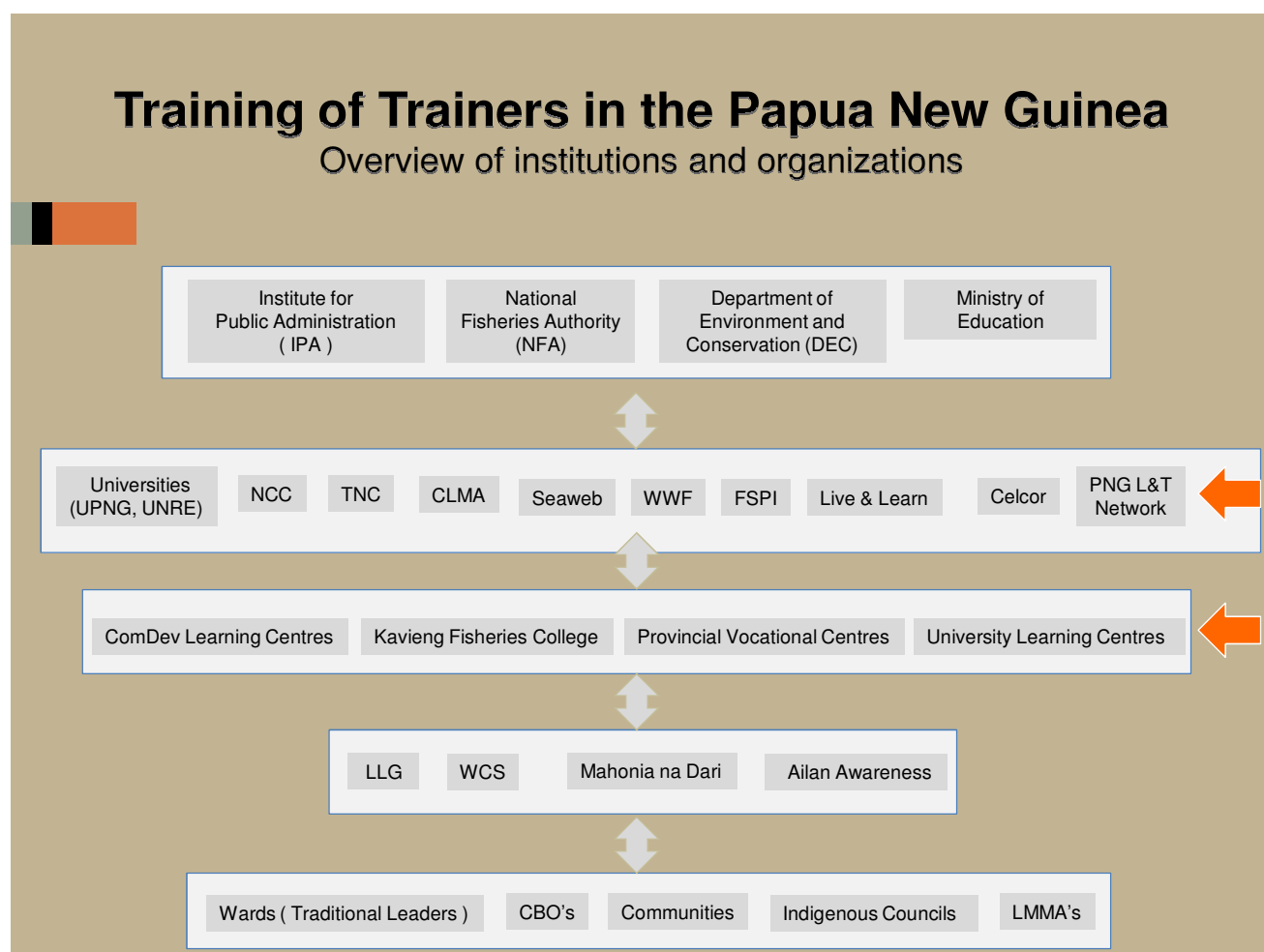


Figure 1. Main organisations/groups in PNG involved in directing marine resource management training priorities, delivery of training or end-users of training. Arrows indicate main target areas for this project. For abbreviations, please see list of acronyms at start of document.

³ Includes UPNG, PNG University of Technology, Pacific Adventist University, UNRE, Divine Word University, University of Goroka

The main sources of formal, ongoing training in tropical marine resource management in PNG are the National Fisheries College at Kavieng (who work in partnership with the University of Natural Resources and the Environment in East New Britain) and the University of Papua New Guinea (main campus is in Port Moresby).

7.1.1 National Fisheries College

Here we provide a list of relevant subjects offered at the National Fisheries College in collaboration with the University of Natural Resources including through its Environment Diploma/Degree in its Fisheries and Marine Resources program. These subjects focus on the conduct of fisheries and aquaculture businesses with some training in tropical marine resource management. They are listed in no particular order.

Year Two level

Computing, Reporting and an Introduction to Projects

The Project Proposal and Reporting module is intended to give students knowledge of the requirements for a coherent and persuasive proposal to secure grants and/or funding of community, stakeholder, or NGO initiatives concerned with marine and fisheries management issues.

Biology of Fishes

Introduction to Aquatic Ecosystems

Aquatic Invertebrates

The focus is on major groups of exploited aquatic invertebrates.

Introduction to Aquaculture

Introduction to Fisheries & Marine Resource Management

In this course students will be introduced to the basic fundamentals of fisheries management. They will be guided to understand and appreciate why we need to manage fisheries and marine resources. This subject will also consider in detail fisheries management and regulation processes including the appreciations of the vital components of a Fisheries Management Plan. Finally, the concepts of ecosystem-based fisheries management and community-based fisheries management will be introduced.

Community Based Fisheries Management and Extension

Introduction to Small Fishing Operations

Introduction to Commercial Fisheries and Technology

Introduction to Post Harvest Operations

Introduction to Fisheries Law and Policy

Fisheries Monitoring and Statistics

Year Three

Work Experience Attachment Project (semester-long)

This subject involves a problem solving off-campus study under contract with an industry/NGO/provincial fisheries & organization's client. It is a substantial piece of work is conducted by the student over a 4-6 month period.

Introduction to Fisheries Business

Introduction to Marketing

Advanced Commercial Fisheries Operations

Advanced Post Harvest Operations

Advance Aquaculture

Fisheries Oceanography

7.1.2 University of Papua New Guinea

The School of Biological Sciences at UPNG offers a solid foundation in biology including subjects that broaden the base of knowledge of students and subjects that offer complementary skills to the core materials. They offer the following subjects which are listed in no particular order:

Year One

Organism structure and function

Foundation mathematics

Physics

Chemistry

Computer literacy and numeracy

Communication and life skills

Science communication

Civics and ethics

Year Two

Physical geology

Introduction to ecological processes

Origin and diversity of life

Introduction to cellular processes

Introduction to Geographic Information Systems and remote sensing

Introduction to genetics and evolution

Statistical methods

Civics and ethics

Introduction to business administration

Introduction to government management

Elements of public administration

Information literacy

Law and society

Computer applications software

Accounting for non-accountants

Year Three

Invertebrate biology

Vertebrate biology

Biometry

Ecological dynamics

Microbiology

Approached to ethnobiology

Remote sensing techniques and applications

Plant biology

Physiological ecology of animals

Work experience

Year Four

Research techniques and skills

Evolutionary processes

Advanced Geographic Information Systems and remote sensing

Freshwater ecosystems and management

Marine ecosystems and management

Conservation biology and protected areas

Fundamentals of applied entomology

Applied microbiology

Principles and practice of taxonomy

Biochemistry

Biodiversity and nature conservation strategies

Terrestrial ecosystems and management

Research project

UPNG's School of Business also offers a Masters in Business Administration that has generic skills subjects of use to supporting resource management capacity building.

The university's provincial Centres provide a potential platform for some of this (and other, future) training.

7.1.3 University of Natural Resources and the Environment⁴

In terms of marine resource management, this university teaches community-based resource management (using a contractor from Ailan Awareness) and fisheries management. They also have lecturers in aquaculture. There are three marine-oriented staff conducting this training and they collaborate, in teaching, with NFC. The topics they teach at NFC are included under Section 7.1.1.

7.1.4 Other existing training in PNG

7.1.4.1 Mahonia Na Dari⁵

There is a marine environment education program (MEEP) provided by Mahonia Na Dari for primary and high school students. Although focussed on Kimbe Bay communities, many other PNG schools have also taken advantage of this training.

7.1.4.2 PNG Centre for Locally Managed Areas

The PNG Centre for Locally Managed Areas (PNG-CLMA) is an independent network of local communities working on management of their marine and/or terrestrial country as well as government, local, national and international NGOs and others supporting their efforts. They facilitate communications between these groups for mutual support and learning. They have a new

⁴ Used to be University of Vidal

⁵ Most NGO training provided or planned (and discussed here) is only available in the geographies where those NGOs work e.g. Port Moresby, Kimbe Bay, Milne Bay, Manus, Kavieng.

Learning and Training Network specifically focused on building capacity in communities through training and learning projects.

The operations of the PNG-CLMA are linked to the country’s Marine Plan (which is PNG’s national CTI Plan of Action) as illustrated in the following figure.

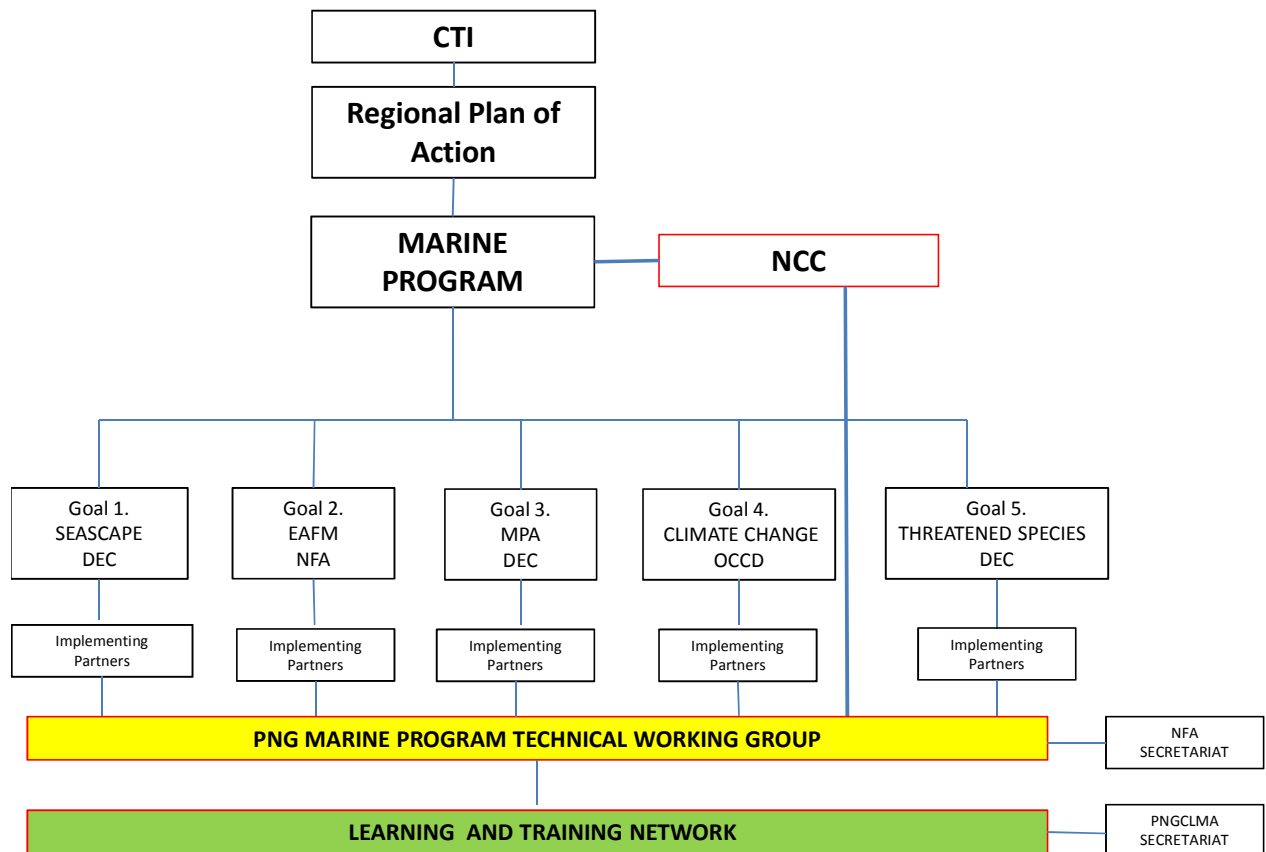


Figure 2. The relationship between the PNG-CLMA and its Learning and Training Network and the PNG Marine Plan (National CTI Plan of Action). For acronyms, please see list of acronyms at start of document.

PNG-CLMA developed 8 training modules in partnership with Unitech (NZ) and support from Packard including 1) NGO culture and values; world trends; 2) community funding; 3) leadership and negotiation skills; 4) financial management for non-accountants; 5) good governance; 6) ethical management of change; 7) life work balance; old and new theories; and 8) peer/mentor relationships, confidentiality and management practices.

7.1.4.3 Melanesian NGO Center of Leadership (MNCL)

Melanesian NGO Center of Leadership (MNCL) has a focus on strengthening local NGO leadership and management skills by blending Melanesian culture with western management programs. These are certified programs mainly supported by NZAID.

7.1.4.4 *Ailan Awareness*

Ailan Awareness is a local NGO specialized in marine conservation outreach and training for local communities and students. They conduct the community-based resource management training at UNRE. They have learning facilities at the beach.

7.1.4.5 *CELCOR*

Conservation and the Law and Community Rights NGO (CELCOR) does training with communities on their rights and environment/conservation law.

7.1.4.6 *Wildlife Conservation Society Marine Training Courses*

In 2011, WCS offered a revised version of their previous Marine Training Course which addressed:

- Climate change impacts on marine ecosystems
- Adaptation to climate change
- Corals and coral reef ecology
- Tropical marine fishes
- Tropical marine invertebrates
- Mangrove ecosystems
- Seagrass ecosystems
- Sampling design and statistical methods
- Case studies on community-based coastal resource management
- Ecosystem-based fisheries management

WCS also has offered recent training in Marine Biological Monitoring.

Some of their training is accredited through UPNG. This will be offered on an *ad hoc* basis depending on available funding.

7.1.4.7 *Public servant training*

At the Institute of Public Administration (IPA) there is National Certificate level and Diploma level training in public administration, local level government, accounting, HRM, human resource development, middle management and computing. This includes training in leadership, social research methods, public policy, project management, financial management, LLG and Ward planning, governance, supervision skills, basic accounting, conflict resolution, budgeting, quantitative methods, communication skills, analytical report writing, data information management, OH&S, management planning, facilitation and presentation, training and assessment, and more.

These can be taught as short courses or semester-long units. The cost is K500-K800 per unit depending upon the subject and level. The training is provided at 4 centres: Port Moresby, Raboul, Madang and in the Highlands (this latter is closed at the moment).

All public servants receive a one-week standardized induction at the start of their job via IPA. This training includes aspects of local government, law, parliamentary processes etc. It is being reviewed at the moment in line with the Government's new focus on competency-based training and assessment.

7.1.4.8 Community Development Service human resource management training

The government's Community Development Service asked AusAID to develop a training manual for human resource management. AusAID's Community Development Program provided this resource in 2007 and we were told that it has been used by the Community Development Service in training community organizations since then.

7.1.4.9 School curriculum

In lower level primary school (grades 3-5) Environmental Studies include terrestrial and marine studies. It is outcomes based but there is a need for teaching resources that link to those outcomes. The resources are missing. The curriculum itself appears to be adequate but the teaching is very general.

In upper primary school (grades 6-8) there is Environmental Studies in the Science curriculum but there are no resources to support this teaching. Primary school teachers lack the knowledge in these topics and it's hard, then, for them to find and then use the resources.

At the primary school level, marine resource management can also fit within Culture and Community. Materials developed by this project could fit here. Elementary School teachers could be trained in this.

At the secondary school level, there is an Applied Natural Resource Management syllabus that includes forestry, fisheries (including fisheries management) and tourism. This syllabus could use more materials on marine resource management.

In 2001, CI developed a Teacher's Guide for PNG's Vocational School on sustainable marine resource management.

TNC developed a teacher's resource for Year 8-9 school students on the life reef fish trade which has been accredited and is now being used in schools.

7.2 Planned formal training in PNG

Lokani and Ropeti's 2011 training needs analysis for coastal fisheries in PNG and Kinch and Carnei (2011) confirmed findings of a similar study in 2006 and have recommended to the National Fisheries Authority that, via Kavieng's National Fisheries College, some additional coastal fisheries training be developed and delivered that address:

- Coastal fisheries biology and ecology
- Community-based fisheries management
- Ecosystem approach to fisheries management (there is a course outline for this already)
- Resource monitoring
- Policy and management planning
- Small-scale fishing operations (e.g. boat handling and operation, practical fishing and gear technology, fisheries economics and business operations)
- Fisheries administration and management
- Fisheries extension and communications
- Office skills

Lokani and Ropeti's 2011 report includes suggested topics to include in a new course in EAFM. UNRE is exploring options to develop this course now however are seeking support to do this.

There is renewed funding for the Strengthening Conservation Capacity Project (see also Section 7.6.2.3) which will mean teaching, again, of the five core topics: conservation biology; biodiversity conservation law and policy; protected area establishment and management; organisation establishment and management; and fund raising and proposal writing. The new funding is from the LNG project and will be managed by Mama Graun and training will be implemented through UPNG. This may possibly help develop the last three pieces of curriculum that were never completed: Economics of biodiversity conservation and ecosystem services; public education and community engagement and participation. More likely, however, is that the funds will be expended in delivery of curriculum already available.

7.2.1.1 Motupore Island Research Station

This research station is in Port Moresby and part of UPNG. They have plans to develop courses in Fish Stock Assessment (with NFA), Environmental Management and Monitoring (with DEC) and to develop community-level courses in basic: ecology; aquatic ecology; population biology; resource management and quantitative techniques.

7.2.1.2 Institute of Public Administration

The IPA is moving its entire curriculum to a competency-based training and assessment basis which provides an opportunity to review the subject material being taught. This includes training on, potentially, integrated coastal zone management as it pertains to LLG and Ward planning. It is possible, also, to invite experts to teach on specialised subjects such as this.

7.2.1.3 Vocational Centres

The Department of Education's Training and Vocations Education Training section provides curriculum to 138 Vocational Centres nationally including coastal provinces: Kavieng, New Ireland; East New Britain; West New Britain; Manus; Bougainville; Morobe; Madang; East Sepik; West Sepik/Vanimo; Milne Bay; National Capital District – NCD; Central, Western and Gulf Provinces.

These Vocational Centres accept students who choose for vocational training instead of continuing with traditional academic high school studies and also offer training to adults.

TVET is currently working with NFC to explore delivery of fisheries training in these centres and these efforts could be expanded to include aspects of fisheries management.

7.2.1.4 PNG Universities Review

In 2010, Prime Ministers Somare and Rudd commissioned a review of PNG universities that concluded, amongst other things, that, in general “...the quantity and quality of graduates is far short of what is needed—due to inadequate resources and a range of governance and general service quality issues.”(Garnaut and Namaliu 2010)

They also recommended that “No new funding from government or development assistance sources should be allocated for additional enrolments to institutions which do not demonstrate steps towards, and then measurable improvements in, quality. It is likely to take a decade to raise quality to an extent that provides a sound base for rapid expansion.”(Garnaut and Namaliu 2010)

In the short term they suggest that: the focus on localisation of skilled and professional employment should shift from restrictions on entry of foreigners (Work Permits) to expanded investment in generating larger numbers of well-trained and well-educated Papua New Guineans (Garnaut and Namaliu 2010).

Garnaut and Namaliu (2010) recommend that each of the universities take responsibility for a range of sub-university higher education in areas close to the centres of their academic strength. Here the academic model would be the foreign universities that have technical and further education to certificate and diploma level within Universities. Again, this meshes well with the aims of this training of trainers project and our intent to work with in-country university and training institutions.

It has been suggested that, amongst other things, the University of Natural Resources and Environment would offer sub-university courses in fisheries and village business management and that a base has been laid for fisheries courses at Kavieng (Garnaut and Namaliu 2010).

7.2.1.5 School curriculum

Primary and secondary school curriculum development staff are working with NGOs, Live and Learn and other government agencies to develop some material on marine resource management.

The Department of Education’s Curriculum Development and Assessment Division is working with other organisations to help them align their materials with the standard syllabus. At the upper secondary school level, there are lessons within which marine resource management could fit.

7.3 Existing formal training in Solomon Islands

The Ministry of Meteorology, Environment, Climate Change and Disaster Management is most involved in learning activities as they pertain to the US-Coral Triangle Support Partnership. Solomon Islands has many organizations involved in training for example the Solomon Islands College of Higher Education, University of the South Pacific, University of PNG (Honiara campus), Solomon Islands Development Trust, Institute for Public Administration and Management (IPAM), Foundation South Pacific People’s Institute, Solomon Islands Locally Managed Marine Areas (SILMMA), TNC, WWF, World fish, UNDP and the University of Queensland.

Few of these formal and informal training entities within the Solomon Islands provide, or are planning to provide, sustained training in key aspects of tropical marine resource management. All these training entities are, however, likely to offer some training of potential relevance (e.g. project management, business training, teacher training); these are not explored further in this document.

Figure 3 shows the main institutions either driving priorities for, developing and delivery of or end-users of training in marine resource management in Solomon Islands.

Training of Trainers in the Solomon Islands

Overview of institutions and organizations

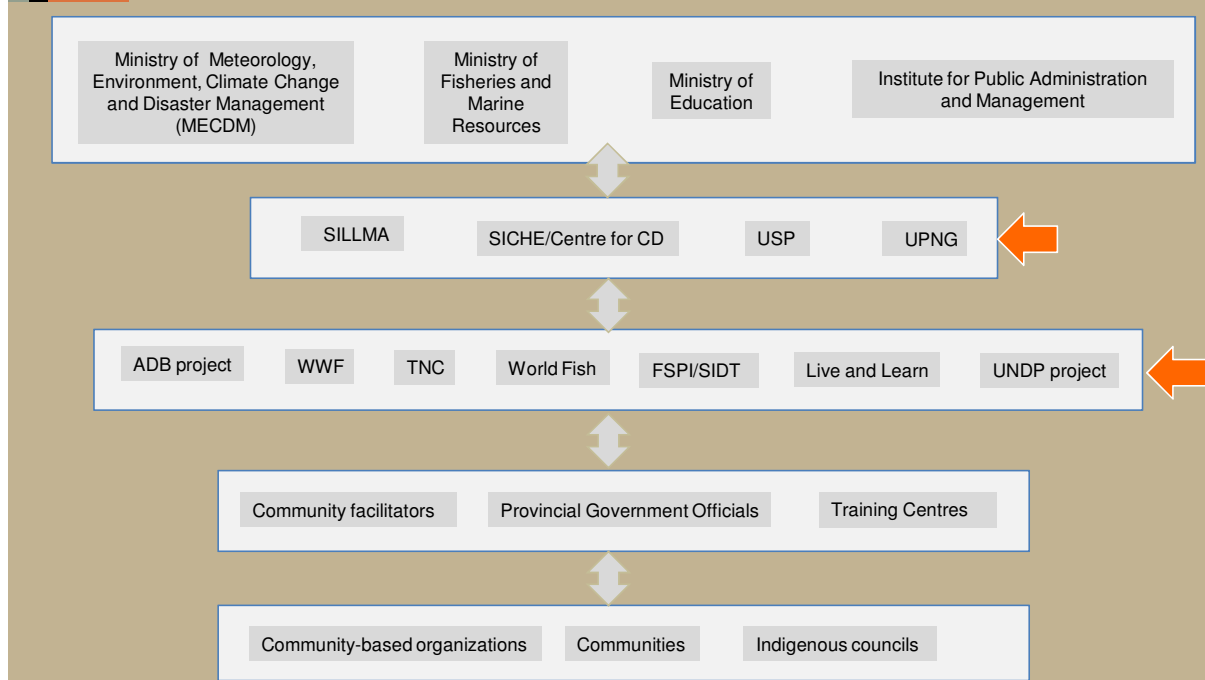


Figure 3. Main organisations/groups in the Solomon Islands involved in directing marine resource management training priorities, delivery of training or end-users of training. Arrows indicate main target areas for this project. For abbreviations, please see list of acronyms at start of document.

Only the main sources of formal, ongoing training in aspects of tropical marine resource management in the Solomon Islands are discussed below.

7.3.1 University of the South Pacific

The USP campus in Solomon Islands offers training relevant to marine resource management per distance education via its School of Marine Science, School of Geography, Earth Science and Management, Institute of Marine Resources (IMR) and the Pacific Center for Environmental and Sustainable development (PACE-SD). There are over 18 courses offered such as Sustainable Fisheries, Ocean Resource Management, Biodiversity and Conservation, Marine Science, Environmental Studies and Climate Change. These include Certificate-level courses, a Diploma, three options for Bachelor's degrees, five Post-Graduate Diplomas, six Masters and, of course, a PhD.

The university has experience with distance and flexible learning with ~3000 students participating in learning in this way. However, it has no science or resource management or marine expertise in SI (Dr John Reuben Sulu who provided this expertise for USP – SI campus has since left). It appears that there are no commitments to filling this position.

Other fundamental skills are taught by USP through the Regional Centre for Continuing & Community Education (RCCCE) Programmes (<http://www.usp.ac.fj/index.php?id=10628>). This includes training on English, Maths, bookkeeping, computing, business training and fisheries training.

7.3.2 Solomon Islands College of Higher Education

The SICHE comprises seven schools including a School of Natural Resources and a School of Marine and Fisheries Studies (<http://www.siche.edu.sb/>). The School of Natural Resources has over 200 students per year and offers a Certificate in Environmental Studies comprises subset of 16 available subjects:

- Communication skills
- Ecology
- Population studies
- Statistics and computer studies
- Industrialisation and urban development
- Renewable energy
- Social and economic issues
- Physical geography of Solomon Islands
- Environmental Impact Assessment
- Food security
- Legislation and policy studies
- Waste management and pollution control
- Biodiversity conservation and management
- Climate change
- Disaster management
- Multi-lateral environmental agreements

The School of Marine and Fisheries Studies offers training in maritime skills and safety and in fishing skills.

7.3.3 University of Papua New Guinea, Solomon Islands campus

The UPNG campus in Honiara exists, since 2009, as a partnership between the UPNG and the Solomon Islands College of Higher Education. SICHE hosts UPNG, Solomon Islands campus and, via SICHE, UPNG- SI offers training modules and materials on conservation biology and fisheries. Independently, it also offers Certificate-level training in business skills, has introductory courses in computing, economics, biology, chemistry and physics. UPNG in Solomon Islands provides, in addition, first year UPNG subjects that contribute to, for example a Bachelor of Science, Public Policy Management and Business Management. These, particularly the technical topics that relate to marine resource management, are mostly delivered in distance mode.

7.3.4 University of Queensland

Dr Simon Albert, from University of Queensland has prepared, disseminated and delivered community-level training and education materials (including children's stories in local language and a DVD) on sustainable marine resource management.

7.3.5 Australian Research Council Centre of Excellence for Coral Reef Studies

Dr Simon Foale, from the Australian Research Council Centre of Excellence for Coral Reef Studies (at JCU), is in the process of working with the SI Ministry of Education in preparing videos to teach high school children about fisheries recruitment. He will also be testing the effectiveness of the learning tool.

7.4 Planned formal training in Solomon Islands

7.4.1 Marine resource management training into existing training institutions

The Head of the School of Natural Resources (Mr Aaron Kama) has recently had talks with the Ministry of Fisheries (week of 10 April 2012) to explore ways to include the Ministry within the SNR. This collaboration is with a view to starting a program of marine fisheries resource management. Both parties welcomed the idea that our project might be able to help develop some curriculum that could be used in this collaboration.

The Center for Curriculum Development will be discussing topics that they wish to see integrated into school curriculum with Ministry of Fisheries soon. There is scope to add training materials into the school curriculum such as ICZM.

An NZAID project called Mekem Strong Solomon Islands Fisheries Program (MISSIF) is working with Fisheries to conduct a training needs analysis for the entire sector. This may lead to some training.

7.4.2 Review of SICHE Certificate of Environmental Studies

The UNDP SEMRICC Project has a component on institutionalizing human resource capacity development and awareness raising. As part of that, the current Certificate in Environment Studies is to be reviewed by a Review Committee (to be set up by the Environmental Studies Advisory Committee) with a view to filling gaps and developing new programmes such as a Diploma in Climate Change, Diploma in Environment Resource Economics, and Certificate in Urban Regional Planning. The project is also planning on running short training courses in later this year to do with resource economics, carbon trading and climate change, not necessarily for students at SICHE but for officers in mainline Ministries and departments in the public service.

7.4.3 Climate change adaptation and USP

The Solomon Islands campus of USP has plans to employ a co-ordinator to deliver Training-of-Trainers in climate change adaptation in a project with MECDM and funded by CTSP.

7.4.4 Plans for future training by NGOs

WorldFish is developing a training manual for facilitators in Community-based resource management. This manual will be made available to the SILMMA network for use. SILMMA will then work with Worldfish to run a session of community-based resource management training again (funded by NZAID).

SILLMA also have plans for WWF to run training in community-based monitoring protocols.

Solomon Islands Development Trust (SIDT) that does a lot of training in communities including in MPAs (which is sometimes together with other NGOs. e.g. WWF) is working with SICHE with a view to accrediting some of their training.

WWF is exploring the possibility of training local NGO trainers in standardised biological monitoring protocols for use by communities.

The Coral Triangle Support Partnership, with TNC, will be delivering a one-off training in monitoring of management effectiveness, possibly in 2012.

7.4.5 UNDP project

UNDP has a one-year project will be complete in September and involves targeting community facilitators (yet to be identified) in Isabel and Malaita for training in CC, EBFM, CTI and/or CBRM. This project is a once-off. This project may focus on Mothers Groups in Isabel where there is one church and the network is strong. This project is strongly connected to TNC and Worldfish including using their training materials.

7.5 Planned or existing formal training in both PNG and Solomon Islands

Some planned or existing formal training exists in both PNG and the Solomon Islands.

7.5.1 Strengthening coastal and marine resource management in the CT of the Pacific

Strengthening coastal and marine resource management in the Coral Triangle of the Pacific is a GEF project that is being implemented via ADB between January 2011 to 2014 within both PNG and the Solomon Islands (as well as three other Pacific Island nations in the ADB Pacific Program). This \$9 million investment is intended to address, amongst other things, training in ICRM, climate change adaptation and EAFM with 1000 government and NGO staff across the five nations as well as training of community groups and others.

In the Solomon Islands the training component is focussed upon short-term training in community-based fisheries management and GIS. There are no plans to institutionalise this training.

7.5.2 AusAID-funded climate change capacity building

TNC has funding from AusIDd to deliver Phase 2 of a project called "Building the resilience of communities and their ecosystems to the impacts of climate change" which has a focus, in Phase 2 on "Building capacity and demonstrating the effectiveness of participatory approaches". The

evaluation and development part of this project is scheduled to be occurring now (Feb-June 2012) and the implementation is to occur July 2012- December 2014. This project will be working in the provinces of Choiseul, Isabel, Western, Guadalcanal and Temotu in Solomon Islands and in Manus, PNG. This project builds on Phase One which was completed last year and also operated in both countries (Section 7.6.1.2).

7.5.3 Coral Triangle Support Partnership training

Formal trainings already prepared for use in the Coral Triangle through US CTI support include:

- CTSP's Executive Course (National Government Level) on EAFM
- NOAA's MPA 101 (run in SI in 2006-7) but no plans to do so again
- CCA TOT one developed by University of Rhode Island CRC and one by the University of Philippines MSI
- Vulnerability Assessment – Local Early Action Plan (VA-LEAP) training developed by CTSP

Except where indicated, it is unclear as to whether PNG and SI are to benefit from these training modules in-country.

The CTSP (especially CI) is also planning training modules or training materials in:

- EAFM 101 (potentially delivered in PNG in September to both PNG and SI participants)
- Enforcement-Compliance curriculum for local governments and communities.
- Thematic integration in marine resource management (EAFM + MPA + CCA), which may have a training associated with it (but not formal curriculum)
- Outreach guide for creating climate-resilient locally-managed areas (marine and coastal), which may have a training associated with it but nothing formal.

Any training delivered will be on an *ad hoc* basis (potentially delivered once) and is not targeting trainers. There is no plan, at the moment, to formally institutionalise this training in-country.

7.5.4 Australian training offered in CT6

A 2009 review (by SKM) found many Australian-based courses and programs were identified in as being both relevant to the needs of the Coral Triangle in terms of matching content with CTI objectives. Of these, 23 are run either in both in Australia and CT6 countries or are run solely in CT6 countries.

By far the most diverse and abundant courses offered are through universities which comprised 75% of the total courses offered in Australia. This was followed by NGOs (13%), TAFE courses (10%) and Government (2%). (SKM 2009)

Of the courses offered and programs run, the bulk consist of Undergraduate Degrees (40%) and of the subject material available, marine science and marine environmental management courses comprise 54% of the courses/programs identified. Unfortunately, the report content does not distinguish which subjects and/or courses are taught only in PNG or Solomon Islands. (SKM 2009)

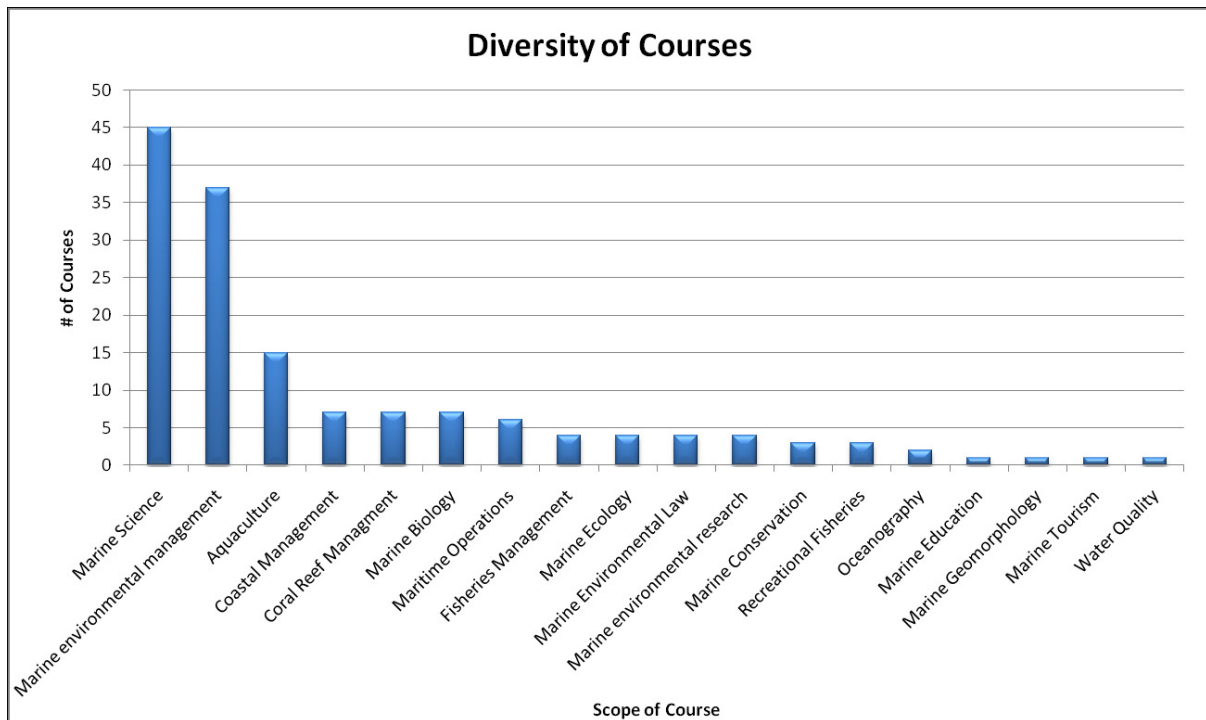


Figure 4. Diversity of subject areas offered by the courses identified (SKM 2009).

7.5.5 Existing training materials

Existing materials exist that, theoretically, are available to anyone globally and are relevant to learning about aspects of tropical marine resource management. This includes SPC’s recently published fisheries information sheet series, TNC’s reef resilience toolkit, ReefCheck’s monitoring protocols, LMMA toolkit, UNEP environmental management tools, WorldFish’s database of information and resources, SPREP’s online resource library and many more. Some of these have already been used in the Coral Triangle.

This project will use (and tailor) freely available, existing materials where appropriate and possible to reduce duplication of effort.

7.6 Formal training previously conducted

We have been able to gather some information about non-ongoing formal training which has been conducted in the past. It is presented below. This training was not necessarily linked to formal qualifications.

7.6.1 Formal training previously conducted for both countries

7.6.1.1 Coral Triangle Support Partnership

The CTSP has provided training in climate change (including vulnerability assessment, adaptation) and marine protected areas. This training has targeted mainly Ministry staff, however, it has included some NGO staff (e.g. FSPI, WWF).

7.6.1.2 AusAID funded climate change project

In 2010, TNC led a partnership project that focused on strengthening the capacity of target communities, partners and policy makers who work in Manus, Papua New Guinea (PNG) and Choiseul, the Solomon Islands. This project was completed in March 2012.

7.6.2 Formal training previously conducted in Papua New Guinea

7.6.2.1 NFA Community-based Fisheries Management Program

The National Fisheries Authority (NFA) through its previous Coastal Fisheries Management and Development Project ran an extensive Community-based Fisheries Management program in 2004 and 2005 with specific community support provided in the Morobe (26) and New Ireland (12) Provinces, with wide-scale awareness and education conducted in these two Provinces, but also including the Milne Bay Province. The positive impacts of this program were apparent years after the program itself finished. (NFA 2007, CTSP 2009)

7.6.2.2 UNEP/DEC Ecosystem-based management project

The objectives of this three month project (conducted in 2010) were to build and strengthen the institutional and technical capacity of DEC, Papua New Guinea in designing and implementing marine and coastal ecosystem-based management approaches using Kimbe Bay as a demonstration site. This included a new coupled integrated environmental assessment and environmental impact assessment approach to support and to develop integrated policies and management measures for vulnerable marine ecosystems. The project also paid attention to climate change vulnerability aspects. Aside from UNEP, this project also partnered with UQ and SPREP and involved NFA, TNC, WWF and local NGOs.

7.6.2.3 The strengthening conservation capacity project

This project was funded by the John D and Catherine T MacArthur Foundation and run through the School of Natural and Physical Sciences, Division of Biology at UPNG from 2004-2010. It provided training to over 300 people and included modules in:

- Conservation biology
- Biodiversity conservation policy and law
- Protected area establishment and management
- Organisational establishment and management
- Fund-raising and proposal writing

The modules had a terrestrial focus but much of the teaching would have applied to marine situations as well. The UPNG School of Natural and Physical Sciences is seeking to find a course co-ordinator for this program with a view to delivering it, as a pilot, directly to communities.

7.6.2.4 Marine Training Program

This was a 4 week course run from ~2004-2009 that was ratified through UPNG in that 3rd and 4th year students received a course credit for passing the course. It included a significant field

component. Most of the students (20-25/30) were from UPNG, but local staff from the NGOs, National Fisheries Authority and other government departments also attended. The course was initially set-up run by WCS (2004-2006), then taken over and run directly through UPNG (2007-2009) with a 3-year grant from Packard. The course was over-subscribed for the six years that it ran. The course involved both national and international lecturers, including local staff from UPNG, WWF, WCS and the National Fisheries Authority, with external support from Queensland's DPI&F and JCU. The training course included components on:

Statistics and sampling design

Fisheries science and management

Ecology and taxonomy of coral reef fishes, coral reefs, mangroves, seagrasses

Coastal threats, conservation and management

Field sampling, data handling and analysis, report writing

WCS ran this course again last year.

7.6.2.5 National Research Institute

The National Research Institute, led by Professor Agogo Mawuli, has tailored and conducted training for DEC staff. This was a rigorous training course that led to formal qualifications.

7.6.2.6 Secretariat of the Pacific Community

SPC has training materials available on EAFM and has conducted this training in PNG.

7.6.2.7 Non-government organisations

The PNG CLMA have, previously, run training in management planning and in community-based adaptive management – this latter may be continuing. TNC have run training in their Community Action Planning process as well as in how to conduct socio-economic monitoring. Both organisations have also conducted training in proposal writing.

7.6.3 Formal training previously conducted in the Solomon Islands

7.6.3.1 Training by NGOs

WorldFish, Live and Learn, SIDT, TNC, UQ and others have provided some *ad hoc* marine resource management training, mainly in aspects of community-based resource management and monitoring. This has often been of high quality. In many cases, this has been done through SILMMA. The training has targeted provincial government officers who deal with local communities (e.g. provincial fisheries officers) and community leaders or it has targeted the communities directly via church groups, schools or other community gatherings. The training has not been comprehensive in terms of the topics addressed, the geography covered or the communities involved. In some cases, this training is part of a broader program of engagement with (and empowerment of) the community and includes a level of ongoing support (e.g. Live and Learn). NOAA also conducted some training in MPAs 101 in 2006-7.

Ad hoc training, like this, continues to occur.

7.6.3.2 UNDP environmental management and climate change project

Under UNDP's Strengthening Environment Management and Reducing the Impacts of Climate Change (SEMRICC) Project, the Youth Environment Programme (YEP) has deployed SI volunteers to communities to conduct awareness programmes, look and learn training at MPAs, coral planting and training on vulnerability and adaptation measures using the Local Early Action Planning (LEAP) tool. There are 55 volunteers altogether and they are presently seen as the arms and legs of MECDM in terms of community awareness. During the December break (2011), 40 of the YEP volunteers carried out awareness activities on climate change and food security (agriculture mainly) in more than 30 communities in Choiseul, Isabel, Malaita, Makira and in Honiara.

7.6.3.3 School of Natural Resources, SICHE

In the past, there has been a once-off partnership with the University of Otago, NZ to deliver short courses on CC adaptation (funded by SPREP).

8 Lessons learned about successful capacity building

8.1 Locally identified lessons learned

Independent of this project, PNG and the SI have both undertaken extensive processes, consultations and communications to identify and share lessons with regard to capacity building in general and tropical marine resource management capacity building in particular. We summarise that existing information here (see also Methods section 5.1.). This information was used as background to (and supplemented during) discussions during the scoping phase of this study.

8.1.1 Lessons learned that Papua New Guinea and Solomon Islands share

Both countries identified that, from their experiences, capacity building, including in tropical marine resource management for the CTI, should possess the following features:

New capacity building initiatives must be based upon training/capacity needs assessments (e.g. as required to achieve all the CTI goals) including human resource capacity building needs, inventory of existing national and regional capabilities in training and gap analyses. Must use existing assessments.

Prioritise the human resource capacity building gaps.

Develop and implement region-wide (including country-specific) capacity building strategy based on assessments.

Any new training (to fill gaps) must be tailored along ALL dimensions (e.g. level, location, duration, topic, formality, language, medium of delivery, who conducts delivery) to individual needs: per country; per community. This will require participation of local experts in training development and, probably, delivery.

To varying degrees, additional training of one type or another is required at all levels (from primary schools to senior bureaucrats).

The promotion of local stewardship through enhancing local knowledge is especially mentioned.

New training should build on and grow existing training as far as possible.

Training should focus on “on-the-ground” best practice/real lessons learned (e.g. in MPAs, climate change, EAFM, enforcement, IUU)

Use (and expansion) of learning networks (MPA managers, between and within communities) to help with capacity building (e.g. PNG re: coastal fisheries, tuna, reef fisheries and ornamentals). In particular, harness LMMA/LMA networks.

New training, if not available within country, should use existing partnerships if possible or else build new in-country partnerships.

A long-term commitment to enhanced capacity building was seen as a priority.

At the Australian Government CTI Workshop in Townsville (November 2008), PNG and Solomon Islands and other CT countries suggested preparing an inventory of available training programs, resources, experts and other capacity building efforts relevant to MPAs and link this with more generic CTI capacity building programs. The purpose of this inventory would be to maximise use of existing training (The Australian Government asked SKM Consulting to compile this information for

Australian training institutions only). Additionally, it was suggested to set up Scientific Advisory Groups to help build the capacity/ability of CT6 to deliver on CTMPAs.

The Australian Government CTI Workshop participants, including PNG and Solomon Islands, also mentioned linking any capacity building with other programs efforts e.g. the Pacific 2020 Challenge, ADB/GEF.

8.1.2 Papua New Guinea

At the March Girls' workshop in PNG in 2010, failures with existing training were identified that included: a lack of practical application to theory; inadequate quality/capacity of trainers; lack of resourcing for trainers and participants; no follow-up or mentoring; no link between academic and vocational application; a lack of coordination of training and training providers; misalignment of training and participants; no quality assurance for informal training.

At the same workshop, it was also identified (in addition to many of the attributes already discussed above, Section 8.1.1) that training should rather:

- Be experiential
- Use the best science
- Be simple and practical
- Use local language
- Use visual props not just words
- Be delivered in partnership with local training institutions (if provider is external)
- Include training of trainers
- Include pre- and post-training engagement

PNG has also mentioned wanting to develop Kavieng Fisheries College and to partner with UPNG to implement a program on protected areas, including community engagement and sustainable financing.

During the recent scoping field trip it was also emphasised the training developed must:

- Be tailored to the PNG context especially the fact that all land/sea is locally owned
- Ensure the curriculum has a practical (e.g. resource management) outcome that people can use
- Have course participants apply training lessons to workplace problem during the course
- Make lessons replicable to different parts of the coastline
- Ensure lessons are locally relevant; one way to promote this is to have exercises where lessons learned must be translated into local language
- Lessons must include fieldwork (e.g. 40-70%) not just classroom exercises or PowerPoint presentations (e.g. 30-60%); the courses taught at UPNG, for example, are too theoretical to apply directly to resource management on-the-ground.
- If curriculum is to be delivered to communities, there must be groundwork done prior to the training being presented
- UPNG staff are over-committed and cannot take on additional semester-time training; a possibility exists that they may be able to commit to delivery of additional short courses during the summer break from November to February inclusive (Lahara)

Trainers must be technically competent, also good at teaching/facilitating and also have some official status e.g. provincial fisheries officer

If course participants have a huge variety of levels of background to the subject material, the learning of the group will be slowed

Have criteria by which to choose course participants including ensuring students are at the same level, that students will be using the TOT in their work afterwards

Embed training in the art of teaching/facilitation in TOT curriculum

Choose TOT participants per topic area (not generically)

Include modules delivered by local experts, not just “fly-in” experts (to help build both local relevance and local ownership of training). E.g. those who provide training in legal implications of local tenure in terms of resource management to new public servants could provide that same training here

Collaboration on curriculum development is crucial and must be face-to-face. Emails and phone calls won't work.

Need to trial curriculum

Use visual, especially moving, images to support learning

Use a report card system to help interpret monitoring aspects of resource management e.g. water quality

Training should be institutionalised.

To be seen as valuable, training must be accredited and quality assurance applied to the accreditation to maintain the integrity of the qualification. At Fisheries College at Kavieng this is linked to the University of Natural Resources and for the Vocational Centers this is linked with the Academic Council at the national level. At universities, short courses conducted during Lahara (summer vacation: Nov-Feb inclusive) can contribute credits to formal university qualifications via the workplace experience requirement. WCS' 4 week course, for example, comprised 10% of the overall workplace experience required by a student.

Need an in-house champion if a course is to be accredited.

Good to have the duration of time within which the formal qualification can be attained to be open-ended to accommodate, especially, people from the provinces who find it hard to come and attend classes

UPNG has experience using modules of training from short courses and incorporating them into existing curricula

Working with NGO partners who work in communities can help to ensure curriculum is locally relevant and effective

Access to locations that provide training is difficult or impossible for many provincially-located people

Link TOT project to LLG and other funding sources to ensure sustainability

New training must be marketed

Running of short courses is extremely resource intensive

Need follow-up after training to support application of lessons learned

Having a diversity of lecturers/trainers is good

Training curriculum can be provided in English; teachers can determine if it would be beneficial to deliver it in Pidgeon or local language

The written curriculum can be comprehensive but teachers will need to choose what level to pitch their teaching at depending on the students and keep the lessons simple.

Training should support and empower traditional governance and leadership systems

Local provincial staff, including fisheries officers, are a one-stop-shop for communities so the better trained they are on the entire range of topics relevant to communities, the better

Any new materials intended for schools must align with existing curriculum objectives and be able to be integrated into the existing teaching curriculum; new curriculum cannot be supported

For schools any training offered must be a package: the training resource; training of the teachers in the delivery of the resource; an ongoing ability to procure the resources; an ability to distribute of the resources throughout the country.

It's important to begin teaching sustainable development at the primary school level.

Measure/ monitor training success using tangible metrics.

More generally, it was suggested that we remain open to, and in fact facilitate, processes and collaborations whereby additional funding is sourced to support a more holistic project.

8.1.3 Solomon Islands

In addition to the shared lessons learned and priorities listed above, some Solomon Islanders have expressed concern about the sustainability of any CTI programs due to in-country financial and human resource issues. So a focus of this project is to institutionalise curriculum at in-country education facilities and to increase the number of qualified and skilled training personnel trained to deliver in tropical marine resource management. This project aims to use these mechanisms to deliver extension and training to communities who are using the marine and coastal resources.

Immediate priorities include:

- Development and delivery of tailored training materials on topics of priority⁶ (including best practice guidelines) for national and provincial bodies including staff of the Ministry of Meteorology, Environment, Climate Change and Disaster Management and field staff, community managers, traditional leaders, local enforcement staff, police, courts and the community itself.

- Development and delivery of national curricula into schools

- Sourcing scholarships to support professional development

Additional lessons learned about what works and doesn't when conducting capacity building is:

- Integrate any proposed training modules into existing curricula (once-off trainings are of limited use)

- Integrate community-based approaches into any resource management training

- Need more than one teacher to support interactive teaching

- Keep it simple

- Don't make the training too long (e.g. one week or less)

- Ensure that trainers that we train are capable of delivering training

- Ensure the training is culturally and otherwise appropriate to the community/communities you are working with

⁶ See Section 6

Build the capacity of communities (e.g. SIDT does training in governance, water, sanitation, HIV/AIDS, leadership, environmental conservation first for one year) prior to provision of training on a technical topic e.g. MPAs

Provide support to newly trained trainers until they are confident (could take many iterations of them delivering any new training) Follow-up, for at least 1 year, in a way that truly allows mentoring of the trainees through mini-courses, group work, and ongoing contact with professionals/mentors who can offer support and guidance

Many community members cannot read or write

If training people with existing expertise in the field, the trainers must be competent enough, technically, to have the confidence of their audience that they know what they're talking about

Maximum of 25 students per class

Use SILMMA to distribute training materials

Use lots of local case studies

Need for a mentoring system for new graduates

Training is better when used within a program that includes the following elements:

- Analysis of the system: Is knowledge the problem? Or are there other, more important, barriers to improving marine management that should be addressed first?
- Develop a ranked list of core competencies required to improve marine management to ensure that the training addresses top needs

Use good training materials with lots of visuals (appropriate books, visually-interesting power points (more photos than text), worksheets, handouts, maps, and interactive games).

Include business leaders in the mix of trainees

8.2 Modes of training delivery

Suggested modes and media to be used for capacity building were identified by Papua New Guinea and Solomon Islands at various *fora* and in the various documents and are summarised here (see Methods Section 5.1). It was recommended that, as appropriate, tailoring of training packages address these factors explicitly.

Personal

Lectures, classes, tutorials

Workshops

Learning-by-doing/on-the-job training

Mentoring

Staff/technical exchanges (within and across CT6 countries)

Secondments

Regional networks of practitioners

Liaison officers

Community champions/leaders

Community rangers

Local success stories shared

- Train-the-trainers
- Study tours
- Road shows
- Conferences (including use of exhibits)
- Curriculum materials (e.g. text books, primers) at all levels
- Lessons learned documents
- Newsletters/brochures
- Radio
- Newspapers
- Television
- Use existing fora not usually associated with training
- Internet list servers
- Website(s)
- Counsellors (PNG)

Clearly, many of these suggestions are beyond the scope of this project. See Section 11 for the training media proposed for this project.

8.3 Lessons learned: field trip findings

8.3.1 Papua New Guinea

From the field trip the following lessons were emphasised:

- Face-to-face training is required
- Use of visual, especially moving, media for training can be effective
- Outside main provincial capitals, training centres will not have access, necessarily to computers or LCD data projectors.
- Training tools must be simple and robust
- Field work to complement classroom learning
- Site visits
- Sharing of lessons learned locally
- High quality teaching resources (hard copy) are missing
- Training modules should be stand-alone so that teachers can choose which modules to apply and can choose the level at which to teach

8.3.2 Solomon Islands

Face-to-face learning is the only mechanism by which real learning can take place in the Solomon Islands. This can be supported by other media but must be central. Other lessons learned and discussed during the field trip include:

- Sending students overseas is very expensive so local training options are crucial
- Use images/pictures in training that is to be directed to communities
- DVDs are good training tools
- Apply learning by doing where possible (action-based learning)
- Experiential learning from, e.g., neighbouring communities works well
- Don't use a lecture style but a more interactive style of teaching

9 In-country partner institutions

Our proposed in-country partner institutions were chosen on the basis that they are in a position to contribute to the development of the priority curriculum as well as able to take up and institutionalise the curriculum.

9.1 Papua New Guinea

It was suggested to align the institution to partner with, with the level at which the training is to be pitched.

Various training centres have offered to work with the project team in development and delivery of the curriculum including:

UPNG (which has a University Centre - serviced through the Open College- in every PNG province whereby training could be extended) – collaboration would be especially with their Schools of Natural and Physical Sciences; Environmental Science and Geography and Humanity and Social Sciences.

University of Natural Resources and Environment (used to be University of Vidal)

National Fisheries College (which delivers courses on-site and in the provinces)

Department of Education's Technical and Vocations Education Training section

Department of Education's Curriculum Development and Assessment Division

Local, national and international NGOs

Community-based organisations

In addition, it was suggested to work with the National Research Institute which is smaller and therefore more flexible.

The NFA has also resourced the establishment of many fisheries cooperatives (e.g. there are 10 in Milne Bay province and 15 in just the Kokopo District, of New Britain). Their purpose is to receive, process and market fish caught locally. These offer both an opportunity in terms of marine resource management training (that is, fishers come together in these locations) and a challenge (their more fundamental governance and organisational administration training needs are not yet being met).

9.2 Solomon Islands

In Solomon Islands, the School of Natural Resources, at SICHE was repeatedly identified as the best local training institution to partner with in this project. However, it was also clear that a broader consultation with relevant parties in the development of the curriculum would be beneficial to the substance and acceptability of the curriculum and, therefore, ultimate impact and sustainability of this project's outputs. Such a level of consultation is not budgeted for.

Other training institutions that could, potentially, be relevant to the project include the Department of Education's Curriculum Development Centre and Vocational Training Centres. The University of the South Pacific has an active campus in Honiara and many alumni.

There are also trainers and staff who develop training within local, national and international NGOs as well as some community-based organisations.

10 Target audience

This project must focus upon those trainers working at institutions who are selected to be partnered with as per the contractual arrangements with the Australian Government. These are described as “formal trainers”. Other trainers, however, may be able to benefit from this project if space is available in the training-of-trainer sessions. The more “informal” trainers are recognised as being in influential positions to disseminate relevant information to peers, colleagues and others e.g. communities of marine resource users.

10.1 Papua New Guinea

The scoping study identified the following groups of people as existing trainers who might be appropriate participants in this project’s training efforts:

- UPNG’s School of Natural and Physical Sciences marine science lecturers, tutors, senior students, technicians, the same people for UNRE, NFC lecturers, teachers at Vocational Training Centres. Staff at other universities might also benefit from and be interested in the training this project will offer.
- Some NFA staff. For example, at NFA there is ~18 staff in the coastal fisheries section that would benefit from the training and could then also conduct training in NFA staff inductions and also train new staff as they come in. There is a high staff turn-over.
- WCS Marine Training program graduates could become trainers
- Fisheries officers at the Provincial, District, Ward and LLG level should be the target audience. Note that provincial-level fisheries officers are staff of the provincial government but supported by NFA. These meet annually and training could be appended to such meetings.
- The Department of Community Development has Learning Centres in each of the provinces. This is where communities can go for information and provincial extension officers can run training sessions. Each Learning Centre has a training coordinator.
- Teachers at Vocational Training Centres that deliver formal certificate level training – similar to TAFE in Australia. The trainers here receive training through the PNG IPA’s Education Institute and usually already have at least Diploma-level education in teaching.
- Primary and High School teachers
- Teacher Colleges
- NGO training officers and CBO representatives and community practitioners.
- Instructors who train the LLG officials and Wards via the IPA.
- Local Level Government and Ward staff themselves.
- The village court/village magistrate/local judiciary/ local police officers needs training in the importance of environmental crime.

10.2 Solomon Islands

Those consulted in this scoping study consistently identified a range of people who might benefit from the proposed TOT. These are listed here.

- The provincial Fisheries staff (18) are seen as a target audience for this TOT project. One of the challenges, here, is potentially that provincial Fisheries staff have not been formally trained as trainers however have a key role in outreach and training of communities. We suggest that these staff include existing IPAM training in adult education (the subject is

called: Engaging adult learners) within their existing program of professional development. In addition, Fisheries have sixteen Extension Officers who work in the communities but are based in Honiara. They have at least Bachelor's level training but it may not be in fisheries, it may be in engineering, for example. They would benefit from some training of trainers.

- The staff of SNR at SICHE is also seen as essential targets for this project.
- Staff of NGOs who assist MECDM, Fisheries and SILMMA to deliver on their programs in communities should also be the target trainers for this project. This includes staff from TNC and WWF.
- At least one staff member from IPAM, who delivers the “Engaging adult learners” course, could be one of the target trainers with a view that they will then better understand the context within which Fisheries staff that comes to them for their “Engaging adult learners” course require these skills. IPAM also has in-Ministry Associate Trainers whose role is to facilitate learning in the workplace. These might be possible trainers to train.
- Staff members of some community-based organisations (CBOs) were suggested as targets to train, depending upon the existing capabilities of the groups. Examples that were suggested during the scoping study include Tetepare Descendants Association (Western Province), Lauru Land Conference of Tribal Community Trust Board (Choiseul) and the Kolombangara Island Biodiversity Conservation Association (Western Province).
- Fourteen community facilitators employed by Live and Learn work with about 50-60 communities in all the provinces. They either already do or aspire to do training in marine resource management. They have, at least, a high school level of education and come into Honiara for training ~twice per year. These could be potential trainers to train in our project. SIDT also employs community facilitators and trainers who they bring back to Honiara for additional training once or twice a year.
- Conservation NGO training officers
- A GEF-funded ADB project focussed upon agricultural sustainability is looking to employ university graduates to deliver training to communities for about 5 years in five provinces (Choiseul, Isabel, Guadalcanal, Malaita and Makira). It was suggested to the project team that these staff member could be good targets to our TOT project⁷.
- It was identified that some of the university graduates have a poor understanding of the social and economic realities of resource management and also have little training in a community-based approach to resource management and could benefit from some practical training in this area.
- Secondary, primary and Training Centre teachers were suggested as a target for this training as was USP and UPNG staff. Science teachers were particularly mentioned.
- Community leaders were proposed as potential trainers to train in this project as well as local business leaders.
- In addition, it was suggested the government staff members would benefit from training in community engagement in policy development.
- WorldFish has had success with teaching SI World Vision staff about fisheries management. They are the biggest NGO in SI and are in many communities. They could be a target for this project.
- For the ecosystem-based management training, it has been suggested that relevant Ministry staff (e.g. in the Ministries responsible for mining and forestry) be targeted. IPAM has identified “Teaching Associates” within every Ministry and these might be the appropriate staff, within these Ministries, to target. For the ecosystem-based management training as well, it was suggested to target involved NGO staff and the developers themselves.

⁷ The project team were unable to contact the UNDP project manager, Mr Jacob Zikulu, whilst in the SI.

11 Outcomes of the scoping study

11.1 Topics

Topics chosen for curriculum development in this project were identified based upon the following criteria:

1. Priorities identified by government officials (both in the scoping study and in formal government documentation) – this was confirmed when we sent the per country draft scoping study findings back to the government officials to review
2. Priorities that aligned with this project's objectives
3. Priorities that did not duplicate other efforts and other project's aims and outputs

To elaborate on criteria (3), there are other projects that have (in the past) and also continue to deliver training in a variety of topics within PNG and the Solomon Islands. For the most part, these trainings are delivered on a fly-in, fly-out basis. As far as we could ascertain, whilst training materials delivered by these project can be used in-country by existing trainers at existing training institutions, this possibility has not been realised. Part of this project's objectives is to bridge this gap.

4. Priorities that aligned well with government-stated policy objectives
5. Priorities that aligned well with in-country identified threats e.g. over fishing, catchment impacts upon coastal marine ecosystems
6. Priorities further supported by non-government entities that the government officials suggested that we communicate with
7. Priorities that align well with, and support, existing training development priorities and that were unlikely to be realised without this project's support

To elaborate on this last criteria: there were a number of instances where priorities for curriculum development and training have been identified, and even planned (e.g. in EBFM) which have not been realised due to lack of resources. We have been careful to assess whether in-country plans were likely to be carried out without the resources of this project, in deciding upon our final priority topics.

Among the key challenges in tropical marine resources management in the SI and PNG is the strengthening and empowerment of community-based management by the LLG and provincial government. There is a strong policy directive to move fisheries towards an ecosystem-based approach which lacks support in terms of available formal training. For both countries, a critical capacity gap, when considering threats to marine resources, is taking into account terrestrial impacts such as mining, plantations and logging. In addition, many of those interviewed repeatedly acknowledged the need to be able to assess the effectiveness of any management measures taken.

Based upon the criteria and considerations listed above and information gathered during the scoping study, the four topics for which curriculum will be developed during this project are:

- Ecosystem-approach to fisheries management
- Community-based marine resource management

- Management effectiveness, and
- Integrated ecosystem-based management.

The selected topics allows a more integrated and holistic approach and curriculum and materials that will be developed will provide tools to trainers to enhance, ultimately, local capacity at the local government and community levels.

These subjects will be tailored to suit in-country needs in both Solomon Islands and PNG by working closely with in-country partner institutions. The exact material to be covered within each topic will be determined during the curriculum development phase of the project and in collaboration with in-country partner institutions.

11.2 Partner institutions

Based upon the scoping study, the main partner teaching institutions that this project will work with in the Solomon Islands will primarily be SNR at SICHE, however, the project will require collaborations also with other teaching institutions such as USP, IPAM and the Curriculum Development Centre within the Department of Education. A broader partnership process, including organisations that are not primarily teaching institutions, is also outlined in Section 11.4.

In PNG, the main teaching institutions we aim to partner with will be NFC and UPNG with, also, close collaboration with UNRE, IPA and the TVET Division of the Department of Education. A broader partnership process is outlined in Section 11.4.

The key selected partners (SNR, NFC, UPNG) have expressed an interest in partnering with TNC, CTC and the Australian Tropical Marine Alliance to deliver this project. They will be able to host, institutionalize and further certify the training courses produced by this project whilst a number of additional partners will be able to use elements of the course and course materials within their own training/curriculum (USP, IPAM, CD Centre, SILLMA in SI and UNRE, IPA, CDAD, TVET and CLMA). An even a broader engagement can be envisioned through the participation of trainers from additional NGO groups. In a potential second phase of the TOT project, these or other courses could be further customized and institutionalized for vocational training and learning centers.

11.3 Target audience

As mentioned before, this project must focus upon those trainers working at training institutions who are selected to be partnered with as per the contractual arrangements with the Australian Government. These are described as “formal trainers”. Other trainers, however, may be able to benefit from this project if space is available in the training-of-trainer sessions. The more “informal” trainers are recognised as being in influential positions to disseminate relevant information to peers, colleagues and others e.g. communities of marine resource users.

Given this, the first priority for a target audience for training in this TOT project are, in the Solomons, SNR staff, those provincial Fisheries Officers and Extension Officers who are trainers as part of their job and one trainer from IPAM. Where space allows, other provincial Fisheries Officers and Extension Officers will be included in the training as well as those NGO trainers who are delivering

programs for MECDM, Fisheries and SILMMA who would benefit from up skilling in the proposed topic areas. The relevant NGO trainers may be employed with TNC, WWF, Live and Learn, Worldfish, FSPI, SIDT depending on the topic. Other target trainers, if space allows, include interested leaders of established CBOs, teachers in relevant Training Centres and relevant teacher trainers with expertise in Studies of Society and the Environment and Science from the CDC who teach specialist high school teachers, deputy principles and principles in those specialised topic areas.

In PNG, the target audience will primarily be those staff without the relevant training at UPNG, UNRE, NFC, provincial fisheries officers who conduct training as part of their job, TVET staff, potentially one trainer from IPA. Where space allows, training will also include other provincial fisheries officers, trainers in the PNG Training and Learning Network and NGO trainers who wish to deliver training to communities. NGO trainers may be employed by TNC, WWF, WCS or MND depending on the topic. Other trainers to target, if space allows, include interested leaders of established CBOs, specialised high school teachers or those developing and teaching curriculum for the high schools.

In both countries, for the more holistic ecosystem-based management training, if possible the target audience will be broadened to include developers and key staff from the Ministries responsible for mines and forestry.

In general, these trainers have either university level training or equivalent experience in one or more dimensions of environmental science and management. Their English will be good and, ideally, they will have some experience or training in teaching.

We will also deliver all our materials to the Curriculum Development Centre (in Solomon Islands) and the Department of Education (in PNG) who will use it to include in (or supplement) their curriculum in both schools and vocations centres. This will align particularly well with the new outcomes-based curriculum being developed for SI schools this year and next year including, in the case of Solomon Islands, development of standardised curriculum for the Training Centres.

11.4 Partnership process

In the Solomon Islands, we will develop the curriculum in a collaborative fashion with the appropriate parties, namely, SNR at SICHE, CDC, SILMMA, Fisheries, MECDM and IPAM. We will work with/through SILMMA where possible rather than create a separate working group. If possible we will also consult with the Directorate of SI Training Centres (part of the Ministry of Education)⁸.

In PNG, we will do the same with: UPNG, NFC, UNRE, DEC, PNG-CLMA, NFA, TVET, Curriculum Development and Assessment Division Department of Education and IPA. Again, we intend to take advantage of the existing networks (e.g. PNG Learning and Training Network) to make these connections.

We will create a project “Curriculum Development Working Group” comprising representatives from each of these organisations. A draft outline of the proposed trial training on the first topic will be

⁸ The project team were unable to meet with Mr John Wate, Director, Vocational or Technical Education Training Centres (TVET).

distributed to these people per email. After receipt of comments, the training will be further developed with input on an as-needs basis with a full draft being distributed to input to all parties.

We intend to supplement phone calls and email communications with colleagues in-country with face-to-face meetings via various means. Examples will include some combination of: use of paid local colleagues (e.g. via extra staff that the CTC have employed in-country) to convene meetings of the Curriculum Development Working Groups established in each country to discuss and seek input to curriculum as it's developed; use other meetings, opportunistically, to discuss curriculum as it's developed (e.g. CTSP meetings, ICRS, etc); try to piggy-back onto the "trial TOT" with discussions about the other curriculum being developed; work closely with the PNG-CLMA and SILMMA networks (with who we have good relationships) to help encourage local input.

The initial training module will then be finalised and delivered as a trial.

After the trial, lessons learned will be compiled and shared with other project team members involved in curriculum development.

The trial curriculum will be modified to address lessons learned from the trial.

The other curriculum will be developed, as before, with input firstly, on the outline of the teaching module. Then there will be round of feedback invited, in each country, to assess a full draft of each set of teaching material for each subject.

12 Conclusions

This scoping study has enabled the project team to clearly identify, for Solomon Islands and PNG:

- Formal training which is already available in country
- Formal training which is already being planned in country
- Formal training that has been done before and lessons learned
- Perceived training priorities by Government Agencies (including the Department of Environment & Conservation in PNG and the Ministry of Environment, Climate Change, Disaster Management and Meteorology in SI); the CTI National Coordinating Committees and other organisations as appropriate.
- Training/education institutes that are interested and best placed to partner with
- To identify target audiences for training
- The four (4) most appropriate subjects to develop.

The scoping involved consultation with the following stakeholders, amongst others:

- CTI NCCs
- Government Agencies
- Members of the PNG Learning and Training Network and the PNG Centre for Locally Managed Areas (CLMA)
- In-country training institutions (UPNG, Kavieng Fisheries College, USP, SICHE)

In addition, we have been able to define a collaborative process whereby we aim to support the institutionalisation of the training curriculum to be developed and delivered.

13 References

For training needs and lessons learned:

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Appendix 1. Individuals consulted during scoping study

Solomon Islands

Name	Position/Organisation
Dr Simon Albert	University of Queensland (Solomon Islands-based)
Mr Willi Atu	Program Manager, Solomon Islands Field Office, The Nature Conservancy
Ms Delvine Boso	Director/WorldFish Centre, SI
Mr Jimmy Damusaru	Lecturer/ School of Natural Resources (SNR), Solomon Islands College of Higher Education (SICHE)
Mr Patrick Daudau	Head/ Curriculum Development Centre, Department of Education
Ms Kathleen Flowers	Coral Triangle Support Partnership/Conservation International
Mr Chenl Iroi	Acting Permanent Secretary, Dept. of Meteorology, Environment, Climate Change & Disaster Management (MECDM)
Ms Robyn James	TNC
Mr Longdon	Project Manager, Solomon Islands Development Trust (SIDT)
Mr Aaron Kama	Head, School of Natural Resources (SNR), Solomon Islands College of Higher Education (SICHE)
Mr Henry Kaniki	Foundation of the Peoples of the South Pacific (FSPI)
Ms Duta Kauhiona	Environmental Education Officer/ UNDP & School of Natural Resources (SNR), Solomon Islands College of Higher Education (SICHE)
Mr Peter Kenilorea	Co-ordinator/ Solomon Islands Locally Managed Marine Areas (SILMMA)
Mr Alex Makini	Environmental Studies Course Coordinator/ School of Natural Resources (SNR), Solomon Islands College of Higher Education (SICHE)
Ms Rosalie Masu	Acting Deputy Director, Inshore Fisheries/Ministry of Fisheries
Ms Senoveva Mauli	TNC
Ms Joanne Pita	Assistant Program Manager, Education Section/AusAid (former FSPI)
Mr Donald Raka	ABD SI
Mr Ben Salepo	Environment and Conservation Officer/Live and Learn
Mr Shannon Seeto	WWF, Solomon Islands
Ms Salome Pitatina Topo	Gizo Office, WWF
Dr Noel Taylor-Moore	Program Manager, MISSIF
Mr Chris Teva	Lecturer, School of Natural Resources (SNR), Solomon Islands College of Higher Education (SICHE)
Mr James Teri	Director, Fisheries and Marine Resources/ Ministry of Fisheries and Marine Resources
Mr Valentine Thuralrajah	Project Manager, Strengthening Environmental Management and Reducing the Impact of Climate Change (SEMRICC), UNDP
Mr John Usuramo	Director/ University of South Pacific, Solomon Islands Campus
Ms Agnetha Vavekaramui	CTI Focal Point/ Dept. of Meteorology, Environment, Climate Change & Disaster Management (MECDM)
Ms Rose Wale	Director/IPAM
Ms Jennifer Wate	Director/Solomon Islands Development Trust (SIDT)

Papua New Guinea

Name	Position/Organisation
Ms Margaret Ame	Training Coordinator, NFA
Mr Aisi Anas	Lecturer, UNRE/NFC
Dr Eliakim Apelis ⁹	Assistant Secretary, Curriculum Development & Assessment Division, Department of Education
Ms Maxine Anjiga Arua	Executive Director, PNG-CLMA
Mr Scott Atkinson	Conservation International/Coral Triangle Support Partnership
Ms Anaseini (Ana) Ban	Director, Seaweb
Ms Mildred Dira	PNG- CLMA
Mr Leban Gisawa	Manager, Inshore Fisheries, NFA
Dr Frank Griffiths	Executive Dean, School of Natural & Physical Sciences, UPNG
Mr Frances Hurahura	Country Director, TNC
Ms Kay Kalim	CTI Focal Point, DEC
Mr John Kasu	Director, Corporate Services, NFA
Mr Paul Lokani	
Mr Jeff Kinch	Principal, NFC
Ms Barbara Masike	TNC
Dr Jane Mogina	Director, Mama Gruan
Dr Augustine Mungkaje	Director, Motupore Island Research Station, UPNG
Dr Bob Pomeroy	CTSP
Mr Russell Purai	Deputy-Director, Institute of Public Administration
Ms Helen Rei	PNG-CLMA
Ms Annisah Sapul	Training Coordinator, TNC
Mr Andrew Taplin	Ministerial Advisor, DEC
Mr Eric Verheij	Director, Western Melanesia Program, WWF
Ms Anne Walton	NOAA/CTSP
Ms Jane Wia	Training Coordinator, WCS
Ms Ngil Zerike	Snr Curriculum Officer, TVET, Dept of Education

⁹ Dr Apelis convened a meeting of Dept of Education staff at which the following people participated: Steven Tandale (PCAO, Primary), Melchior Wohi (CAO, Primary), Betty Bannah, Mary Norru, Adeyato Hahambu, Darisilla Arzi, Mirou Avosa, John Wek, Markus Demi (Curriculum Officer, Primary Industries), Joe Siris (Curriculum Officer, Mechanical), Sabina Mong (A/SCAO, Secondary), Alex Peter (CAO, Elementary), Philippa Darius (A/PCAO Elementary), Nigl Zerike (TVET), Rossa Apelis (TVAT), Martha Kull (CAO, Secondary), Eddie Sarufa

Appendix 2. In-country confirmation of scoping study consultations

From Ms Agnetha Vavekaramui, CTI Focal Point, Solomon Islands (with the Ministry of Meteorology, Environment, Climate Change and Disaster Management).

From: Agnetha [mailto:agnetha.vavekaramui@gmail.com]
Sent: Tuesday, 22 May 2012 6:29 PM
To: leannef@earth2ocean.com
Cc: Rili Djohani
Subject: Re: FW: Draft findings from Solomon Islands Scoping Study for our Training of Trainers project

Hi Leanne,

Good to hear from you. My apologies was quite busy with a number of workshops conducted in Honiara.

I confirm that you and Rili have undertaken the scoping assessment and have consulted with key stakeholders. They represent a majority of key stakeholders and I believe that they posed major inputs to this assessment.

Regards
Agnetha

On 5/22/12, Leanne Fernandes <leannef@earth2ocean.com> wrote:

> Hi Agnetha
>
> How are you going? Well, I hope.
>
> As required by our contract, the Australian Government would like you to
> confirm that Rili (the Coral Triangle Centre) and I (the Australian
> Tropical Marine Alliance) have, in fact, conducted adequate consultations
> during the scoping study for our Training of Trainers project (see SI
> findings attached and as sent out to all the people we talked to in early
> May).
>
> It is in your position as CTI Focal Point, they would like you to provide
> this confirmation.
>
> Just so you know, we have been in touch with people and institutions in
> Solomon Islands listed at the end of this email during the scoping study.
> The kinds of questions/conversations that we had with you were the same
> with all these folks.
>
> A simple response to this email is all that is required - just to say
> whether you do or do not consider that our consultations were adequate.
>
> Thank you Agnetha.
>
> Cheers
>
> Leanne

From Peter Kenilorea, Coordinator, Solomon Islands LMMA Network

From: Peter Kenilorea [mailto:pkenilorea@fisheries.gov.sb]

Sent: Friday, 25 May 2012 1:45 AM

To: leannef@earth2ocean.com

Subject: Re: Response needed please

Hi Leanne,

Sorry for not replying so soon. I'm in Malaysia for the CTI-EAFM REX thus haven't checked my email all throughout the week. Yeah, I read through the document and I'm sure it's true and the consultation you and Rili have conducted is adequate.

Regards,

Peter

From: Leanne Fernandes [mailto:leannef@earth2ocean.com]

Sent: Tuesday, 22 May 2012 2:03 PM

To: 'Peter Kenilorea'

Cc: 'Rili Djohani'

Subject: FW: Draft findings from Solomon Islands Scoping Study for our Training of Trainers project

Hi Peter

How are you going? Well, I hope.

As required by our contract, the Australian Government would like you to confirm that Rili (the Coral Triangle Centre) and I (the Australian Tropical Marine Alliance) have, in fact, conducted adequate consultations during the scoping study for our Training of Trainers project (see SI findings attached and as sent out to all the people we talked to in early May).

It is in your position as coordinator of SILMMA, they would like you to provide this confirmation.

Just so you know, we have been in touch with people and institutions in Solomon Islands listed at the end of this email during the scoping study. The kinds of questions/conversations that we had with you were the same with all these folks.

A simple response to this email is all that is required – just to say whether you do or do not consider that our consultations were adequate.

Thank you Peter.

Cheers

Leanne

From Maxine Anjiga Arua, Executive Director, PNG-CLMA

From: maxine.pngclma@gmail.com [mailto:maxine.pngclma@gmail.com]

Sent: Wednesday, 30 May 2012 8:57 AM

To: Rili Djohani

Cc: leannef@earth2ocean.com

Subject: Re: draft findings PNG Scoping study for Training of Trainers Project - Urgent response required

Hi Rili et al,

I apologise for not getting to you sooner.

I agree in principle that the consultation on this project is adequate enough and the discussions are good so far.

I do not have any questions or comments at this time but if I do later, I will inform you both.

Kind Regards

Maxine

From: Rili Djohani [mailto:rdjohani@coraltrianglecenter.org]

Sent: 29 Mei 2012 6:50

To: Maxine Anjiga Arua <maxine.pngclma@gmail.com> (maxine.pngclma@gmail.com)

Cc: leannef@earth2ocean.com

Subject: draft findings PNG Scoping study for Training of Trainers Project - Urgent response required

Dear Maxine,

I hope you made it back safe and sound to Port Moresby after the Bali workshop. It was great to see you. I wanted to follow up with you regarding the draft findings of the PNG Scoping study for Training of Trainers Project that were recently sent to you.

As required by our contract, the Australian Government would like *you* to confirm that Leanne (the Australian Tropical marine Alliance) and Rili (the Coral Triangle Centre) have, in fact, conducted adequate consultations during the scoping study for our Training of Trainers project (see PNG findings attached with all comments incorporated and as sent out to all the people we talked to in the week of May 7-12).

It is in your position as the Executive Director of CLMA, they would like you to provide this confirmation.

Just so you know, we have been in touch with people and institutions in PNG listed at the end of this email during the scoping study. The kinds of questions/conversations that we had with you were the same with all these folks.

A simple response to this email is all that is required – just to say whether you do or do not consider that our consultations were adequate. Thank you Maxine.

Best, Rili