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Proceedings of the 2nd International Seminar on Islands and Oceans (2nd Stage)

Tokyo, Japan

June 18－19, 2014

Ocean Policy Research Foundation

This publication was produced under the patronage of the Nippon Foundation from the proceeds of motorboat racing.

Proceedings of the 2nd International Seminar on Islands and Oceans (2nd Stage)

March 2015

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Foreword

The ocean covers some 70 percent of the earth's surface and plays a significant role in sustaining human life through its natural resources, maritime courses, role in stabilizing climate and so on. Islands at the same time serve as an irreplaceable base to protect and conserve oceans, the marine environment and biodiversity while at the same time to sustainably use oceans and ocean resources.

Today, however, islands are faced with various conservation and management challenges. They face the threat of natural disasters such as typhoons, large waves, inundation, and erosion. Insufficient or inappropriate urban planning caused by increases in population and high population concentration also pervades and the marine environment continue to deteriorate due to inappropriate planning, for instance regarding residential drainage and waste management. If sea levels continue to rise due to climate change and variability, islands face the impending risk of inundation and submersion beneath the sea surface.

It is important to recall that coastal states are entrusted with the management of large ocean areas in pursuance with the United Nations Convention on Laws of the Sea. Island states have the right to explore, exploit, conserve and manage the natural resources in the 200 nautical miles from their coastlines while having the responsibility to protect and conserve the marine environment and biological resources in these waters.

Japan is an archipelagic state where 6,852 islands are located in the seas such as northwest Pacific Ocean, Sea of Japan, Sea of Okhotsk and East China Sea. The management of such islands and adjacent ocean areas is one of the most important elements in the Japan's ocean policy.

Ocean Policy Research Foundation (OPRF) has developed a joint policy recommendation that was submitted for Rio+20 in 2012 based on the outcome of the three year research entitled "Management and Conservation of Islands and their Surrounding Ocean Areas – Stage 1". OPRF has launched a three-year project entitled "Sustainable Development of Islands and their Surrounding Ocean Areas – Stage 2" in 2013 in collaboration with the Australian National Centre for Ocean Resources and Security (ANCORS), the Secretariat of the Pacific Community: Applied Geoscience and Technology Division (SOPAC) and the Pacific Islands Forum Secretariat (PIFS). Building upon the preceding workshop held in August 2013, this seminar of 2014 aimed to articulate the strategies for implementing our joint policy proposal "For the Better Conservation and Management of Islands and their Surrounding Ocean Areas" that was submitted for the preparatory process of the Third International Conference on Small Island Developing States (SIDS 2014) held in Samoa, September 2014.

It was underlined that there is a need to promote concrete actions and international cooperation for implementing the joint policy recommendations. We are pleased to hereby report that at the SIDS 2014, OPRF has launched an international collaborative network called "Islands and Oceans Net (IO Net)" that is expected to advance the implementation of the joint policy recommendation.

Ocean Policy Research Foundation

Acknowledgement

The 2nd International Seminar on Islands and Oceans was made possible by the generous support of the Nippon Foundation from the proceeds of motorboat racing. We could like to express our sincere gratitude for this support and also acknowledge the Foundation's understanding of marine and terrestrial environmental issues and the life of people living on islands.

Brief Overview

Seminar

The 2nd International Seminar on Islands and Oceans (2nd stage)

Date
June 18 and 19, 2014

Format
Closed Sessions
(Individuals interested in issues concerning islands and their surrounding ocean areas may be invited as observers)

Venue
Meeting Room of the Nippon Foundation (Nippon Zaidan Building, 2nd Floor), Akasaka, Tokyo

Organizer
Ocean Policy Research Foundation

Co-Organizers
Australian National Centre for Ocean Resources and Security, ANCORS
Applied Geoscience and Technology Division of the Secretariat of the Pacific Community, SOPAC Division of SPC
Pacific Islands Forum Secretariat, PIFS

Supported by
The Nippon Foundation

Participants

Australia:

Prof. Richard KENCHINGTON
(ANCORS)

Dr. David LEARY
(University of Technology, Sydney)

Fiji:

Ms. Alison SWADDLING
(SOPAC Division of SPC)

Mr. Akuila TAWAKE
(SOPAC Division of SPC)

Japan:

Prof. Tomoya AKIMICHI
(RIHN, Prof. Emeritus)

Dr. Tomohiko FUKUSHIMA
(JAMSTEC, Assistant Director)

Prof. Moritaka HAYASHI
(Waseda University, Prof. Emeritus)

Mr. Yasuhiko KAGAMI
(Chubu University, Associate Professor)

Prof. Hajime KAYANE
(The University of Tokyo, Professor)

Mr. Masanori MIYAHARA
(Fisheries Agency, Deputy Director General)

Prof. Naoya OKUWAKI
(Meiji University, Professor)

Mr. Hiroshi TERASHIMA
(OPRF, Executive Director)

Prof. Toshio YAMAGATA
(JAMSTEC, Director of Application Lab.)

Prof. Tetsuo YAMAZAKI
(Osaka Prefecture University, Professor)

Chairs

General Chairs:

Mr. Hiroshi TERASHIMA
Prof. Richard KENCHINGTON

Session 1 Chairs:

Mr. Hiroshi TERASHIMA
Prof. Richard KENCHINGTON

Session 2 Chairs:

Prof. Richard KENCHINGTON
Prof. Moritaka HAYASHI

Session 3 Chairs:

Prof. Toshio YAMAGATA
Prof. Richard KENCHINGTON

Session 4 Chairs:

Prof. Hajime KAYANE
Dr. David LEARY

Session 5 Chairs:

Mr. Hiroshi TERASHIMA
Prof. Richard KENCHINGTON

Staff (OPRF)

Dr. Keita FURUKAWA
Mr. Shingo HORII
Mr. Masanori KOBAYASHI
Mr. Hajime KURAMOCHI
Ms. Sakura NAGAOKA
Mr. Tomoki TAKIMOTO
Ms. Rina UESATO
Dr. Lilian YAMAMOTO

Program

June, 18th

10h-10h30m Opening

Election of Chairs

Opening Address by Mr. Hiroshi TERASHIMA (OPRF)

Address by Prof. Richard KENCHINGTON (ANCORS)

Self-introduction by seminar attendees

Photo Session

10h30m-12h Session 1: Reports on activities related to Islands and Oceans

Chaired by Mr. Hiroshi TERASHIMA and Prof. Richard KENCHINGTON

"Status report from SOPAC and preparation for the 3rd SIDS"

Dr. Alison SWADDLING

"Status report from ANCORS and International Societies"

Prof. Richard KENCHINGTON

"Status report from OPRF and International Societies"

Dr. Keita FURUKAWA

12h-13h30m Lunch

13h30m-16h00m Session 2: Management of the Surrounding Ocean Areas

Chaired by Prof. Richard KENCHINGTON and Prof. Moritaka HAYASHI

Review: "Policy Proposal on Management of the Surrounding Ocean Areas" by Secretariat

Assigned Commentators:

- "2-2-e: MPA" Prof. Richard KENCHINGTON
- "2-2-b: Fisheries" Mr. Masanori MIYAHARA
- "2-2-d: Marine Mineral Resources"

  Mr. Akuila TAWAKE

  Dr. Tomohiko FUKUSHIMA

  Prof. Tetsuo YAMAZAKI
- "2-2-a: Baseline" Prof. Moritaka HAYASHI

16h30m-17h30m Session 3: Response to Climate Change and Variability

Chaired by Prof. Toshio YAMAGATA and Prof. Richard KENCHINGTON

Review: "Policy Proposal on Response to Climate Change and Variability" by Secretariat

Assigned Commentators:

- "2-3-a: Climate Change and Variability"

  Prof. Toshio YAMAGATA

- "2-3-b: International Law"

  Prof. Moritaka HAYASHI

18h-20h Reception (8th floor of the building)

June, 19th

9h30m-12h Session 4: Conservation and Management of Islands

Chaired by Prof. Hajime KAYANE and Dr. David LEARY

Review: "Policy Proposal on Conservation and Management of Islands" by Secretariat

Assigned Commentators:

- "2-1-a: Development of Island Management Strategies"

  Dr. Yasuhiko KAGAMI

- "2-1-b, e: Island management, Coral reef"

  Prof. Hajime KAYANE

- "2-1-d: Renewable Energy"

  Dr. David LEARY

12h-13h30m Lunch

13h30m-16h30m Session 5: Summary (Consideration on how Island States and the international community should implement policy proposals)

Chaired by Mr. Hiroshi TERASHIMA and Prof. Richard KENCHINGTON

Summary of Previous Sessions and Review of "Policy Proposal on Conservation and Management of Islands" by Secretariat

Action towards the international conference on SIDS, 1-4 Sep. 2014

- Side Event Proposal by OPRF
- e.g. Target and Possible Action Plans

Action towards Post SIDS and Future Cooperation

- e.g. UN Sustainable Development Goals in 2015
- e.g. Establishment of Islands and Oceans Network

Wrap-up

16h30-17h Closing

Content

Session 4：Conservation and Management of Islands

Administrative and Editorial Office

Meeting Minutes of
The 2nd International Seminar on Islands and Oceans
(2nd Stage)
Tokyo, Japan, June 18-19, 2014

- General Chairs
  - Mr Hiroshi TERASHIMA
    (Islands are faced with various conservation and management challenges; First stage of seminar 2009-2011: Islands, Surrounding Ocean Areas, and Climate Change and Variability; Policy proposal submitted to the Rio+20; Second stage of seminar 2013-2015;Preparation for SIDS, Creation of international Network, and Inclusion of "Ocean" in SDG)

  - Prof Richard KENCHINGTON
    (Much action needed for Blue growth in islands; Rich economy in Northern Hemisphere; Capacity building)

- Main Organizer
  - Ocean Policy Research Foundation

- Co-Organizers / Cooperation with
  - Australian National Centre for Ocean Resources and Security, ANCORS
  - Applied Geoscience and Technology Division of the Secretariat of the Pacific Community, SOPAC Division of SPC
  - Pacific Islands Forum Secretariat, PIFS

Session 1 : Reports on activities related to Islands and Oceans

Chaired by Mr Terashima & Prof Kenchington

Reports from SOPAC division of SPC, PIFS, ANCORS and OPRF were made as follows;

1-1 Status report from SOPAC and preparation for the 3rd SIDS

by Ms. Alison SWADDLING

＊SOPAC Programmes
(Water and Sanitation; Disaster Reduction; Geoscience for Development)
＊SOPAC Update
(DSM Workshops; Waves and Coastline Survey Continues; Impact Assessment; Maritime Boundaries; Navigational Charting;)
＊SPC-EU DSM Project Collaboration
(with many Institutions, Civil Society Groups and Commercial Entities)
＊SPC-EU DSM Project Assistance
(to Implement Legal Measures, to Establish Special Guidelines and Policies and Capacity Building)
＊SPC-EU DSM Project published Deep Sea Minerals Report and stresses the needs of environmental management for Exploration and Exploitation of DSM.

1-2 Status report from PIFS and Islands States

by Ms. Alison SWADDLING for PIFS

＊PIFS published PIROP(The Pacific Island Regional Ocean policy) for guiding principles.
＊It proposed Six Strategic Priorities of the Oseanscape.
＊We have to build “Pacific Ocean Alliance”.

1-3 Status report from ANCORS and International Societies

by Prof. Richard KENCHINGTON

＊Global Policy Issues
(Food security; Security; Management of seas beyond national jurisdiction; Conflicted area)
＊Common Interests
(marine pollution; habitat damage; ecosystem change etc.)]
＊Global Policy Drivers
(Blue Growth, Blue Economy, Blue Development; Environment for Development)
＊ANCORS Role
(Academic research, Accessible literature, Policy advice, Capacity Building)

1-4 Status report from OPRF and International Societies

by Dr. Keita FURUKAWA

＊The revised Basic Plan on Ocean Policy was developed (April 26th,, 2013)
＊The plan has 12 Measures.
(develop and use of marine resources, ensuring the safety and security of the sea, preservation of remote islands, etc.)
＊Activities of OPRF
(Int. Seminar on Islands and Oceans 2nd Stage; OWG8 on SDGs; UNICPOLOS; Intercessional preparation meeting on SIDS)

Session 2 : Management of the Surrounding Ocean Areas

Chaired by Prof Kenchington & emer. Prof. Hayashi

2-2-1: Comments on "2-2-e: MPA"

Prof. Richard KENCHINGTON

＊objectives of MPA
(need to be clarified, no-take area, sustainable use; temporal as well as spatial regulation (e.g. hatahata in Akita, Japan))
＊implementation of MPA
(need for enforcement capacity (e.g. Palau has only one fishing patrol boat); need to find processes to integrate MPA with other sustainable marine spatial planning)

2-2-2: Comments on "2-2-b: Fisheries"

Mr Masanori MIYAHARA

＊cause of IUU fishing
(overcapacity; too many boats; inappropriate subsidies)
＊management of IUU fishing
(fleet reduction program by WCPFC; reinforcement of RFMO through independent third party review; promote for capacity building for MCS (e.g. Japan started to provide fuel for patrol boat to Palau several years ago); market sanction mechanism (e.g. EU and USA, traceability))

2-2-3: Comments on "2-2-d: Marine Mineral Resources"

Mr. Akuila TAWAKE
Dr. Tomohiko FUKUSHIMA
Prof. Tetsuo YAMAZAKI

＊balance of development
(extensive demand, shortage of production and degradation of quality of land-based resources; growing importance of technical and environmental issues)
＊technical issues
(international cooperation and collaboration (e.g. JAMSTEC and IFREMER); automated, easy, durable, integrated monitoring system for environment; Contaminants in resources (e.g. Cd))
＊decision making
(establishing EIA protocols; scientific based decision making in ISA's protocol; international and interactive network)

Comments on 2-2-4 "2-2-a: Baseline"

Emer. Prof. Moritaka HAYASHI

＊importance of baseline
(growing interest in mineral resources; added need to define outer limit of maritime zones in the Pacific region; the more specific recommendation to encourage island states and SOPAC)

Session 3 : Response to Climate Change and Variability

Chaired by Prof Yamagata & Prof Kenchington

3-2-1: Comments on "2-3-a: Climate Charge and Variability"

Prof. Toshio YAMAGATA

＊Climate change and trend
(Need long-term measurement; caution for the hiatus)
＊Climate variability
(Need more urgent actions for preparedness to extreme climatic events; Seasonal prediction models are available and become reliable; science for people's life)

3-2-1: Comments on "2-3-b: International Law"

Prof. Moritaka HAYASHI

＊Establishment of baselines and maritime limits and their change
(normal baselines are based on LWL and SLR causes them to shift. Limits of maritime zones will be changed by that except for the continental shelf which is established permanently in accordance with UNCLOS)
＊Suggestions
(Initiating dialogues for developing a supplementary clause of UNCLOS to stipulate the right of island countries over subsiding island/maritime zones)

Session 4 : Conservation and Management of Islands

Chaired by Prof Kayanne & Dr Leary

4-2-1: Comments on "2-1-a: Development of Island Management Strategies"

Dr. Yasuhiko KAGAMI

＊Underwater Cultural Heritage
(Archeological, Economical Significance; Treasure hunters' target; Convention on the protection of UWCH)

4-2-2: Comments on "2-1-b, e: Island management, Coral reef"

Prof. Hajime KAYANNE

＊Eco-technological management of Island against SLR
(Effect of SLR and Land-use change; plan for coastal rehabilitation with various challenges of level and time scale; matching system for driving forces)

4-2-3: Comments on "2-1-d: Renewable Energy"

Dr. David LEARY

＊Move forward Implementation of Renewable Energy
(not to depend excessively on imported energy; innovation according to the natural condition; incentives for business operators; FIT; innovative storage mechanisms)

Session 5 : Points to be addressed

Chaired by Mr Terashima & Prof Kenchington

// Conservation and Management of Islands //

1. Implementation of strategic management

Recognize that many island nations already have strategies, the international community should support practical initiatives in the development of strategic planning and the implementation of island scale management decisions

- Considering; Socio-Economically, Culturally and Ecologically sound management
- Recognizing; the historic, cultural and touristic importance of shallow 20th century shipwrecks, explore the feasibility of addressing them within the UNESCO Shipwrecks Convention (Islands)

2. Manage material cycle in Islands

Explore options for recycling and removal of island wastes, including the feasibility of the principle of return of waste packaging and discarded products to mainland port facilities. This exploration should include consideration of relevant provisions of the Basel Convention (Island/Reg./Int.)

- Considering; Land-use change could affect material cycle (Islands)
- Supporting; measures for biotic beach nourishment (Islands/Int.)
- Supporting; measures exploration and use of environmentally sustainable production of lagoonal and shallow sands for land fill, restoration, reclamation and building materials (Islands)
- Exploring; possibility on waste management with shipping line (Islands/Reg./Int.)

3. Renewable Energy

Recognize the vulnerability of Pacific Island Nations to climate change and variability, and the economic constraints imposed by their energy dependence in imported fuels, promote the concept of Pacific Islands as a global showcase area for urgent development and application of alternative energy technologies

- Considering; sustainable economy model (e.g. FIT, GEF, JICA) and incentive for business operator (Islands)

- Considering; international society help to islands for implementing renewable energy to count as measures on suppression of CO2 emission (CBM)
- Considering; Economic aspect / Energy security / Include donor partners

// Management of Surrounding Ocean Area //

4. Scaling up MPA

Support measures to clarify the objectives and provisions of MPAs and how such conservation measures are addressed within Marine Spatial Planning, EBM and similar strategic planning.

- Recognising and supporting; measures to enable effective implementation of strategic management of MPAs and other marine activities.
- Recognising; that management of fisheries and biological diversity have some overlapping and shared objectives and that they use similar management techniques and resources, encourage mutual understanding, development and implementation of the roles of MPAs in fishery management and of fishery management in biodiversity management.

5. Promoting sustainable fisheries

- Reinforcement for RMFO with market mechanisms (Int./Reg.)
- Comprehensive certification mechanisms
- Capacity management - suppressing ship building subsidy

6. Environmental safeguarding in marine mineral resource

- Supports the SPC-EU DSM Project in the development of a Pacific regional environment management and monitoring guidelines for deep sea minerals activities with collaboration from international societies (Int.)
- Protocols / guidelines compilation (Int.)

// Climate change //

7. Getting Awareness and Measures on Climate variability and Climate change

- Understanding short time climate variability under climate change [Monitoring and Cautioning extreme climate]
- Monitoring effects on Fisheries, agriculture and metrological hazards (Int./Islands)

8. Setting baselines

- Proposing an open ended informal consolidation at UN (UNICPOLOS) by SIDS with specific example
- Use ecosystem based coast management. Create protocols not to use inappropriate construction for shoreline management.

// Capacity Building //

9. Capacity Building

International and regional partners are encouraged to facilitate capacity building through needs analysis and targeted trainings recognising and addressing different requirements for specific knowledge and broader career development.
In designing capacity building programs countries, International and regional partners are encouraged to consider which capacity development approaches will be most appropriate. These may include but are not limited to:

- Short, medium or longer term training overseas
- Short or medium term training in country/region by visiting expert
- Capacity building workshops in country/region with peer to peer knowledge sharing and visiting experts as appropriate

Furthermore, it is noted that following consideration should be given to:

- strengthening mechanisms to involve and empower stakeholders in decision-making and policy implementation
- Coordination of Donors

The design and resourcing of trainings should enable them to address identified needs and contexts. This may be achieved through

- Short courses routinely offered by training institutions (such as Law of the Sea, Fisheries, Biodiversity management);
- Special short courses designed to address specific needs identified collaboratively by training institutions and trainee states;
- Short courses followed with peer group and or expert mentoring – which may include video conferencing where practicable;
- Medium length in-service courses routinely offered by training institutions;
- Special medium length courses designed to address specific institutional needs;
- Longer term. Relevant university or technical courses from first qualification to higher degree;
- Longer term. Special studies associated with a major project such as plan development or establishment of program implementations.

Indicative time commitments in this suggestion are:

- short term 1 – 3 weeks,
- medium term 1 - 6 months

Example of area of capacity building

- Establishing a network for
  - More interaction with members (e.g. Japan and SPC)
  - Research on oceans, building a model of IPCC/IPBES/UN High-level Political Forum on Sustainable Development
- Knowledge management
  - Establishing a scheme to share good practice and promote innovative actions for sustainable Islands and Oceans' management (e.g. Disaster preparedness, waste, renewable energy, ecosystems, food, water)

// Action to SIDS2014 //

10. Side Event Proposal

- Presentation of the action list we have
- Promoting future international networking based on our seminar
- Implementation oriented conversation focus is desirable
- Co-organized with Pacific Ocean Alliance (Pacific ocean commissioner in PIFS)

- Invite people from outside of the alliance is also good
- Contact with PIFS and POA
- Avoiding overlapping with PIFS and POA's side event (DSM etc.)
- Invite High-level persons (Ambassadors, VC of Pacific Univ., DG of SPC)
- Side event Proposal will be screened by UN / we have to wait the result (The side event proposal has been accepted and assigned 11:00-12:30 September 3, 2014 by UN: sectreatiat)

// Action to post SIDS2014 //

11. Realization of Policy Proposals

- Intention of continuation of our conversation
- Establishment of network for capacity building
- PIFS is one of best coordinator of this field
- CROP leader meeting of PIFS with SPC, SPREP, FFA
- OPRF will send proposal to PIFS

Session 1

Reports on activities related to Islands and Oceans

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

Status Report for SOPAC

OPRF Seminar

Alison Swaddling
Environment Advisor –DSM Project

18 June 2014, Tokyo, Japan

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SPC - Overview

SPC founded in 1947

Headquarters
Noumea, New Caledonia

Regional Offices
Suva, Fiji
Honiara, Solomon Islands
Pohnpei, FSM

22 Pacific island member countries
Plus the 4 founding countries:
Australia, NZ, USA, and France

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SPC - Overview

7 Technical Divisions:

- Applied Geoscience and Technology Division (SOPAC)
- Economic Development Division
- Education, Training and Human Development Division
- Fisheries, Aquaculture and Marine Ecosystems (FAME) Division
- Land Resources Division
- Public Health Division
- Statistics for Development Division
- Strategic Engagement, Policy and Planning Facility (SEPPF)
- Operations and Management Division

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

Applied Geoscience and Technology Division (SOPAC) - Overview

SPC
Secretariat of the Pacific Community
Applied Geoscience and Technology Division (SOPAC)

Based in Suva, Fiji
Largest division of SPC – 80+ People

3 Programmes:

- Water and Sanitation
- Disaster Reduction
- Geoscience for Development (previously Ocean and Islands)

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC: Water and Sanitation Programme

Water Services
- Drinking Water Safety
- Water Demand Management
- Water Quality Monitoring Programme
- Water Supply, Sanitation and Hygiene

Water Resource Management
- Pacific Hydrological Cycle Observing System (HYCOS)
- The Pacific Water and Climate Resource Centre
- Integrated Water Resources Management (IWRM)

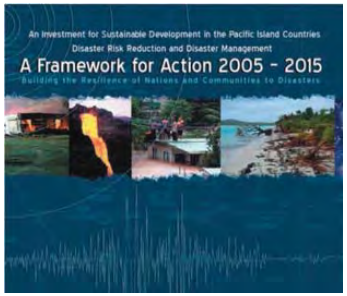
SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC: Disaster Reduction Programme

Disaster Management Team

DRM Policy and Planning Team
- High Level Advocacy Team

DRM Training



Pacific Disaster Net (online tool)
- RFA Monitor
- Projects and Capacities Portal
- National Disaster Information Management Systems

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC: Geoscience for Development Programme

Geology, Minerals and Hydrocarbons
- Environmentally Safe Aggregate for Tarawa (ESAT) Project, KI
- Deep Sea Minerals (DSM) Project

Marine, Coastal Science and Survey
- Bonriki Indundation Vulnerability Assessment (BIVA) Project, KI
- Pacific Adaptation Strategy Assistance Program (PASAP)/ Lifuka Project, TO
- Tsunami Hazard Assessment Project
- WAves and COasts Project (WACOP)

Regional Maritime Boundaries
- Extended Continental Shelf Activities

Pacific Sea Level Monitoring
- Observations Network Upgrade Project

OCEAN & ISLANDS PROGRAMME
Applied Geoscience and Technology Division (SOPAC)
SPC

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC UPDATE:
Dredge Barge Arrives in Tarawa, Kiribati

In September 2013 the MV Tekimarawa, a 40 m steel shallow dredging barge arrived in Tarawa.

Aims to reduce reliance on unsustainable beach mining for sand and gravel used in construction work.

Aggregate deposits in the lagoon can now be safely exploited at low cost with lower environmental impacts

TE ATINIMARAWA
Ara Bike Rorei

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC UPDATE:
Workshop - Environmental Perspectives of DSM Activities

Deep Sea Minerals Project
Dec 2013, Nadi, Fiji co-organised with SPREP

Topics:
- Environment and Biology
- Potential Impacts
- Global Conservation Planning Initiatives
- Regional and National Frameworks
- Baseline Data Collection
- National Environment Management Regime
- Private Sector and Civil Society Perspectives
- Environmental Impact Assessment
- Strategic Environmental Assessment

Experts:
- Prof. Cindy Lee van Dover (Duke University)
- Dr Malcolm Clark (NIWA)

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC UPDATE:
Workshop - Fiscal Regimes and Responsible Investment of Revenues from DSM

Deep Sea Minerals Project
May 2014, Cook Islands co-organised with PFTAC

Topics:
- Economic Planning: Mauritius Case Study
- Socio-economic Assessment
- Economic Value of DSM
- Economic Benefits, Challenges and Risks
- Designing DSM Fiscal Regimes
- Taxation and Royalties
- Tax Administration
- DSM Tax and Royalty Case Studies (Cook Islands, Tonga, PNG)
- Regional Cooperation and Coordination
- Extractive Industry Transparency Initiative (EITI)
- Sovereign Wealth Funds

Experts:
- Chris Brown (ISA Consultant)
- John Feenan (IHC Mining)
- Sybille van den Hove (MIDAS)
- Peter Mullins (IMF)
- Lee Burns (IMF)
- Scott Roger (PFTAC)
- Vidar Ovesen (IMF Consultant)
- Jeff Ardron (DOSI)

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC UPDATE: Waves and Coastline Survey Continues

- WACOP Project seeks to improve our understanding of regional wave dynamics and their influence on shoreline processes, and for improved understanding of coastal vulnerability and adaptation responses in Pacific Islands
- December 2012 with the preparation and deployment of oceanographic instruments in two pioneering field sites in Tuvalu (Fatato Island) and Fiji (Maui Bay)
- To determine wind-waves from the offshore, near shore wave transformations, coastal erosion and overtopping
- The project will provide solutions at small island scales

WACOP
WAVES & COASTS IN THE PACIFIC

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC UPDATE: Drone Technology in Solomon Islands

In April 2014 severe flooding of the Mataniko and other rivers caused fatalities and damage in the Solomon Islands.

SOPAC arranged for an unmanned aerial vehicle (drone) to be sent to obtain assess the flooded areas.

The drone produced high resolution images and digital terrain models to document the spacial extent of the flooding and the damage.

Providing the government high quality scientific data that can be used to ensure that people do not move back into high risk areas that are likely to flood again.

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

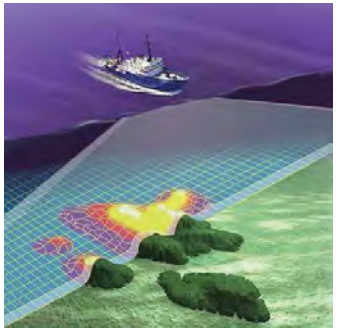
SOPAC UPDATE:
Surveys underway to update Vanuatu navigational charts

Some of Vanuatu's chart data is pre-WWII

From July 2014, the IMO's SOLAS Convention will require member countries to begin using electronic navigational charts.

Important for shipping and tourism to be able to continue in Vanuatu's waters

The survey will chart four critical areas:
- Espiritu Santo (Luganville Port and Champagne Bay)
- Malekula (Wala Island)
- Pentecost (Homo Bay)

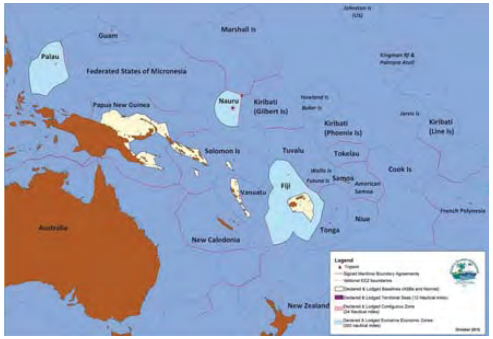


SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC UPDATE:
Maritime Boundaries

Kiribati Finalised Boundary with Republic of Marshall Islands
September 2013

Cook Islands Completed All Boundaries Negotiations
March 2014



SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SOPAC Participation at SIDS 2014

SOPAC Partnership:
- **SPC-EU DSM Project**
- Existing Partnership to be recognised

ISLAND VOICES GLOBAL CHOICES | UN Conference on Small Island Developing States | Apia, Samoa 1-4 September | 2014

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

SPC-EU DSM Project

EU-funded (€4.7 million) project initiated in 2011
Covering 15 Project Countries

To help Pacific Island countries improve the governance and management of their deep-sea minerals resources through:
- improved legal frameworks,
- increased technical capacity and
- effective monitoring systems

SPC-EU Deep Sea Minerals Project
Pacific ACP States

Activities include:
- Assistance with domestic policy and legislation
- Training workshops
- Publications

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Collaborating Institutions:

- United States Geological Survey (USGS),
- National Institute of Water and Atmospheric research (NIWA) - NZ,
- Korean Institute of Ocean Science and Technology (KIOST) ,
- Japan International Cooperation Agency (JICA),
- Duke University,
- Penn State University,
- University of Hawai'i,
- University of the South Pacific (USP),
- Australian National University (ANU),
- International Monetary Fund (IMF),
- Commonwealth Secretariat,
- International Seabed Authority (ISA),
- Secretariat of the Pacific Regional Environment Program (SPREP),
- Pacific Islands Forum Secretariat (PIFS),
- Forum Fisheries Agency (FFA),
- United Nations Environment Program (UNEP)/GRID-Arendal,
- National Oceanic and Atmospheric Administration (NOAA),
- Helmholtz Centre for Ocean research Kiel (GEOMAR),
- International Union for Conservation of Nature (IUCN),
- Pacific Financial Technical Assistance centre (PFTAC),
- Managing Impacts of Deep-seA reSource exploitation Project (MIDAS),
- Deep Ocean stewardship Initiative (DOSI),
- Parties to the Naru Agreement (PNA) Office

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Civil Society Groups:

- Pacific Islands Association of NGO's (PIANGO),
- Development Alternatives with Women for a New Era (DAWN) (Fiji),
- Centre for Environmental Law & Community Rights (PNG),
- Civil Society Forum Tonga, Mas Kagin Tapani Association (PNG),
- Community Mine Continuation Agreement (CMCA) (PNG),
- Women United Together Marshall Islands (WUTMI),
- Nauru Island Association of NGO's (NIANGO),
- The Nature Conservancy (Solomon Islands),
- Minerals Policy Institute (MPI) (Australia),
- Women's Action for Change (WAC) (Fiji),
- Pacific Institute of Public Policy (Vanuatu),
- Te Ipukarea Society (TIS) (Cook Islands),
- Deep Sea Mining Campaign (Australia),
- Samoa Umbrella of NGO's (SUNGO),
- Tuvalu Association of NGO's (TANGO),
- Vanuatu Association of NGO's (VANGO),
- Vanuatu Council of Churches,
- Holy Church of All Nations (Vanuatu),
- Environmental Law Association (Fiji),
- Pacific Conference of Churches (PCC),
- Greenpeace (Fiji), Oasis Earth (USA),

Commercial:

- Neptune Minerals (Australia),
- Nautilus Minerals (Australia),
- Deep Green (Australia),
- Odyssey Marine Exploration (USA),
- IHC Mining (Australia),
- OceanflORE (Singapore),
- Pax Populus Pty Ltd (Australia),
- BMT WBM Pty Ltd (Australia) ,
- ERIAS Group (Australia)

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Assistance to Implement Legal Measures

- 6 Countries have established multi-stakeholder National Offshore Mineral Committees (NOMCs) + 4 utilise existing committees
- DSM team has provided advice on draft DSM laws and policies to 10 countries
- Supported the enactment of the Fiji International Seabed Mineral Management Decree


GOVERNMENT OF FIJI GAZETTE
PUBLISHED BY AUTHORITY OF THE FIJI GOVERNMENT

2.2d-1

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Assistance to Establish Special Guidelines and Policies

- Expert information is required to assist States to protect their interests and environments

- Collaborate with international organisations to develop a range of publications including guidance documents

2.2d-2

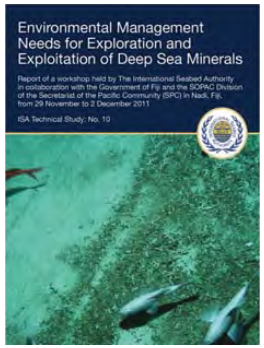
SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Environmental Management Needs for Exploration and Exploitation of DSM

Developed in collaboration with International Seabed Authority and Government of Fiji

Contains:

- an EIA template developed for DSM activities in 'the Area'
- an outline of the legislative and regulatory provisions that should form the basis of environmental management
- the identification of capacity-building needs and methods by which these needs could be addressed



2012

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Deep Sea Minerals Report

A synthesis and review of existing knowledge on deep sea minerals

Volume 1A: SPC (2013). *Deep Sea Minerals: Sea-Floor Massive Sulphides, a physical, biological, environmental, and technical review.* Baker, E., and Beaudoin, Y. (Eds.) Vol. 1A, Secretariat of the Pacific Community.

Volume 1B: SPC (2013). *Deep Sea Minerals: Manganese Nodules, a physical, biological, environmental, and technical review.* Baker, E., and Beaudoin, Y. (Eds.) Vol. 1B, Secretariat of the Pacific Community.

Volume 1C: SPC (2013). *Deep Sea Minerals: Cobalt-rich Ferromanganese Crusts, a physical, biological, environmental, and technical review.* Baker, E. and Beaudoin, Y. (Eds.) Vol. 1C, Secretariat of the Pacific Community.

Volume 2:SPC (2013). *Deep Sea Minerals and the Green Economy.* Baker, E. and Beaudoin, Y. (Eds.), Vol. 2, Secretariat of the Pacific Community.

UNEP

GRID ARENDAL
A Centre Collaborating with UNEP

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Pacific Regional Legal and Regulatory Framework for DSM

Provides a road-map to policy and law issues, for States considering engagement with DSM

Aims to:

- facilitate national policy discussion,
- guide national laws to meet international standards (including the protection of the marine environment),
- protect the State's best interests,
- provide a DSM company's perspective as to what makes an attractive jurisdiction

2012

SPC
SECRETARIAT OF THE PACIFIC COMMUNITY

Facilitate the Sharing of Technical Knowledge

- 5 technical training workshops
- 15 in-country national stakeholder consultation workshops
- 2 regional meetings bringing world-leading experts
- 25 internships
  (Legal, Geology, GIS)
- 6 training opportunities

2.2d-3

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

Other DSM Project Communication

- Information brochures
- Newsletters and media releases
- DSM documentaries
- Community awareness
- DSM Project webpage http://www.sopac.org/dsm

2.2d-3

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

Concluding Remarks

The DSM Project:

- has provided expert technical assistance to the Pacific region in the fields of Geology, Environment and Law
- has developed publications and held workshops to facilitate sharing of technical knowledge
- is looking to widen collaborative networks
- is nearing completion (currently funded to March 2016)

SPC SECRETARIAT OF THE PACIFIC COMMUNITY

Questions?

SPC-EU Deep Sea Minerals Project
Pacific ACP States

Thank you

Alison Swaddling
Environment Advisor
DSM Project
alisons@spc.int

www.sopac.org/dsm

Status Report for the

Pacific Islands Forum

OPRF Seminar 18 – 19 June, 2014

1

Pacific Islands Forum Membership

16 member countries
A combined EEZ of >30 million square kilometers
A total population of 32.7 million people.

Role of the Forum Leaders

Importance of Ocean Resources to the Pacific

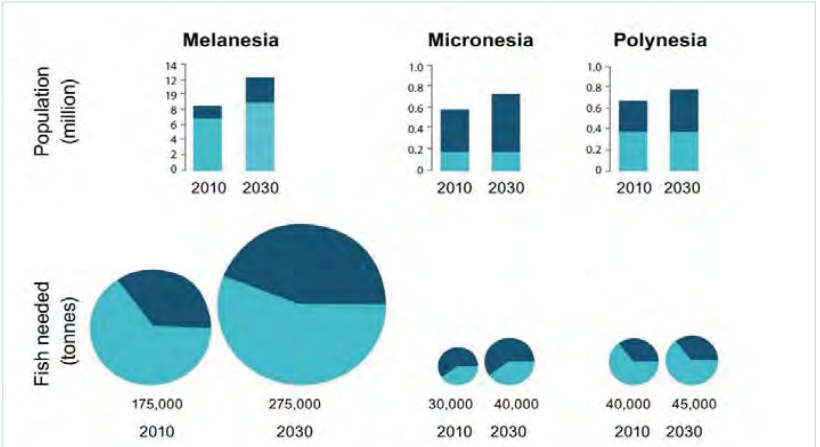


Figure 1.8 Forecasts of population growth, and the fish needed for food security in rural (■) and urban (■) areas of Melanesia, Micronesia and Polynesia in 2030 (source: SPC).

The Pacific Islands Regional Ocean Policy

Guiding Principles:

- Improving our understanding of the Ocean
- Sustainably managing and developing the use of ocean resources
- Maintaining the health of the Ocean
- Promoting the peaceful use of the Ocean
- Creating partnerships and promoting cooperation

5

6

Six Strategic Priorities of the Oceanscape

1. Jurisdictional Rights and Responsibilities
2. Good Ocean Governance
3. Sustainable development, management and conservation
4. Listening, Learning, Liaising and Leading
5. Sustaining Action
6. Adapting to a rapidly changing environment

Pacific Ocean Commissioner

Action 2A – Leaders mandate a strengthening of the regional institutional framework for ocean governance and policy coordination.

Establishment of a Regional Ocean Commissioner, with dedicated professional support, would provide the necessary high level representation and commitment that is urgently required to ensure dedicated advocacy and attention of ocean priorities, decisions and processes at national, regional and international levels.

8

PACIFIC ISLANDS FORUM SECRETARIAT
Excelling Together for the People of the Pacific

PACIFIC ISLANDS FORUM
40th Anniversary 1971-2011

CROP

Private Sector

Civil Society

Pacific Ocean Alliance

Donors

International Organisations

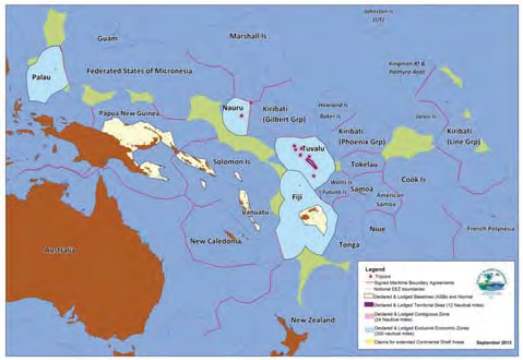
Member Countries

9

PACIFIC ISLANDS FORUM SECRETARIAT
Excelling Together for the People of the Pacific

PACIFIC ISLANDS FORUM
40th Anniversary 1971-2011

Progress in the Pacific



Progress on delineation of maritime boundaries in the Pacific (Source: SPC)

10

PACIFIC ISLANDS FORUM SECRETARIAT
Excelling Together for the People of the Pacific

PACIFIC ISLANDS FORUM
40th Anniversary 1971-2011

International focus

UN Conference on Small Island Developing States
Apia, Samoa | 2014

RIO+20 United Nations Conference on Sustainable Development

11

PACIFIC ISLANDS FORUM SECRETARIAT
Excelling Together for the People of the Pacific

PACIFIC ISLANDS FORUM
40th Anniversary 1971-2011

Questions?

ryanm@forumsec.org

12

Vinaka vakalevu

Thank you

Doumo arigatou gozaimasu

13

ANCORS and International Societies Status Report

Richard Kenchington
Professor, Ecosystem and Resource management

ANCORS Mission

Australia's only multidisciplinary university-based centre dedicated to research, education and training on ocean law, maritime security and marine natural resource management

University of Wollongong
Australian National Centre for Ocean resources and Security
ANCORS

ANCORS People

Professor Martin Tsamenyi Emeritus Director - Law
- fisheries monitoring, control and surveillance;
- shipping; marine environmental matetrs and ocean policy.

Professor Stuart Kaye Director- Law
- Maritime Boundaries, Naval , International Fisheries,

Professor Clive Schofield Director of Research – Geography
- Maritime Boundaries

Professor Robin Warner – Law
- Marine Biodiversity Protection, Biodiversity beyond National Jurisdiction

University of Wollongong
Australian National Centre for Ocean resources and Security
ANCORS

ANCORS People

Professor Alastair McIlgorm – Economics
- Marine fisheries economics and management
- Fisheries resource policy and management training

Professor Richard Kenchington – Maine biology coastal management
- Marine Spatial Planning, Protected Areas, Biodiversity,
- Marine multiple use planning and management

Dr Quentin Hanich
- Ocean resource management , fisheries sustainability,
- conservation and equity

University of Wollongong
Australian National Centre for Ocean resources and Security
ANCORS

ANCORS People

Dr Chris Rahman- Politics, history
- strategic studies and international security.
- Training

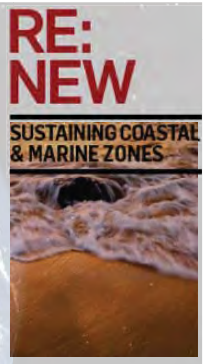
Dr David Kirby – Oceanography, fisheries policy and management
- Fisheries reporting systems, risk analysis

Anthony Morrison – Law
- Law of the Sea, marine environmental,maritime security,
- shipping and ports, marine insurance and commercial maritime law.

Sustaining Coasts and Oceans

Sustaining oceans and our coastal environments, requires multidisciplinary effort

Includes but not limited to
- marine science
- environmental science
- economics and logistics
- engineering
- law and policy
- regional planning



ANCORS and UoW

1. Global Challenges Program
 - Sustaining Coastal and Marine Zones
2. UOW - 20 years coastal engagement
3. ARC response of estuaries to climate change
4. MoU State and local governments

International Issuess

1. Blue growth
- Fisheries, aquaculture and equity
- New technologies
- Scale of impacts

2. Climate change implications
- Fisheries
- Coastal biodiversity
- Food security

IUCN FEG

Givernance of marine fisheries and biodiversity onservation interaction and co-evolution

Garcia, Serge; Rice Jake and and Charles Anthony (Eds)

Wiley Blackwell

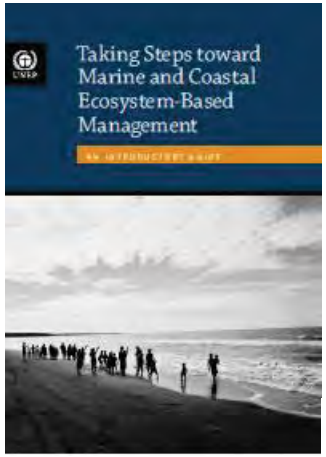
University of Wollongong
Australian National Centre for Ocean resources and Security
ANCORS

Applying EBM

Multiple objectives

Sustainable

Within social, ecosystem and economic constraints



University of Wollongong
Australian National Centre for Ocean resources and Security
ANCORS

University of Wollongong
Australian National Centre for Ocean resources and Security
ANCORS

OPRF

Status report

OPRF and International Societies

Ocean Policy Research Foundation

The 2nd International Seminar on Islands and Oceans
(2nd Stage)
Tokyo
18-19 June 2014

1

Back ground info of Japan

- Land Area
  378 thousand km^2
  (World's 61th – Largest)
- Area of territorial sea and EEZ
  4.47 million km^2
  (World's 6th - Largest)
  - 12 times as large as land area
- Number of Remote Islands
  6,847 islands
- Length of Coast Line
  35 thousand km
  (World's 6th –Longest)
- Export & import cargo's dependency on maritime transportation
  over 99 %
- Volume of shipbuilding per year
  20 million tons
  (2010, word's 3rd –Largest)
  - 21.0% of world total
- Number of Ports and Fishery harbors
  3,914 ports
- Volume of Fishery and aquaculture production
  5.43 million tons
  (2009, world's 5th –Largest)

2

1 Ocean Governance in the World: UN Conference on Sustainable Development

1972 UN Convention on the Law of the Sea (adoption)
1992 UN Conference on Environment and Development
(Rio Earth Summit) Agenda 21
1994 UN Convention on the Law of the Sea
(entering into force)
2000 UN Millennium Development Goal Summit
Millennium Development Declaration
2002 World Summit on Sustainable Development (WSSD)
Johannesburg Plan of Implementation
2003 East Asian Seas Congress (EAS2003)
Sustainable Development Strategy for the Seas of East Asia (SDS-SEA)
2012 UN Conference on sustainable Development (Rio+20)
The Future We Want
2014 the 3rd Small Island Developing States
2015 UN Sustainable Development Goals

3

2 The Latest Development of Ocean Policy in Japan

Establishment of ocean policy frameworks

2007 - The Basic Act on Ocean Policy
- Headquarters for Ocean Policy
- Minister for Ocean Policy

2008 The Basic Plan on Ocean Policy

2013 Revision of The Basic Plan on Ocean Policy

4

Basic Act on Ocean Policy

Enforcement of Basic Act on Ocean Policy (July 20th, 2007)

↓

Headquarters for Ocean Policy established within the Cabinet.

↓

First Basic Plan on Ocean Policy developed in 2008

5

Review of Basic Plan on Ocean Policy

The 1st Basic Plan on Ocean Policy was developed in 2008

5 years

Changes in circumstances such as review of energy policy due to Fukushima nuclear disaster

Many discussions at HOP and among Diet members, National gov., Regional gov., Industrial and Academic societies, etc.

The revised Basic Plan on Ocean Policy was developed (April 26th, 2013)

Cabinet of Japan

Headquarters for Ocean Policy

6

The Revised Basic Plan on Ocean Policy
< 4 Basic Policy Directions >

- International cooperation and contribution to international society
- Wealth and prosperity through the development and utilization of marine resources
- From "country protected by the sea" to "country protecting the sea"
- Exploring unexploited frontiers

The measures are classified into 12 items including the former Basic Plan, but details are revised based on recent ocean circumstances.

7

The Revised Basic Plan on Ocean Policy
< 7 Guiding Principles for Measures>

(1) Harmony with the conservation of the ocean environment and the development and use

(2) Ensure the safety of the sea

(3) Enhancement of scientific knowledge

(4) Healthy development of the maritime industry

(5) Integrated management of ocean

(6) The international cooperation on ocean

(7) Promotion of understanding of ocean and enhancement of ocean education

The 7th measure is newly introduced in the revised policy.

8

The Revised Basic Plan on Ocean Policy – 12 Measures

1. Promotion of the development and use of marine resources


Fishery


methane hydrate

2. Preservation of marine environment, etc.

3. Promotion of Development of EEZ and Continental Shelf

4. Securing Maritime Transport

5. Ensuring the Safety and Security of the Sea

6. Promotion of Marine Surveys

The Revised Basic Plan on Ocean Policy – 12 Measures

7. Promotion of Research and Development of Marine Science and Technology

8. Promotion of Marine Industries and Strengthening International Competitiveness

9. Comprehensive Management of Coastal Zones

10. Preservation of Remote Islands

11. Ensuring International Coordination and Promotion of International Cooperation

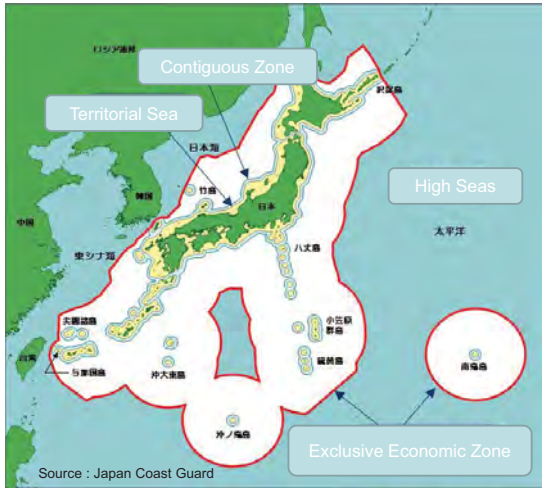
12. Enhancement of Citizens' Understanding of the Sea and Fostering of Human Resources

The Revised Basic Plan on Ocean Policy – 12 Measures

10. Preservation of Remote Islands

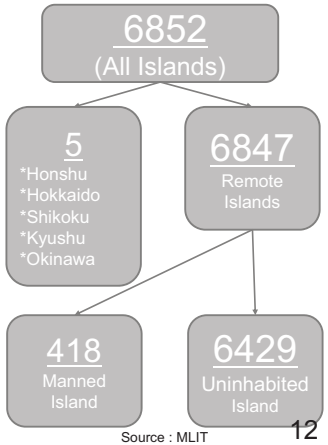
(1) Conservation and Management of Remote Islands
- Securing remote island as base for EEZ and territorial sea
  - Securing remote island and baseline
  - Implementation of security and observation
  - Environment conservation of islands and surrounding sea
- Implementation of project in important remote island for national security and peace keeping

(2) Promotion of Remote Islands
- Securing communication and transport
- Securing medical service and promotion of education and culture
- Promotion of industry in remote islands
- Development of infrastructure



Source : Japan Coast Guard

The Islands of Japan



Source : MLIT

Support for isolated islands

Tourism	Transport	Research	Infrastructure
			
32.1 billion JPY	14.7 billion JPY	13.4 billion JPY	49.2 billion JPY
NEW	215% Year over Year	6% Year over Year	2% Year over Year

Source : MLIT, JCG

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3 Activities of Ocean Policy Research Foundation

Main Field of Research activities

a) Ocean governance
- Management of islands and oceans
- Management of EEZ and continental shelf

b) Integrated Coastal Management
- ICM model site projects
- Promoting ICM Education at Universities

c) Maritime security
- Policy proposal on Building Confidence and Security in the Exclusive Economic Zones
- Bilateral talks on maritime security

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3 Activities of Ocean Policy Research Foundation

3.1 International Seminar on Islands and Oceans (2nd Stage)

- Promotion of Sustainable Development of Islands and their Surrounding Ocean Areas
- Tokyo, Japan: August 20-21, 2013
- General Chairs:
  - Mr. Hiroshi TERASHIM
  - Prof. Martin TSAMENYI

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3 Activities of Ocean Policy Research Foundation

3.1 International Seminar on Islands and Oceans (2nd Stage)

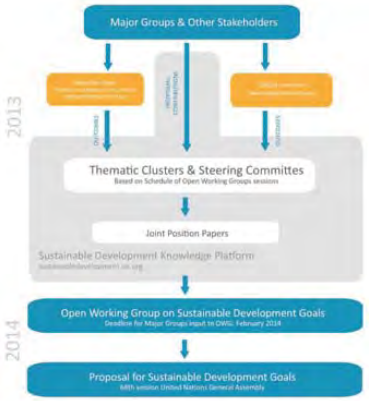
Policy Proposal

OPRF and ANCORS has submitted a Policy Proposal to provide input to SDGs and SIDS process:

Contents
1. Purpose of This Policy Proposal
2. Priority Issues and Directions toward Solution
   2-1. On Conservation and Management of Islands
   2-2. Management of the Surrounding Ocean Areas
   2-3. Response to Climate Change and Variability
3. Capacity Building and Institutional Strengthening
4. Suggestions for Responding to the Challenges
5. Toward Realization of This Policy Proposal

16

3 Activities of Ocean Policy Research Foundation
3.2 OWG8 on SDGs – The Role



All SDGs Thematic Clusters
Climate change
Conflict prevention, post-conflict peacebuilding and the promotion of durable peace
Desertification, land degradation and drought
Disaster risk reduction
Employment, decent work and social protection
Energy
Food Security and Nutrition / Sustainable Agriculture
Forests and biodiversity
Global partnership for achieving sustainable development
Health and population dynamics
Human rights
Macroeconomic policy questions
Means of implementation
Needs of countries in special situations
Oceans and seas
Poverty eradication
Promoting equality, including social equity, gender equality and women
Regional/Global governance
Rule of law and governance
Sustainable cities and human settlements
Sustainable consumption and production (including chemicals and waste)
Sustainable Development Financing
Sustainable transport
Sustained and inclusive economic growth
Water and Sanitation
Youth, education and culture

3 Activities of Ocean Policy Research Foundation
3.2 OWG8 on SDGs - Participation

- A 30-member Open Working Group (OWG) of the General Assembly is tasked with preparing a proposal on the SDGs.
- The Group has established a 8 sessions schedule of work.
- The 8th OWG have held 3-7 Feb. 2014 including Ocean, Forests and Biodiversity sessions.

3 Activities of Ocean Policy Research Foundation
3.2 OWG8 on SDGs – summary of the meeting

Oceans and seas, forests, biodiversity

- The role as life-support systems of oceans and seas, forests and biodiversity was frequently mentioned.
- Healthy, productive and resilient oceans are important for poverty eradication, global food security, human health, climate regulation, and the creation of sustainable livelihoods and decent jobs.
- Forests are key sources of wood and other forest products, water supplies, medicines, livelihoods, ecosystem stability, carbon storage and other vital services.
- Many underscored that biodiversity contributes directly and indirectly to the well-being of both current and future generations. The need to recognize the living value of species beyond their commodity values was noted.
- A range of threats to oceans and seas were mentioned, including: marine pollution including marine debris; climate change and its impacts such as sea-level rise; ocean acidification; unsustainable extraction of marine resources, such as overfishing, illegal, unreported and unregulated (IUU) fishing, and destructive fishing practices; and harmful subsidies that incentivize unsustainable activities.
- Many expressed concern relating to the access to and exploitation of the resources of sea-bed and ocean floor beyond the limits of national jurisdiction.
- Some raised the issue of conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction.

3 Activities of Ocean Policy Research Foundation
3.2 OWG8 on SDGs – summary of the meeting

Oceans and seas, forests, biodiversity (cont'd)

- The need to recognize and respect the rights of indigenous peoples and other forest dwellers, and their vital role in sustainable forest management, was noted.
- Various options for goals and targets were put forward. Some favoured clustering oceans, forests and biodiversity under an umbrella goal on healthy, productive and resilient ecosystems; others suggested that one or more of these areas merit stand-alone goals, in particular for oceans In addition, many referred to the cross-cutting nature of oceans, forests and biodiversity, suggesting that targets relating to these could be integrated under other relevant goal areas – such as poverty eradication, food security, health, water, disaster risk reduction and others.
- Poor and vulnerable groups are disproportionately affected by the consequences of unsustainable management of natural resources and ecosystems.
- Many mentioned the importance of capacity building, technology transfer and financing in relation to the sustainable use and management of natural resources. The importance of science-based policy making, partnerships and multi-stakeholder participation were also identified as enablers for implementation of sustainable management of natural resources.
- Many referred to existing agreements and instruments on the oceans, forests and biodiversity, and suggested that SDGs should be aligned with and supportive of these agreements.

3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS – The Role

UN Division for Ocean Affairs and the Law of the Sea

"In 1999, the General Assembly decided to establish the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (the Consultative Process) in order to facilitate the annual review by the General Assembly…of developments in ocean affairs and the law of the sea…by suggesting particular issues to be considered by it, with an emphasis on identifying areas where coordination and cooperation at the intergovernmental and inter-agency levels should be enhanced (resolution 54/33)."

<http://www.un.org/Depts/los/consultative_process/consultative_process.htm>

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3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS-15 –topic & its importance

Venue: New York, 27-30 May 2014

Topic - UNGA Resolution 68/70 on 9 December 2014

"274. …decides that, in its deliberations on the report of the Secretary-General on oceans and the law of the sea, the Informal Consultative Process shall focus its discussions at its fifteenth meeting on the role of seafood in global food security;"

Importance & timeliness of the topic - Ongoing processes in many international fora

- Open Working Group on Sustainable Development Goal
- Post-2015 Development Agenda
- 3rd International Conference on SIDS (Samoa, September 2014)

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3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS-15 –participants & proceedings

Participants

- Representative of 80 States
- 15 intergovernmental organizations
- 9 NGOs (including OPRF)
- 15 panelists

Proceedings

- General exchange of views
- Panel presentation and discussion (consisting of 3 segments)
- Consideration of the outcome of the meeting

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3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS-15 – list of panelists (1/3)

Segment 1. Understanding global food security and the current role of seafood therein		
Panelist	**Affiliation**	**Title or theme of presentation**
Gro-Ingunn Hemre	National Institute of Nutrition and Seafood Research (NIFES), Norway	"The role of seafood in global food security"
Moses Amos	Director of the Secretariat of the Pacific Community's Division of Fisheries, Aquaculture and Marine Ecosystems	"Issues and Challenges for the Pacific and Global Food Security in coastal fisheries of the region"
Christophe Béné	Research Fellow, Vulnerability and Poverty Reduction Team, Institute of Development Studies, United Kingdom of Great Britain and Northern Ireland	"Sustainable fisheries and aquaculture for food security and nutrition"

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3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS-15 – list of panelists (2/3)

Segment 2. The role of seafood in global food security in the context of the three pillars of sustainable development		
Panelist	**Affiliation**	**Title or theme of presentation**
Brian Crawford	Interim Director, Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island, United States of America	"Small Scale Fisheries and Food Security"
Geoffrey Shaw	Representative of the Director General of the International Atomic Energy Agency (IAEA) to the United Nations	"Planetary change and seafood safety – implications for global food security"
Paúl Phumpiu	Vice Minister for Fisheries, Ministry of Production, Peru	"Contribution of Peru to Food Security"
Margaret Nakato	Executive Secretary, World Forum of Fish Harvesters and Fish Workers, Uganda	"The role of small scale fishing in global food seurity"
Wan Izatul Asma binti Wan Talaat	Associate Professor, Institute of Oceanography and Environmental (INOS), Universiti Malaysia Terengganu (UMT)	"Conserving marine environment towards the sustainability of marine resources for food security".

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3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS-15 – list of panelists (3/3)

Segment 3. Opportunities for, and challenges to, the future role of seafood in global food security		
Panelist	**Affiliation**	**Title or theme of presentation**
Rohana P. Subasinghe	Chief, Aquaculture Branch Food and Agriculture Organization of the United Nations	"Opportunities for, and challenges to, the future role of seafood in global food security"
Manuel Barange	Director of Science, Plymouth Marine Laboratory, United Kingdom of Great Britain and Northern Ireland	"The role of the oceans in securing sustainable food for 9 billion people."
Susan Singh-Renton	Deputy Executive Director, Caribbean Regional Fisheries Mechanism (CRFM)	"Opportunities and challenges for the future role of seafood in global food security: a CRFM/ CAR ICOM regional perspective"
Roland Wiefels	Director, Centro para los servicios de información y asesoramiento sobre la comercialización de los productos pesqueros de América Latina (INFOPESCA)	"Opportunities for, and challenges to, the future role of seafood in global food security: The post-harvest issues"
James Movick	Director General, Forum Fisheries Agency (FFA)	"Opportunities and challenges for SIDS and global seafood security in tuna fisheries of the western tropical Pacific."
Nobuyuki Yagi	Associate Professor in Resource Economics and Marine Policy, Graduate School of Agricultural and Life Sciences, University of Tokyo	"The role of consumers in promoting global food security"
Janos Pasztor	Director, Policy and Science, WWF International	"The role of seafood in global food security"

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3 Activities of Ocean Policy Research Foundation
3.3 UNICPOLOS-15 –summary of the meeting

Summary of the panelists' presentation is available in DOALOS website.
<https://www.un.org/depts/los/consultative_process/consultative_process.htm>

Summary of discussion and overall meeting is reported in "Co-chairs' summary of discussion" which is also available on the website.
<https://www.un.org/depts/los/consultative_process/documents/ICP-15_advance_and_unedited_version.pdf>
*Co-chairs' summary of discussion is attached to this seminar's documents."

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Session 2

Management of the Surrounding Ocean Areas

Coast & Marine Working group

Making sense of scientific information. The challenge of developing knowledge for coastal decision making.

Richard Kenchington, ANCORS
Pascal Perez, SMART Infrastructure Facility,
Kerrylee Rogers, School of Earth and Environmental Sciences
Colin Woodroffe, School of Earth and Environmental Sciences

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Contents

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Transforming Lives and Regions

- Generate and apply knowledge to effect transformational change within our region and globally;
- Build UOW's capacity and reputation as an agent for change with tangible benefits to the community.
- TOP 1% Strategy – more, high quality, visible and impactful research

TRANSFORMING LIVES & REGIONS
GLOBAL CHALLENGES PROGRAM
UNIVERSITY OF WOLLONGONG

Sustaining Coasts and Oceans

Sustaining oceans and our coastal environments, requires multidisciplinary effort.

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- Importance of the coastal and marine environments to the Illawarra, to Australia, to the Asia-Pacific region and to the world
  - Increasing reliance upon ocean resources, living and non-living to sustain humanity
  - Increasing population impacts upon the coastal zone
  - Economic importance of marine and coastal zones as thoroughfares

RE: NEW
SUSTAINING COASTAL & MARINE ZONES

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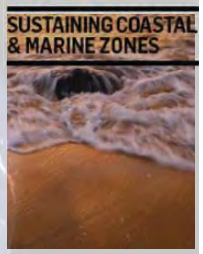
- Includes but not limited to
  - marine science
  - environmental science
  - economics and logistics
  - engineering
  - law and policy
  - regional planning

RE: NEW
SUSTAINING COASTAL & MARINE ZONES



RE: THINK

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Collaborative Research to underpin Sustainable management, South Coast NSW

Initial seed funding to enable and develop a research program building on the expertise of UoW and the experience of natural resource managers and communities to consolidate a dynamic, accessible knowledge base supporting long-term sustainable coastal development.

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Memorandum of Understanding

- Southern Councils Group

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Other Coastal and Marine Projects

- Pacific fisheries and food security initiative
  - partners AusAID and ACIAR
- Safe and secure vessel movements
- Blue Carbon Futures: Opportunities and challenges for mangrove restoration in Vietnam
- Dragging the Chain:
  - Minimising impacts of deep water anchorages

TRANSFORMING LIVES & REGIONS

GLOBAL CHALLENGES PROGRAM

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Funded through CSIRO's Flagship to

Identify barriers to uptake of science in the coastal zone.

Flinders University · Curtin University of Technology · The University of Adelaide · UTAS · Deakin University · University of the Sunshine Coast · University of Wollongong · National Research Flagships · CSIRO

Overarching objectives

Better connect biophysical and social sciences for use in coastal zone management

Support application of trans-disciplinary data and knowledge in coastal decision-making systems.

Overarching objectives

- *Science outcomes as accessible knowledge for communities. industries and government seeking to understand and adapt*

Enable comprehensive improvements to Australian coastal zone management

Adaptive/learning management cycle Roles of Science

1 Understanding outlook and vulnerabilities

- Biophysical socio-economic: history, baselines, trends

2 Establishing a collaborative network

- Communicate science, learn community knowledge, trusted party in boundary organization

3 Framing, fact finding, analysing

- Biophysical socio-economic constraints, opportunities

Adaptive/learning management cycle Roles of Science

4 Establishing vision

- Impartial expert advisor; Represent interests of science

5 Developing policy and strategy

- Decision support analysis; defining measurable objectives

6 Developing and implementing a plan

- Decision support; objectives-based performance criteria; design monitoring regime; engage with community on data collection options

Coastal Collaboration Cluster

Adaptive/learning management cycle Roles of Science

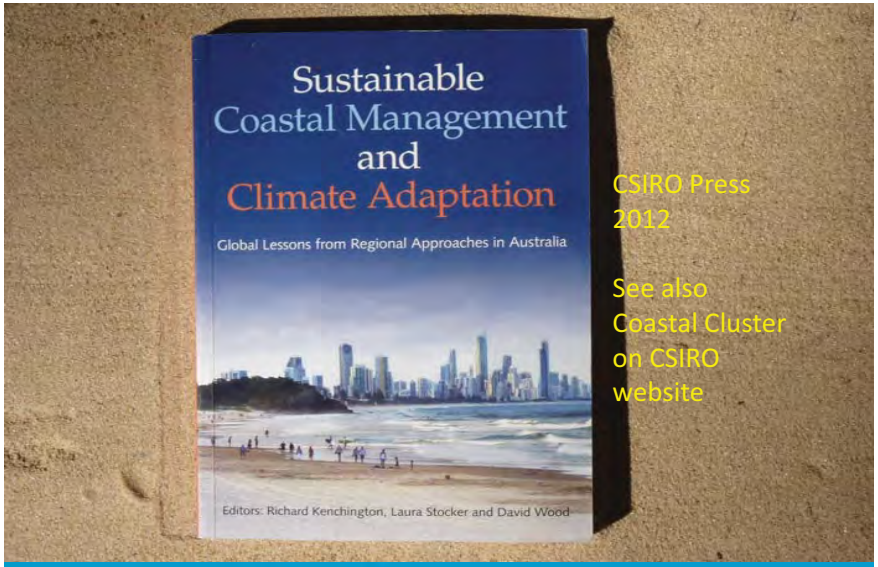
7 Monitoring progress and options

- Data management, analysis and reporting; report cards and other reporting systems for communities

8 Learning, sharing and reporting

- Analysis and reporting: performance and outlook against objectives; update trends and implications

Coastal Collaboration Cluster



Oyster Information Portal

NSW Oyster Industry

Potential causes for production decline:

- •Disease Outbreaks
- •Degradation of water quality-
  Coastal / catchment development
- •Introduction of feral oyster species
- •Market prices – oyster sizes
- •Unreliable oyster spat source
  (wild & hatchery)
- •Cost of production
- •Government regulation
- •Weather- climate change

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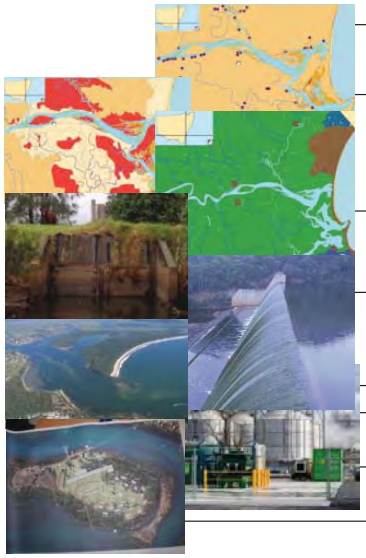
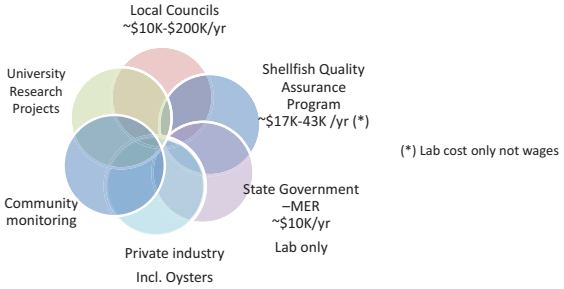


One river system with all the impacts
The Shoalhaven

- Approximately 50 flood gates create low water productivity and are a barrier to fish and prawn access and recruitment;
- Acid Sulfate Soils across the catchment deliver chronic and impact events that are a stressor on fish population health as well as a chemical facilitation of heavy metal transfer into the seafood chain (Winberg & Heath 2010);
- Multiple private, onsite and six centralised sewage management infrastructure systems leads to water quality issues and excess nutrient delivery;
- Cattle and other agriculture along naked riparian zones creates water quality and food safety issue for shellfish industries as well as destruction of river bank integrity;
- Flow regulation by the Tallowa Dam;
- Re-engineering of the river flow from the original river mouth to a new river mouth through Berry's Canal;
- Medium industry alongside the river including starch, paper, dairy.
- Rapid urban development (e.g. Goodnight Island) in one of the fastest growing regions in NSW.

Need for a central data repository

•Extensive water quality monitoring in catchments by different stakeholders



(*) Lab cost only not wages

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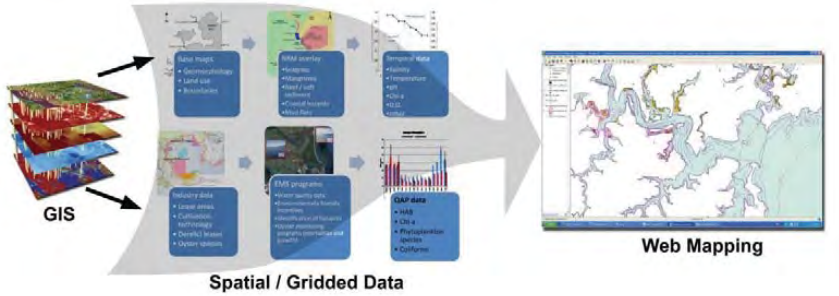
Oyster Information Portal
A User-group Focused 'Coastal Google' for the Future



Objective: OIP = environment + climatic + natural resources + industry

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20 years Coastal Engagement

Faculty studies: eg Environmental Science Program.

Collaborations with about 50 organisations and this degree program building a broader understanding of the range of environmental issues relevant to management in the Illawarra and the wider region.

Transdisciplinary engagement:
ANCORS
SMART Infrastructure Facility
Shoalhaven Marine and Freshwater Centre, ,

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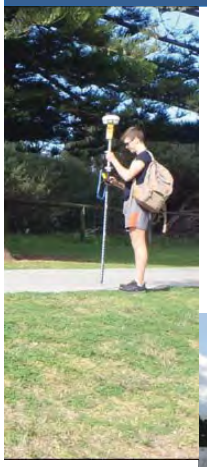
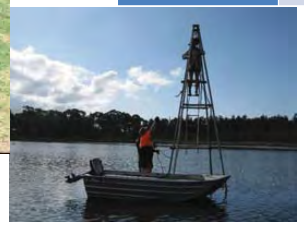
20 years Coastal Engagement



Tom Doyle
Werri Dunes

Partners	2012 B.Sc Env Sci projects			
	Chem	Earth	Land	Life
NSW Govt		1	5	1
Local Govt		3	5	
Industry		1	1	
Research	2		1	



Ashlee Clarke –
Pattimore Lagoon

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Sedimentation and carbon flux

ARC Linkage project [2013-2016]

Response of estuaries to climate change: investigating their role as sediment sinks

Colin Woodroffe (UOW);
John Dodson (ANSTO);
Neil Saintilan (OEH);
Isabelle Ghetti (Shoalhaven CC);
Derek van Bracht (Bega Valley SC)
Kerrylee Rogers –
ARC Future Research Fellow
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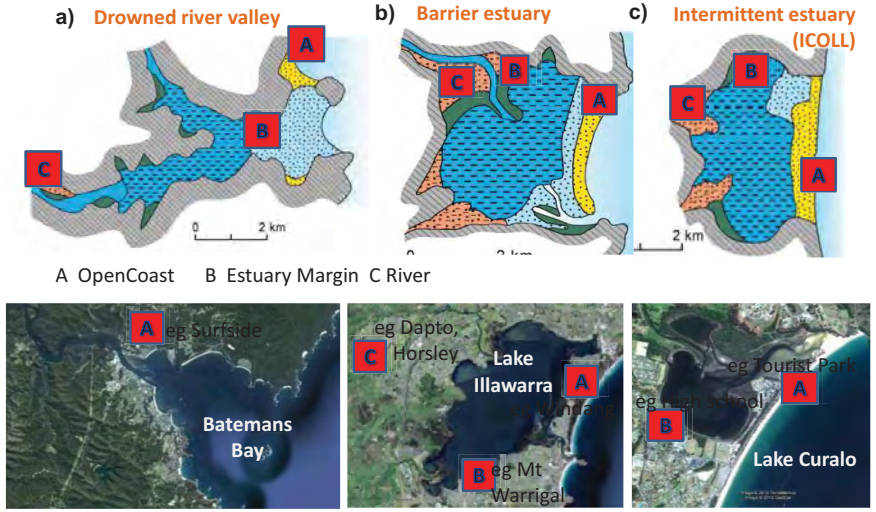
Sedimentation and carbon flux

1. Develop estuary vulnerability framework
2. Broad-scale assessment of estuary vulnerability
3. Determine temporal sedimentation history and develop sediment budget
4. Quantify sediment and carbon sources
5. Model estuary response to climate change
6. Model future sediment budgets and carbon sequestration
7. Model carbon sequestration over the past millennia

2014 2015

A geomorphic framework for considering the vulnerability of estuaries to sea-level rise

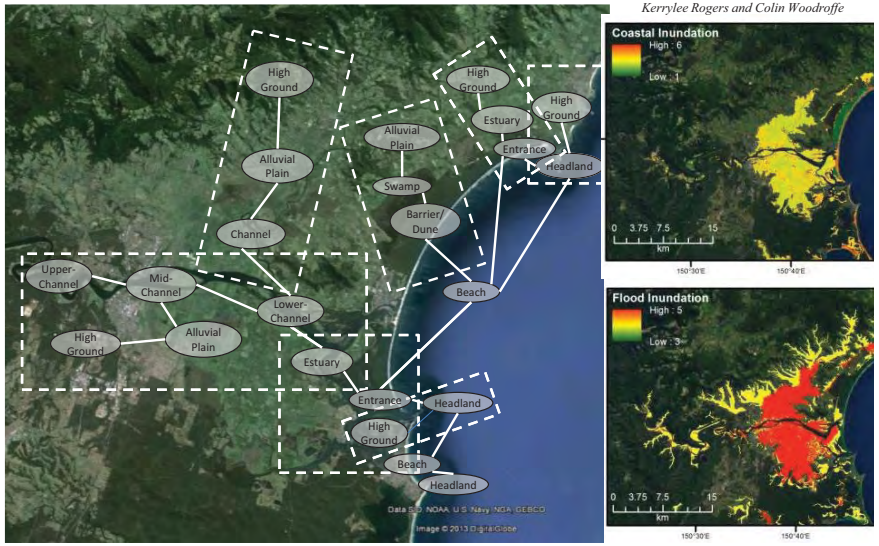
Kerrylee Rogers and Colin Woodroffe



ARC Linkage project

Characterising estuaries and evaluating their vulnerability to hazards

Kerrylee Rogers and Colin Woodroffe



NSW Southern Councils MoU

Agreement to cooperate through research, policy innovation and data sharing, to improve knowledge and coastal zone management

Southern Councils Group
Manly Hydraulics Laboratory - NSW Public Works
(Department of Finance and Services)
University Of Wollongong

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NSW SC MoU Objectives

Address contemporary coastal zone management and strategic environmental issues through development of a collaborative research and policy approach;

Innovative approaches to landuse planning, asset management and change and event monitoring with regards to coastal hazard management and sea level rise

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NSW SC MoU Objectives

Improved understanding of coastal processes, coastal hazards and predicted impact of higher sea levels

A collective approach to the engagement of the insurance, risk and finance sectors in addressing coastal hazard management

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NSW SC MoU Objectives

To encourage the development of relevant academic research projects that provide outcomes applicable to the South Coast Region

To act as project consortia in applying for project funding for research

To foster the exchange of data, academic publications and scholarly information between MOU signatories

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NSW SC MoU Objectives

Consider utilisation of expertise of MOU signatories when applying for research funding, development of project methodologies and policy development

Monitor and evaluate the implementation and success of Coastal Hazard related policy and projects across the Southern Council Group region

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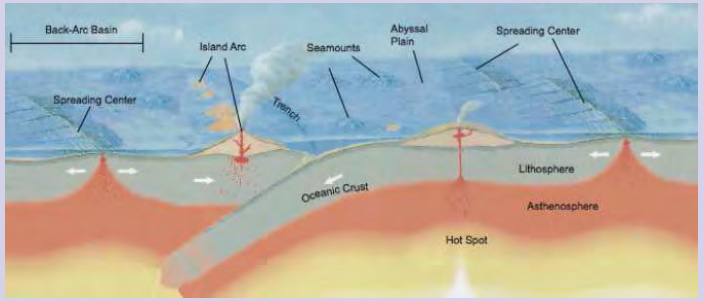
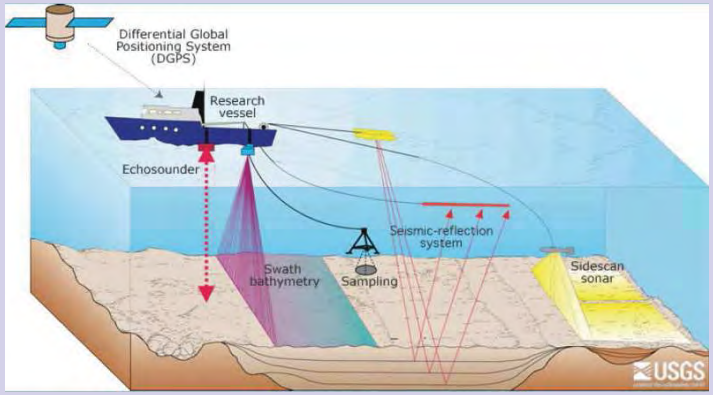
Thank You

Plate Tectonics and Marine Mineral Deposits



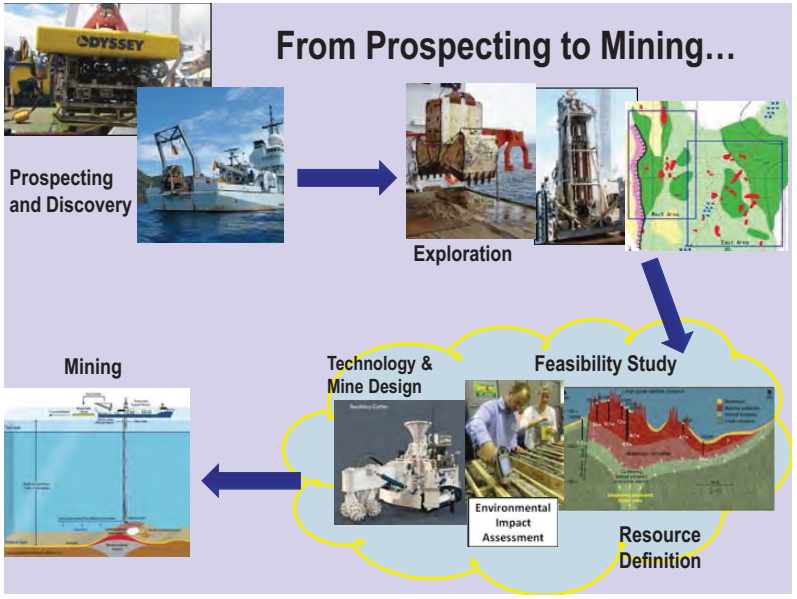
- Hydrothermal vents / Seafloor Massive Sulphide) are found in tectonically active areas in all the worlds oceans.
- Manganese nodules occur mainly in the Abyssal Plains.
- Cobalt-rich Crusts are found on the side of seamounts and volcanic islands.

Standard DSM Exploration Methods

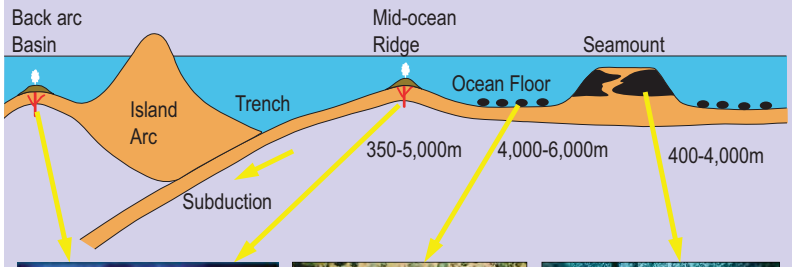


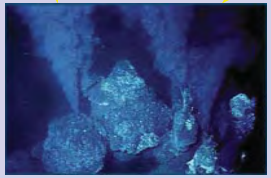
Also electromagnetic, ROV and AUV surveys
Water-column hydrothermal plume tracer surveys

From Prospecting to Mining…



Deep Sea Minerals Occurrence



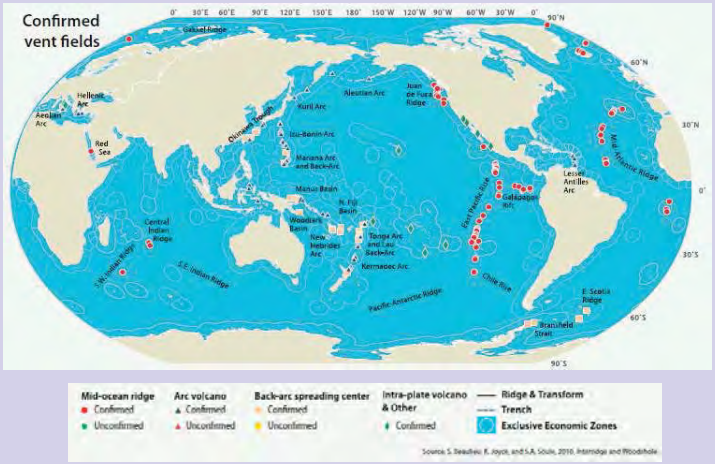


Seafloor Massive Sulphides

Manganese Nodules

Cobalt-rich Crusts

Global Distribution of Hydrothermal Vent Fields

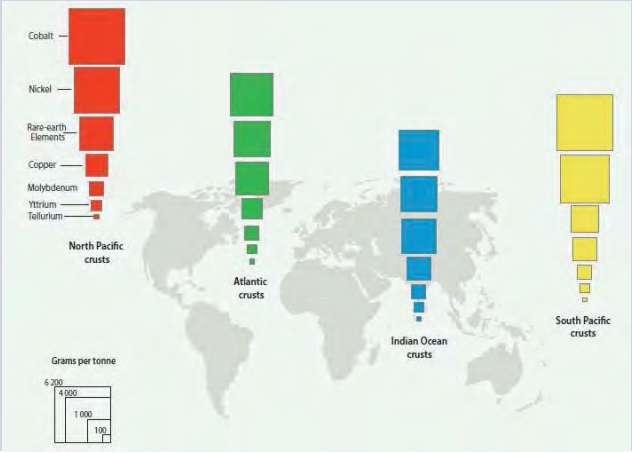


Average Abundance of Manganese Nodules

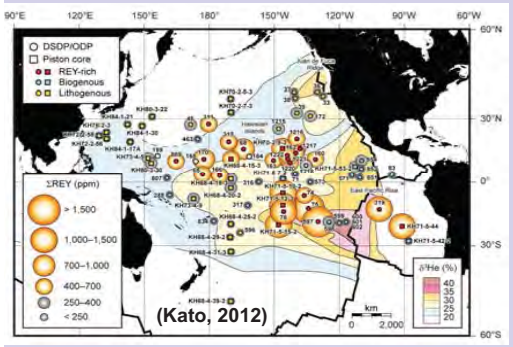
Nodule densities can be as high as 75 kg per m2 of seabed within the CCZ, but more commonly average less than 15 kg per m2

Metal concentration in CRC

Concentration of cobalt, nickel, and other metals of potential economic importance in ferromanganese crusts



Rare Earth Elements in Marine Minerals

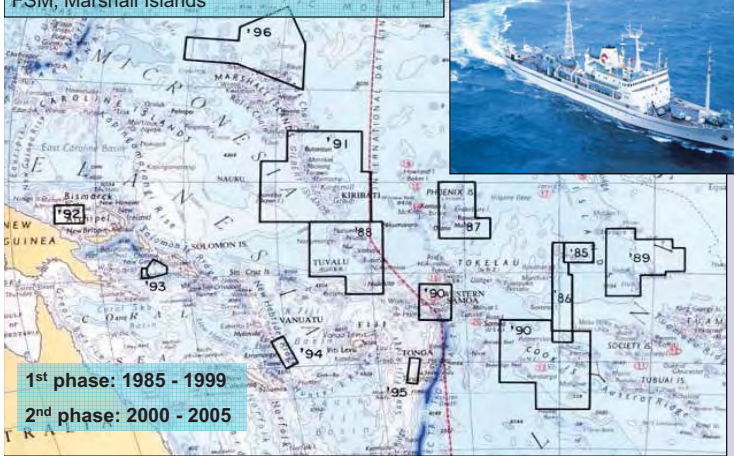


- 95% of REE are mined and produced by China.
- Increasing demand for REY in green, communication and military technologies.
- The Co-rich ferromanganese crusts of the Pacific Ocean have **2 to 3 times** the REE concentration of the CCZ nodules (Halbach, 2012).

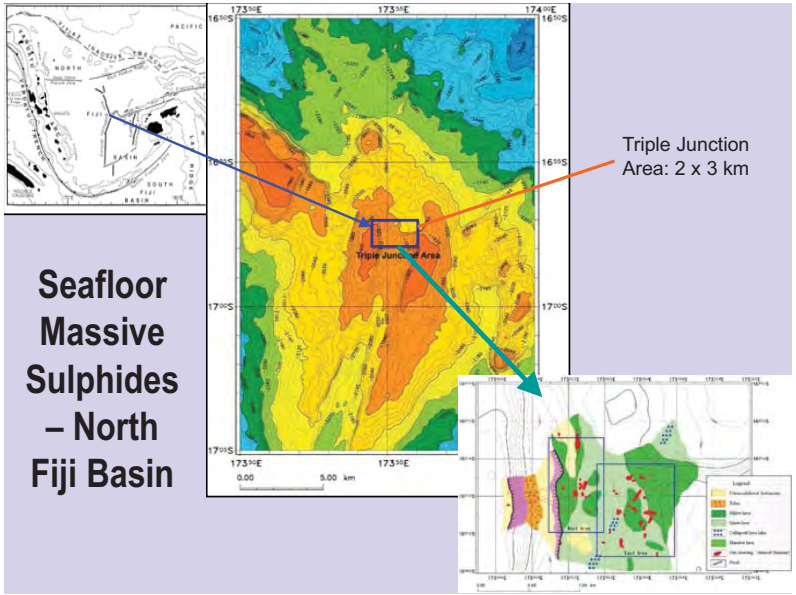
•Discovery of mud containing high concentration of REE in the south-eastern (within and outside the EEZ of Tahiti) and central Pacific.
• South-eastern Pacific mud has an average thickness of 8m at an average REY concentration of 1,054ppm (Kato, 2012).

1985-2005 Japan-SOPAC Survey

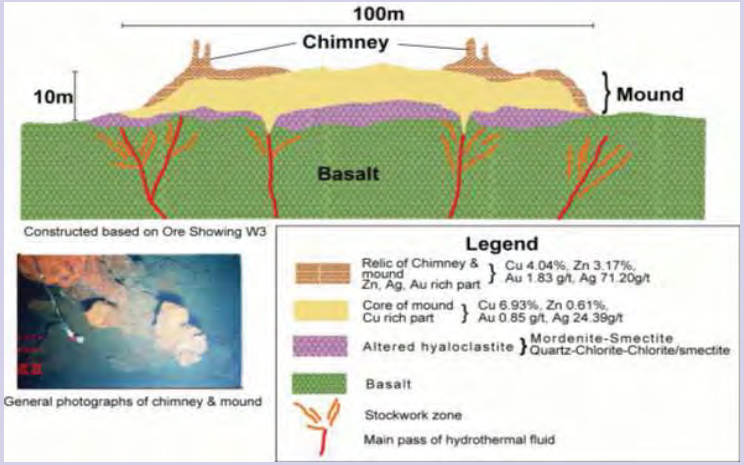
PNG, Solomon Islands, Vanuatu, Fiji, Tonga, Samoa, Niue, Cook Islands, Kiribati, Tuvalu, FSM, Marshall Islands



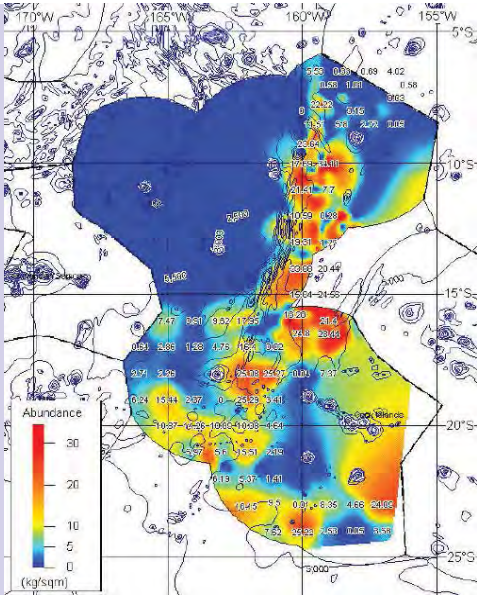
Seafloor Massive Sulphides – North Fiji Basin



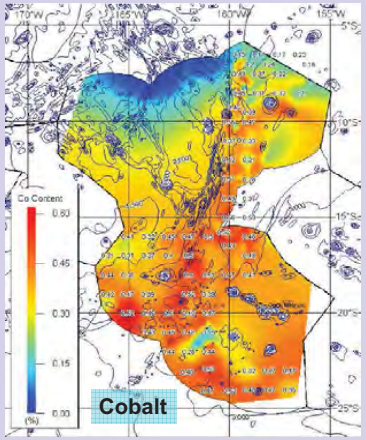
Cross section of the Triple Junction SMS Deposit

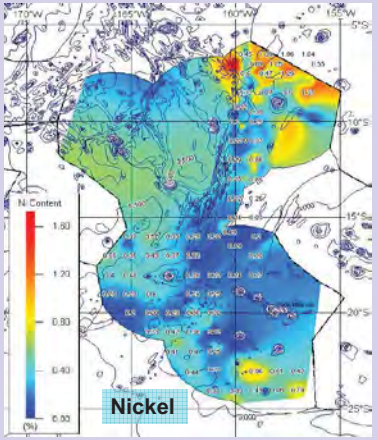


Variation in manganese nodules abundance in the EEZ of the Cook Islands



Distribution of Cobalt and Nickel Grades





Recent Exploration and DSM Interest

- **Exploration companies that are active in the region:**

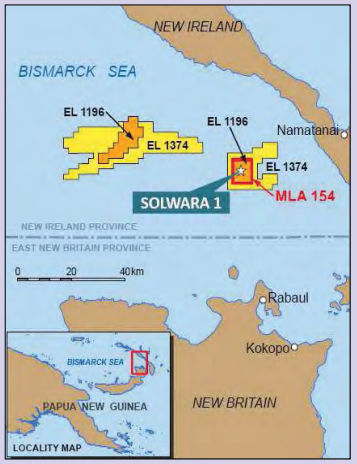
  - Nautilus Minerals

  - Neptune Minerals

  - Korea Institute of Ocean Science and Technology (KIOST)

- Exploration licenses are issued in PNG, Tonga, Solomon Islands, Fiji and Vanuatu.
- DSM interest in the International Seabed Area ('the Area') by Nauru, Tonga, Kiribati and Cook Islands

PNG – Solwara 1 Project



- High resolution bathymetry and Sidescan Sonar;
- Geophysical surveys (magnetic, electromagnetic and seismic);
- Grab surface sampling (using ROVs);
- Video camera (using ROVs);
- Drilling (diamond core);
- Geotechnical test of drill core;
- Metallurgical test of ore material;
- Independent resource estimation;
- Environmental Impact Study;
- Mining license issued in 2011.

Resource Estimates Comparison

Potential and Operating Mines	Type of Deposit	Resource (Mt)	Average Grade				
			Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)
Triple Junction (Fiji)	SMS	0.5 (Inferred)	6.93	0.61	-	0.85	24.39
Solwara 1* (PNG)	SMS	1.03 (Indicated)	7.2	0.4	-	5.0	23
		1.54 (Inferred)	8.1	0.9	-	6.4	34
Whim Creek ~ (WA)	VMS	3.4	1.6	1.3	0.2	-	8.6
Kidd Mine ^ (Canada)	VMS	115	2.2	5.77	0.25	-	75
Ok Tedi Mine (PNG)	Porphyry Cu-Au	910 (resource & reserve)	0.8	-	-	1.0	-

* (Golder Associates, 2012); ~ (Collins et al, 2004); ^ (Wilton, 1998)

Current DSM Situation in the Pacific

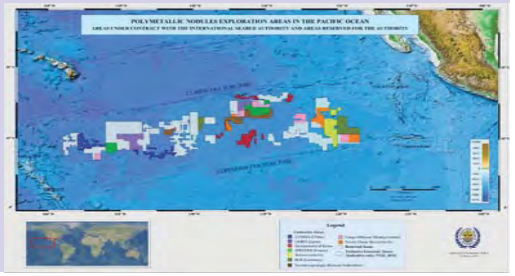
Country	Mineral Potential	Exploration Licences Issued	Mining Licence Issued	Sponsoring State in 'the Area'	Law and Policy Development
Cook Islands	Nodules	Tender process planned for 2014		Application submitted	DSM and fiscal laws enacted. Seabed Minerals Authority established. Seabed Mineral Policy published. Licensing and environmental regulations underway. Marine Park consultations underway.
Fiji	SMS	√		Interest shown	Decree for State sponsorship in 'the Area' enacted 2013. Review of Minerals Act, and new law (including DSM) due 2014.
FSM	Crusts (SMS?)				Draft DSM Bill and Regulations with Congress.
Kiribati	Nodules, Crusts			√	DSM Policy under consultation.
Nauru	Unknown			√	Drafting State sponsorship in 'the Area' law.
Niue	Nodules, Crusts				Draft DSM Bill and licensing Regulations with Crown Law.
Palau	Unknown (Crusts SMS?)				Palau is considering a policy of declaring the EEZ a protected area.

Current DSM Situation in the Pacific

Country	Mineral Potential	Exploration Licences Issued	Mining Licence Issued	Sponsoring State in 'the Area'	Law and Policy Development
PNG	SMS	√	√		Offshore Minerals policy due for publication. Onland minerals law under review.
RMI	Crusts				Draft DSM Bill and licensing Regulations with Attorney General's Office.
Samoa	Crusts			Interest shown	Samoa has a 'watch and wait' policy for DSM currently.
Solomon Islands	SMS	√	Application received		Review of Mining Act, and drafting of new Policy and Bill, to incorporate DSM, scheduled for 2014.
Timor-Leste					Comprehensive offshore oil and gas regime.
Tonga	SMS	√		√	Draft Bill and Regulations with Attorney General's Office.
Tuvalu	Nodules, Crusts			Interest shown	DSM Bill and Regulations with Attorney General's Office, and due to go before Parliament in July 2014.
Vanuatu	SMS	√			Policy consultation underway now, in all Provinces. Relevant law to be drafted subsequently.

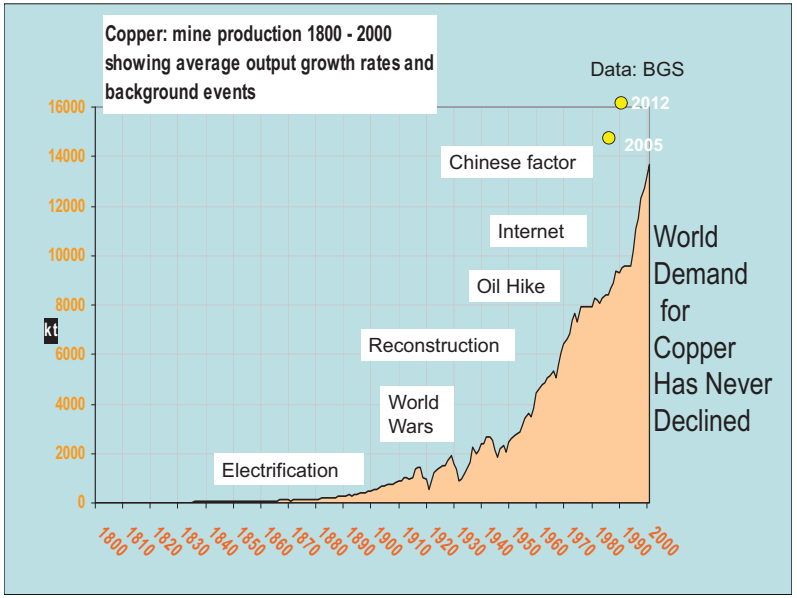
Exploration Interest in 'the Area'

- Area of interest: "Clarion-Cipperton Fracture Zone".
- Nauru (NORI), and Tonga (TOML) registered companies have been granted exploration licenses in the "Clarion-Clipperton Fracture Zone (CCFZ) in 2011 by the ISA.
- Marawa Research and Exploration Limited (MREL) of Kiribati has been granted exploration licenses in the CCFZ in 2012.
- PICs such as Fiji, Tuvalu and Cook Islands have shown interest to participate in exploring "the Area".

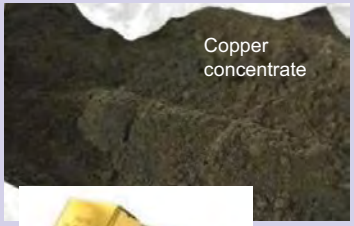


Drivers of Marine Minerals Development

- Increasing global demand for metals;
- High metal prices;
- Decreasing metal concentration in terrestrial mineral deposits;
- High concentration of certain metals in offshore mineral deposits;
- Significant improvement in marine mining technologies;
- Increasing demand for non-traditional metals such as REE.



Economic Issues



- SMS deposits are higher in mineral content than on-land deposits:
- Typical value of a tonne of land based ore: US$50-180.
- Typical value of a tonne of SMS ore: US$500-1500.
- One full mining operation could produce export revenues of up to US$500m pa and taxes & royalty of up to US$50m pa.

Deep Sea Mining Technology

Significant improvement in mining technology since the 1st deep sea pilot mining in the Clarion Clipperton Fracture Zone in 1978.

Comparing Terrestrial and Offshore Mining

Terrestrial	Marine
Significant overburden	Huge water body (ocean) that needs to be dealt with
Generate significant amount of waste (overburden, tailings, leachates)	Reasonably less amount of waste generated
Huge footprint	Small footprint (SMS) Reasonable footprint (MN & CRC)
Often isolated and difficult to access	Located within national jurisdiction
Technology - well developed and understood	Technology - early development stage, trialled but yet to be used in mining
Huge infrastructure development	Far less infrastructure to be built
Acid Rock Drainage	Sulphuric acid cannot form in ocean (seawater being “alkaline”)
Complex resource ownership system	Common heritage of the nation
Reasonable knowledge of environment	Limited knowledge of environment

How PICs will benefit from the Mining Cycle

- local and foreign investment
- capacity building
- employment
- technology transfer
- opportunity to participate in DSM activities in ‘the Area’
- down stream processing
- revenue management
- saving scheme (e.g. sovereign wealth fund)
- opportunity for scientific research
- economic prosperity

Jun. 18, 2014

International Seminar on Islands and Oceans.

Methodology of Environmental Impact Evaluation related to Ocean Mineral Resources Development

-An introduction of a joint study plan of IFREMER and JAMSTEC -while expecting further collaboration with Pacific islands-

Tomohiko Fukushima[*1] and Yves Henocque[*2]

*1 Japan Agency for Marine-Earth Science and Technology (JAMSTEC)
*2 French Research Institute for Exploitation of the Sea (Ifremer)

Topics

Island States and Ocean Mineral Resources
- island states are not any more peripheral but at the core of huge EEZ

Development of Ocean Mineral Resources
- common heritage of mankind : international waters / EEZ

Collaboration Framework
- IFREMER and JAMSTEC node

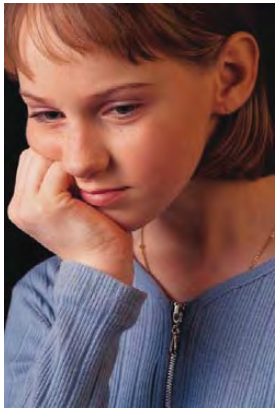
Future Prospect
- networking for environmental protection and sustainable development -

Motive for this presentation

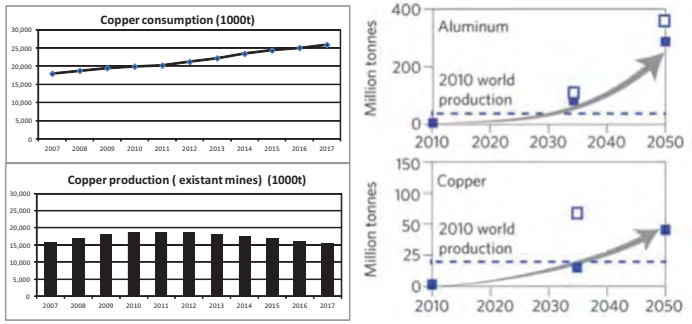
Introducing the study plan that IFREMER and JAMSTEC will propose

Expecting suggestion from island states about possible environmental assessment methods

Hoping an appropriate relationship with island states



Metal demands are increasing



Data from London Metal Exchange

Olivier Vidal, Bruno Goffé & Nicholas Arndt
Nature Geoscience **6**, 894–896 (2013)

Island states are attracted attention

Exploration for polymetallic nodules

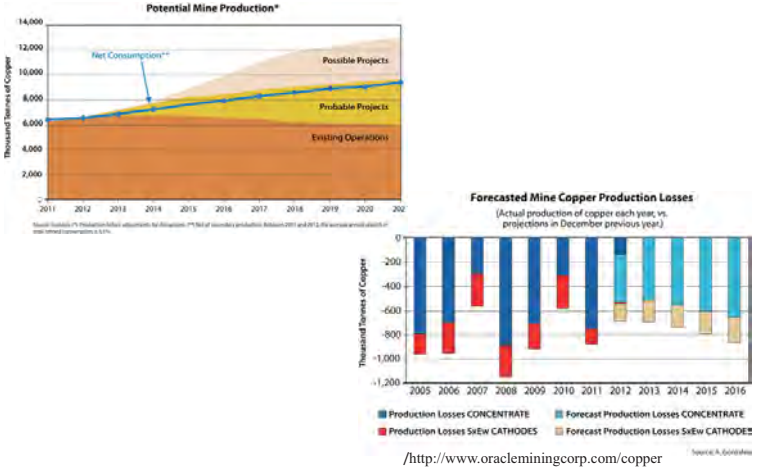
Contractor	Date of entry into force of contract	Sponsoring state	General location of the exploration area under contract	Date of expiry of contract
IOM *1	29-Mar-01	* 2	C/C zone	28-Mar-16
Yuzhmorgeologiya	29-Mar-01	Russian	C/C zone	28-Mar-16
KOREA (Gov)	27-Apr-01	Korea	C/C zone	26-Apr-16
COMRA *3	22-May-01	China	C/C zone	21-May-16
DORD *4	20-Jun-01	Japan	C/C zone	19-Jun-16
IFREMER *5	20-Jun-01	France	C/C zone	19-Jun-16
India (Gov)	25-Mar-02	India	Indian Ocean	24-Mar-17
FIGNR *6	19-Jul-06	Germany	C/C zone	18-Jul-21
Nauru Ocean Resources Inc.	22-Jul-11	Nauru	C/C zone	21-Jul-26
Tonga Offshore Mining Limited.	11-Jan-12	Tonga	C/C zone	10-Jan-27
Marawa Research and Exploration LTD	To be signed	Kiribati	C/C zone	
G-TEC Sea Minral Resources NV	14-Jan-13	Belgium	C/C zone	13-Jan-28
UK Seabed Resources Ltd	8-Feb-13	UK and Netherlands	C/C zone	7-Feb-28

Application for pollymetallic nodules

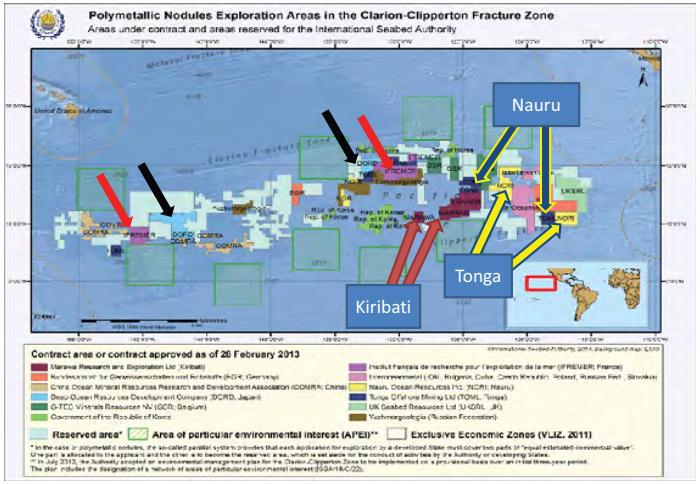
Applcant	Date of application	Sponsoring state	General location of the exploration area under contract
Cook Islands Investiment Corporation	27-Dec-13	Cook Island	C/C zone
Ocean Mineral Singapore Pte. Ltd.	19-Apr-13	Singapore	C/C zone

*1: Interoceanmetal
*2: Bulgaria, Cuba, Czech, Republic, Poland, Slovakia, Russian Federation
*3: China Ocean Mineral Resources Research and Development Mineral Resources Research and Development Association
*4: Deep Ocean Resources Development Co.ltd
*5: French Research Institute for Exploitation of the Sea
*6: Federal Institute for Geosciences and Natural Resources of Germany

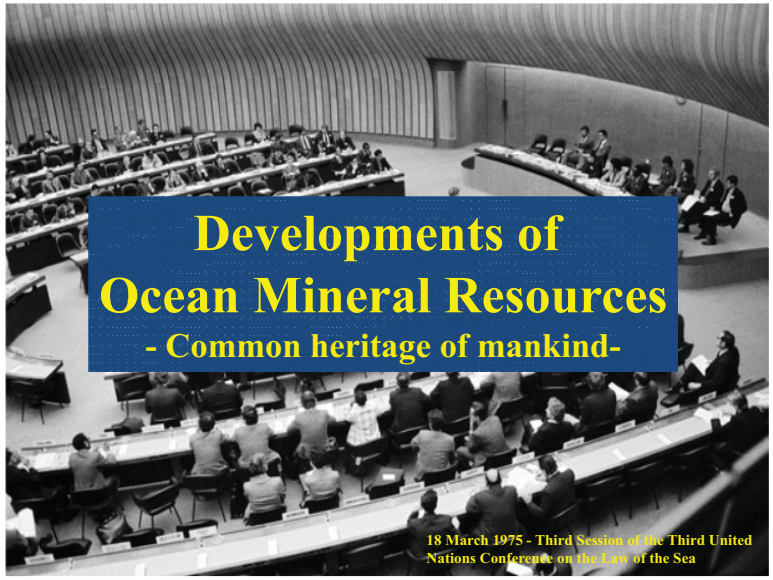
APPREHENSION
metal production cannot be catch up with the future demands.



/http://www.oracleminingcorp.com/copper



Whatever the country, in order to develop ocean mineral resources, an environmental impact assessment is not avoidable. Island states is not exception



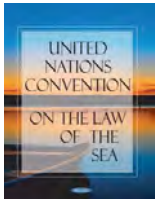
United Nations Convention on the law of the sea (UNCLOS)

Article 136 Common heritage of mankind

The Area and its resources are the common heritage of mankind

Article 137 Legal status of the Area and its resources

2. All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act. These resources are not subject to alienation. The minerals recovered from the Area, however, may procedures of the Authority.



Ambassador Pardo
(Republic of Malta)

(http://legal.un.org/avl/ha/uncls/uncls.html)

Article 157 Nature and fundamental principles of the Authority

1. The Authority is the organization through which States Parties shall, in accordance with this Part, organize and control activities in the Area, particularly with the view to administering the resources of the Area.

Regulations for prospecting and exploration of ocean mineral resources issued by the International Seabed Authority (ISA)

1994: Establishment of the Authority (International Seabed Authority)

2000: International Seabed Authority (ISA) Regulations on prospecting and exploration for polymetallic nodules in the Area *(revised 2013)*

2012: International Seabed Authority (ISA) Regulations on prospecting and exploration for polymetallic sulphides in the Area

2012: International Seabed Authority (ISA) Regulations on prospecting and exploration for cobalt-rich ferromanganese crusts in the Area

2013: Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area

Rationales of Establishment of Protocols

Regulation 31 (mining code / polymetallic nodules)

2. In order to ensure effective protection for the marine environment from harmful effects ・・・・・・ the Authority and sponsoring States shall apply a precautionary approach, ・・・・・・.

3. Pursuant to article 145 of the Convention ・・・・・・each contractor shall take necessary measures to prevent, reduce and control pollution ・・・・・・as far as reasonably possible using the best technology available to it.

Regulation 33 (mining code / polymetallic sulphide)

2. In order to ensure effective protection for the marine environment from harmful effects ・・・・・・, and best environmental practices.

4. The commission shall develop and implement procedures for determining on the basis of the best available scientific and technical information, ・・・・・・

Require detailed guide for an applicant less-experienced of environmental research.

SPC-EU Deep Sea Minerals Project
Key governance principles for sustainability

Decision Making	**meaningful public and stakeholder participation** **International cooperation** **Policy integration and coordination**
Precaution	**Decision making under uncertainty** **Adaptive approaches**
Responsibility	**Generating knowledge** **Accountability**
Management	**Ecosystem approach** **Prevention / adaptability** **Partnership**
Distribution	**Capacity building** **Equity (intra and inter-generations)**

A Study on the Environmental Impact Assessment in relation to Ocean Mineral Resources Development

Existed Collaboration

Japan-France Cooperation in Science and Technology (1974 -)

Research Cooperation in Ocean Science and Technology between JAMSTEC and Ifremer (1998-)

Marine Technology, Ocean Monitoring, Deep-Sea floor Observatories, Simulation Research with the Earth Simulator, Deep-sea Ecosystem, Deep Subsurface Biosphere, Fleet Management, General Information Exchange

Prompted by the situation of growing interest in ocean mineral resources,
Noting that the Area and its resources are the common heritage of mankind,
Conscious sustainable developments are the most important issue in current,
Recognizing the desirability that whatever the country should consider an environmental issue,
Bearing in mind that detailed guide is requisite for countries that less-experienced of research.
Desiring prosperity of countries, particular to island states, to perform resource development
Believing the strong bond between the IFREMER and the JAMSTEC

IFREMER and JAMSTEC initiated making a plan of environmental impact assessment study.

Ifremer JAMSTEC

JAMSTEC

Collaboration Framework

France and Japan
- IFREMER and JAMSTEC -

Ifremer

Important Concept on the Side of Countries that less-experienced of Environmental Research

(1) In consideration of economic constraints,
e.g. Automatic observation system, Not expensive

(2) In consideration of infrastructure constrains,
e.g. Weight saving, Compact design, etc

(3) In consideration of repeated monitoring observations,
e.g. Endurance of gears

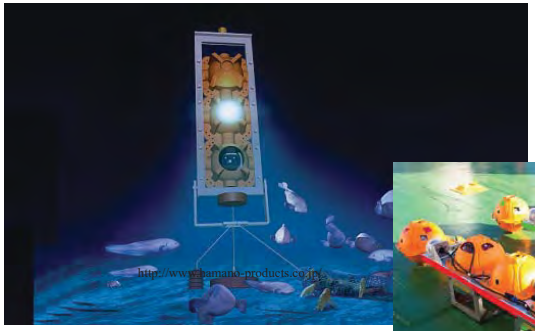
(4) In consideration of project duration,
e.g. Combination of existing technologies

Ifremer JAMSTEC

Deep-Sea Monitoring System

Automatic observation system, Not expensive, Compact design, Combination of existing technologies

Edokko NO1



JAMSTEC

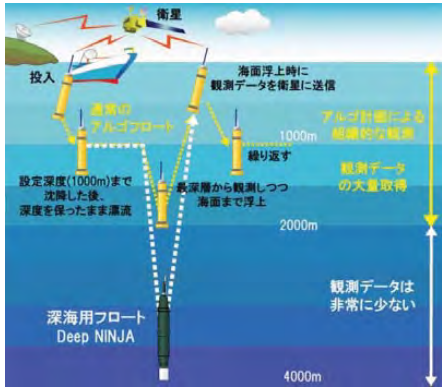
http://www.jamstec.go.jp/j/jamstec_news/20131220/

Deep-Sea Monitoring System

Automatic observation system, Not expensive, Compact design, weight saving, Compact design

Deep NINJA

JAMSTEC



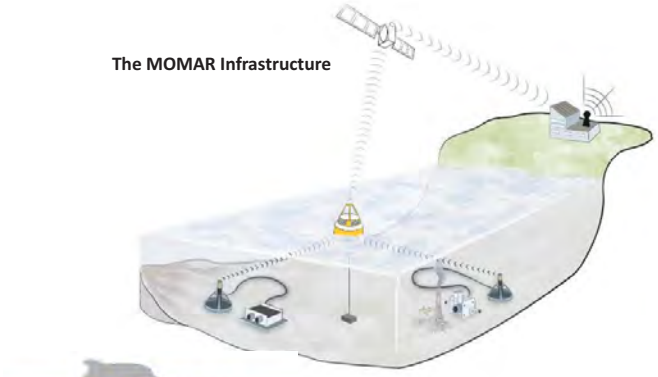
http://www.jamstec.go.jp/ARGO/argo_web/news/20131220_usermeeting/5_6.pdf

Edokko NO1

JAMSTEC

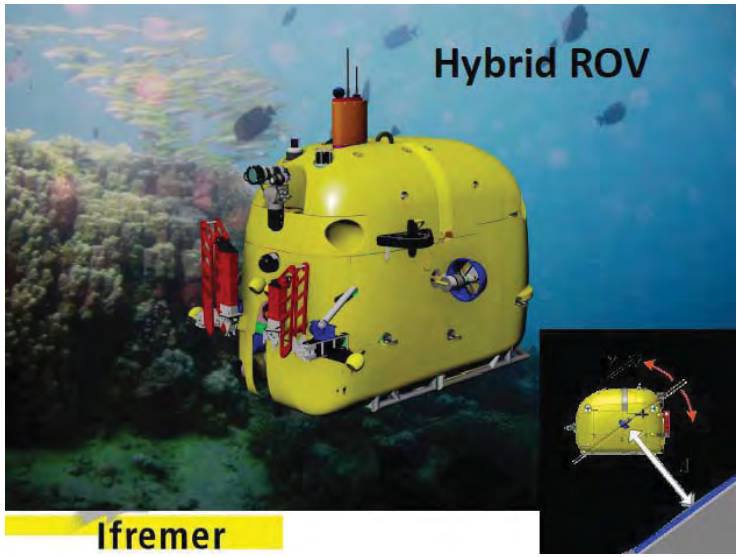
Multidisciplinary Observation System

Automatic observation system, Endurance of gears, Combination of existing technologies



Ifremer

http://www.fixo3.eu/observatory/momar/



From the standpoint of research institutions (not industrial neither political organization),

IFREMER and JAMSTEC aim at building an interdisciplinary and international interactive network.

in cooperation with Pacific Island States and Territories

JAMSTEC

SPC-EU Deep Sea Minerals Project
Pacific ACP States

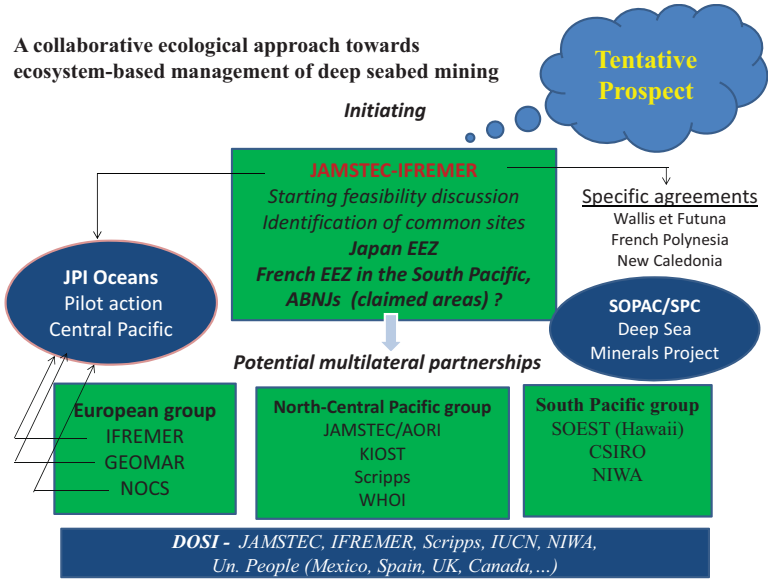
Ifremer

DOSI

IN DEEP

International Seabed Authority

A collaborative ecological approach towards ecosystem-based management of deep seabed mining



Thank you very much for your kind attention

Reference Data

Exploration for polymetallic sulphides

Contractor	Date of entry into force of contract	Sponsoring state	General location of the exploration area under contract	Date of expiry of contract
COMRA *1	18-Nov-11	China	South Indian Ridge	17-Nov-26
Russian Federation (Gov)	29-Oct-12	Russian	Mid-Atlantic Ridge	28-Oct-27
KOREA (Gov)	To be signed	Korea	Central Indian Ridge	30-Apr-29
IFREMER *2	To be signed	Frence	Mid-Atlantic Ridge	

Application for pollymetallic sulphides

Applcant	Date of application	Sponsoring state	General location of the exploration area under contract
FIGNR *3	17-Dec-13	Germany	Central Indian Ocean

Exploration for cobalt-rich ferromanganese crusts

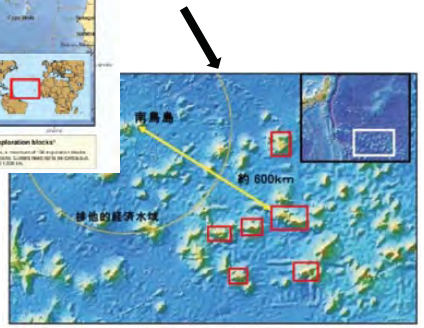
Contractor	Date of entry into force of contract	Sponsoring state	General location of the exploration area under contract	Date of expiry of contract
COMRA *1	29-Apr-14	China	Western Pacific Ocean	28-Apr-29
JOGMEC *4	2014/1/27	Japan	Western Pacific Ocean	26-Jan-29

Application for cobalt-rich ferromanganese crusts

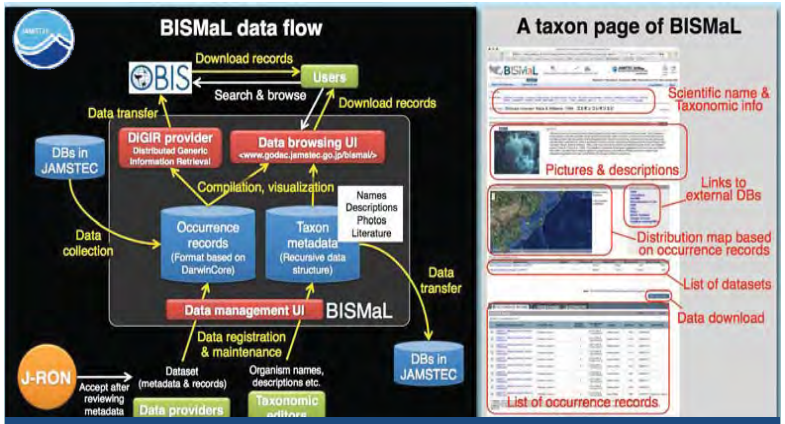
Applcant	Date of application	Sponsoring state	General location of the exploration area under contract
CPRM *5	31-Dec-13	Brazil	Rio Grande Rise
Russian Federation (Gov)	6-Feb-13	Russian	Wetern Pacific Ocean

*1: China Ocean Mineral Resources Research and Development Mineral Resources Research and Development Association
*2: French Research Institute for Exploitation of the Sea
*3: Federal Institute for Geosciences and Natural Resources of Germany
*4: Japan Oil, Gas and Metals National Corporation
*5: Companhia de Pesqisa de Recusos Minerais

Reference Data



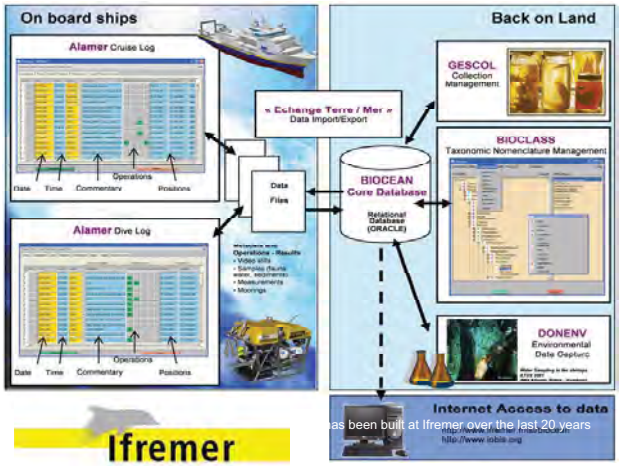
Database Platform



Biological Information System for Marine Life (BISMaL)

BISMaL is an integrated data system that employs the Darwin Core schemas to handle occurrence records of organisms. It provides photographs; brief descriptions on taxonomy, morphology, and ecology; videos, distribution records, and references for each species or its higher taxon. BISMaL began to provide data to OBIS in 2010 to compensate for the scarceness of deep-sea data. It was also decided that the Japan Regional Node of OBIS (J-RON) should be hosted to further integrate Japanese marine biodiversity information.

Database Platform



as been built at Ifremer over the last 20 years

30

Presentation for 2nd Int. Seminar on Island and Oceans, Tokyo, Japan, June 18-19, 2014

Is in-situ disposal acceptable for inorganic geological tailing waste during deep-sea mining?

Tetsuo YAMAZAKI
Osaka Prefecture Univ., Sakai, Osaka
E-mail address: yamazaki@marine.osakafu-u.ac.jp

Chatham Rock Phosphate (CRP) in NZ Mining Permit Granted, 6 Dec. 2013

Parts of exploration areas have been granted as exploitation areas.

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT

MEDIA RELEASE

Chatham Rock Phosphate Ltd mining permit granted

EMBARGOED until 10.00am, 6 December 2013

A 20-year mining permit has been granted to Chatham Rock Phosphate to extract phosphate nodules from an 820 square kilometre area of the Chatham Rise.

Just the first stage of the commercial mining.

"It is important to note that the granting of the mining permit is just the first stage of the regulatory process. The company will also need to obtain a marine consent from the Environmental Protection Authority (EPA) before it is able to begin mining."

The marine consent from EPA is necessary before the mining.

"While it's still very early days and it would be several years before mining began if a marine consent was granted, the economic potential of this project could be significant. Part of that economic impact would come from using Chatham Rock Phosphate as a partial substitute for some of the phosphate that is currently imported from Morocco for use in agricultural fertilisers," Mr Darby says.

Permission issued from NZ Government

Chatham Rock Phosphate (CRP) in NZ Mining Permit Granted, 6 Dec. 2013

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT

MEDIA RELEASE

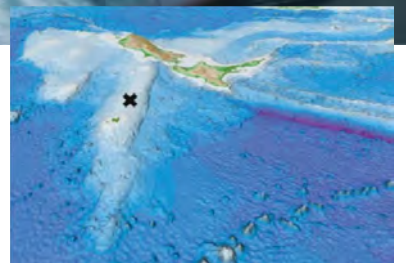
Chatham Rock Phosphate Ltd mining permit granted

EMBARGOED until 10.00am, 6 December 2013

Permission issued from NZ Government

Up-coming CRP mining from 400 m deep in NZ

Chatham Rock Phosphate



Source: http://rockphosphate.co.nz

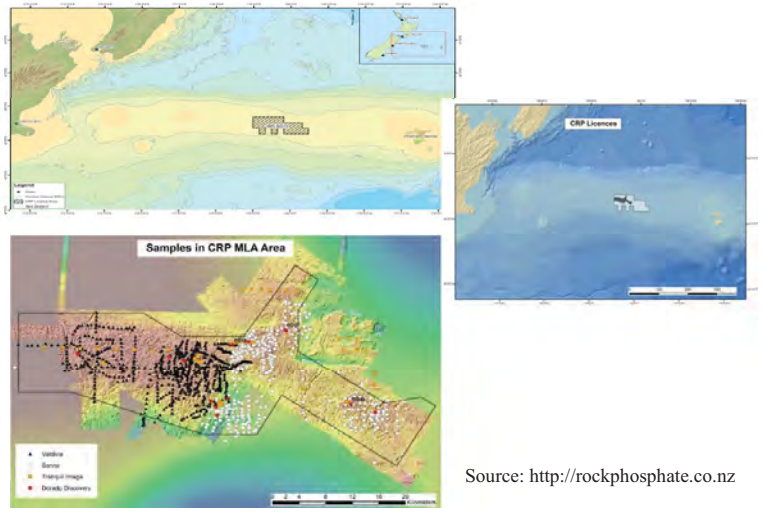
Large amount of Cd free phosphate fertilizer NZ is required.

- CRP has NZ's only major rock phosphate deposit (25m tonnes)
- 1m tonnes a year imported annually to NZ - mostly from Morocco
- In situ value of deposit is ~ $6 billion

Source: http://rockphosphate.co.nz

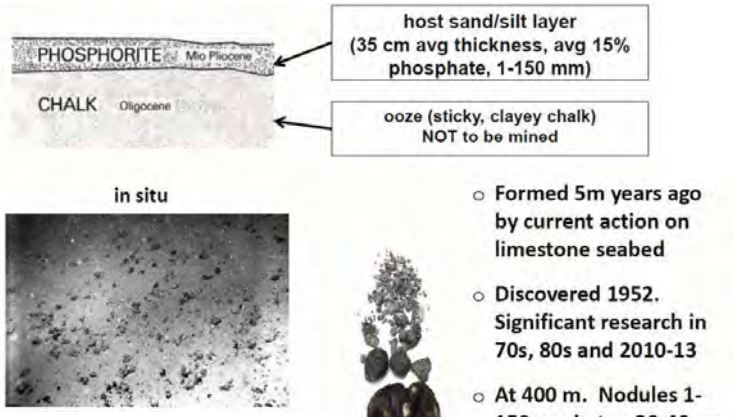
- Cd free
- 400 m in water depth
- Existing dredge technology
- Sufficient investments

Exploration and exploitation areas for CRP



Source: http://rockphosphate.co.nz

Geological formation and distribution of CRP



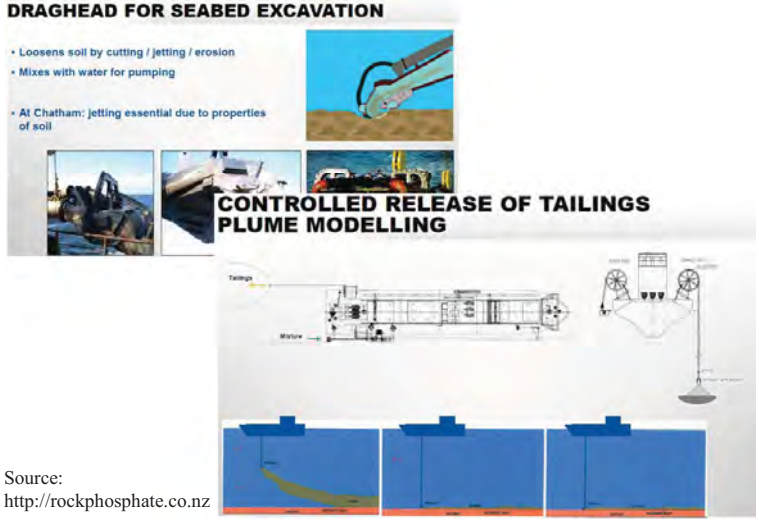
- Formed 5m years ago by current action on limestone seabed
- Discovered 1952. Significant research in 70s, 80s and 2010-13
- At 400 m. Nodules 1-150mm in top 30-40 cm of sandy silt - 15% of seabed layer volume

Source: http://rockphosphate.co.nz

Mining processes developed in CRP project

Source: http://rockphosphate.co.nz

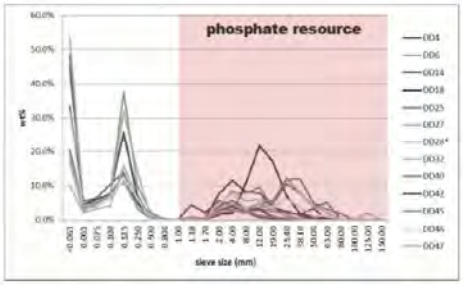
Excavation and tailing return processes



Source:
http://rockphosphate.co.nz

Waste tailing return to the mined area on seafloor is the key point of the project.

- Onboard separation by particle size
- No chemicals. Sieve separation only
- Recovery of course phosphate particles (10-25%)
- Return of fine sediments to the seafloor (90-75%)

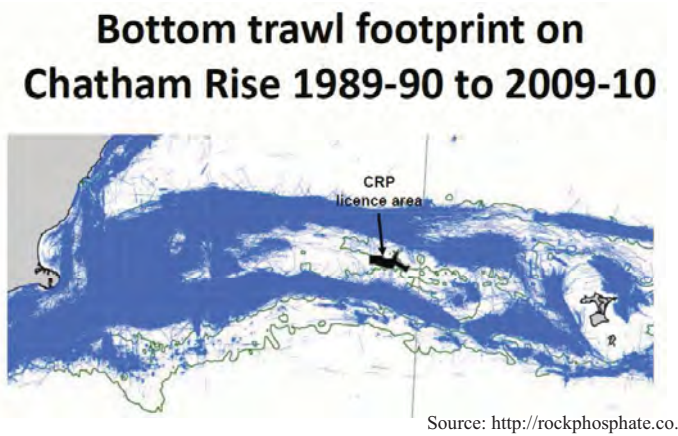


Source:
http://rockphosphate.co.nz

Tailing return process

Source: http://rockphosphate.co.nz

Strengthened smaller impacts on fishery and environment



Source: http://rockphosphate.co.nz

Updated status of CRP project

Project Status

on Dec. 2013

- **2013 - Mining Permit approval on Dec. 2013**
- **2014 - Marine Consent process with EPA**
- **2014 – once approvals received, ship conversion starts (2 years)**
- **2016 - start production**

EPA, NZ accepted CRP content application on 29 May 2014 by Radio NZ business news

Source: http://rockphosphate.co.nz

Very expensive tailing waste disposal cost in Japan

- Tailing waste disposal cost of SMS (seafloor massive sulfide) after ore dressing and metallurgical leaching is about US$200/t in Japan.
- Under 5% copper content in mined ore, 95% tailing waste disposal is necessary. If US$7,000/t is earned from copper metal sale, US$3,800 must be spent for 19t tailing waste disposal in Japan.
- The disposal cost is about 54% of the metal sale.

NPV (US$M)	IRR (%)	Payback period (year)
-1,273	N/A	N/A

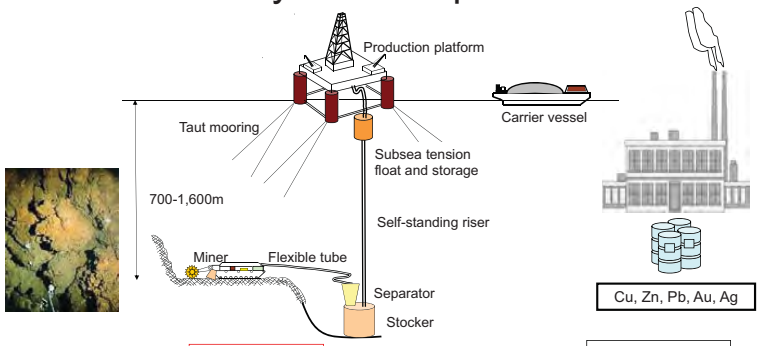
An example economic evaluation

SMS mining has no economy in Japan!

Inorganic geological tailing waste return is necessary for SMS mining in Japan.

- CRP is the pioneer application of deep-sea mining in developed countries.
- The CPR content includes inorganic waste tailing return to the mined area.
- The monitoring of CRP mining will provide many useful data for the other deep-sea mining.
- Japan can contribute the monitoring on the basis of past experiences in environmental studies related to deep-sea mining and it is greatly helpful for Japan's SMS mining.
- Cooperation between NZ and Japan or an international framework for the monitoring is desirable.

Proposed SMS mining processes to realize economy under Japan's conditions



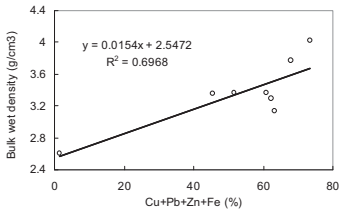
Excavation ➡ Primary ore separation ➡ Lift ➡ Transport ➡ Ore dressing & leaching

on seafloor — Waste rock separation on seafloor and lifting high metal content ore only — on land

Possibility of ore separation on seafloor for waste rock removal

Three components expected in excavated raw ore:

A. Metal-rich sulfides = > 3.0 g/cm^3 bulk in wet
B. Igneous rocks = 2.4–2.6 g/cm^3 bulk in wet
C. Pumice and sediments = 1.1–1.3 g/cm^3 bulk in wet



Source: Yamazaki and Park, Proc. 13th ISOPE, pp. 310-316, 2003.

Source: http://www.nautilusminerals.com/

Example improvements of economy by seafloor ore separation under some assumptions

1. Metal recovery = 96 % and rock removal = 31 %

NPV (US$M)	IRR (%)
-2	5

2. Metal recovery = 92 % and rock removal = 50 %

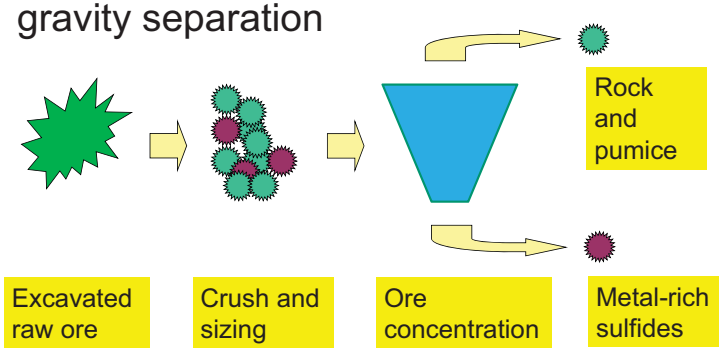
NPV (US$M)	IRR (%)
258	18

Initial economy without seafloor ore separation

NPV (US$M)	IRR(%)
-1,273	N/A

Grate improvements are expected.

Primary selection on in-situ seafloor by gravity separation



A rough but drastic selection is important to reduce amount of lifted ore. It affects lift, ore dressing, and tailing disposal costs. From the SMS core recovery results, only 30-50 % of excavated ore is estimated to lift up.

2nd choice to realize economy of SMS mining under Japan's condition is the same processes like CRP.

- Lift up all the mined raw ores.
- Onboard crush, size classification, and separation
- No chemicals. Gravity separation only
- Recovery of concentrate ore (50%)
- Return of rock and sediment to the seafloor (50%)

The separation efficiency on board becomes better than the one on seafloor. A larger mining system such as pipe, pump and platform than the case of seafloor separation is necessary.

Session 3

Response to Climate Change and Variability

Response to Climate Change and Variability

Aspects of gradual climate change (of global warming)
ocean warming, sea level rise, ocean acidification
→need long-term measures

Aspects of more violent climate variability causing low rainfall, wave overtopping, erosion of heavy downpours
interannual ENSO variations
different categories of ENSO
interdecadal ENSO variations
→ need more urgent actions based on analysis, prediction derived from the Tropical Pacific Observing System

Three El Niño types and La Niña

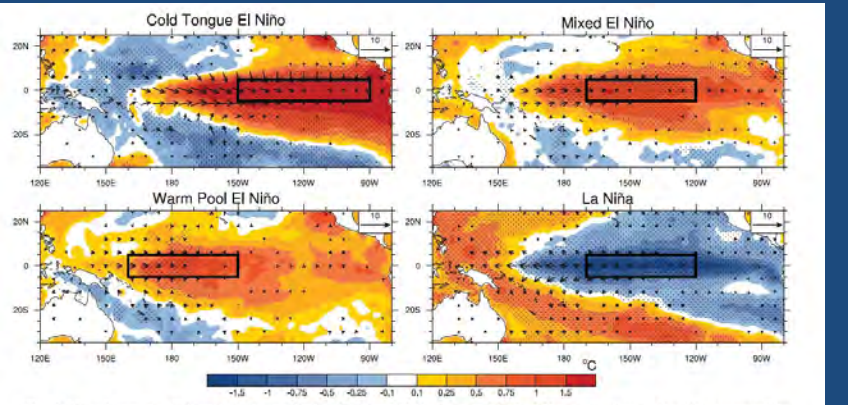


FIG. 2. Mean September–February SST anomalies for the three El Niño types and for La Niña events. Arrows show the corresponding total surface winds, with the reference arrow denoting 10 m s^{-1}. Stippling denotes where the SST anomalies are statistically significantly different from zero at the 90% confidence level, and only wind anomalies greater than 5 m s^{-1} are shown.

Murphy et al. J. Climate , 27, 4015-4036 , 2014

Mean Nov.-Apr. Rainfall Anomaly

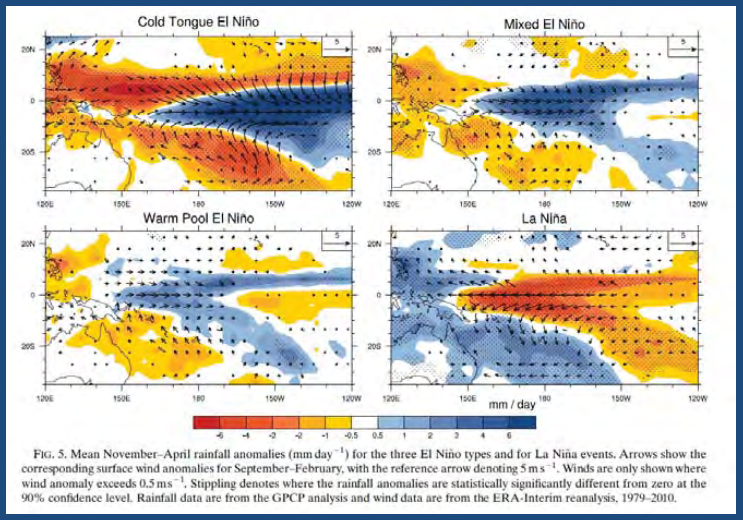


FIG. 5. Mean November–April rainfall anomalies (mm day^{-1}) for the three El Niño types and for La Niña events. Arrows show the corresponding surface wind anomalies for September–February, with the reference arrow denoting 5 m s^{-1}. Winds are only shown where wind anomaly exceeds 0.5 m s^{-1}. Stippling denotes where the rainfall anomalies are statistically significantly different from zero at the 90% confidence level. Rainfall data are from the GPCP analysis and wind data are from the ERA-Interim reanalysis, 1979–2010.

Murphy et al. J. Climate , 27, 4015-4036 , 2014

Four Climatic Regions of Pacific Islands

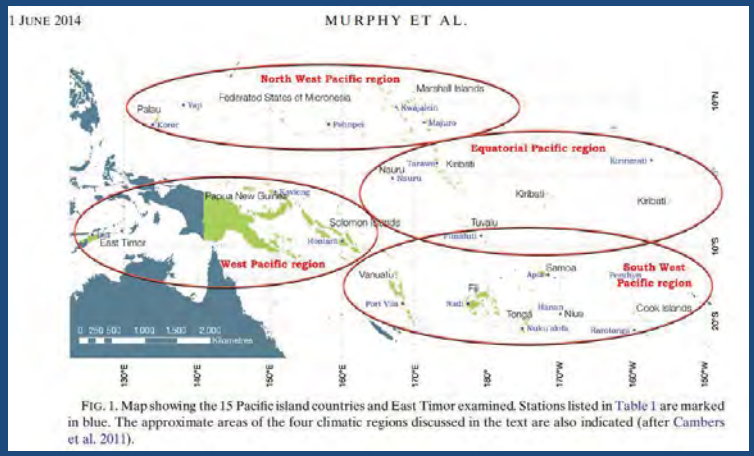
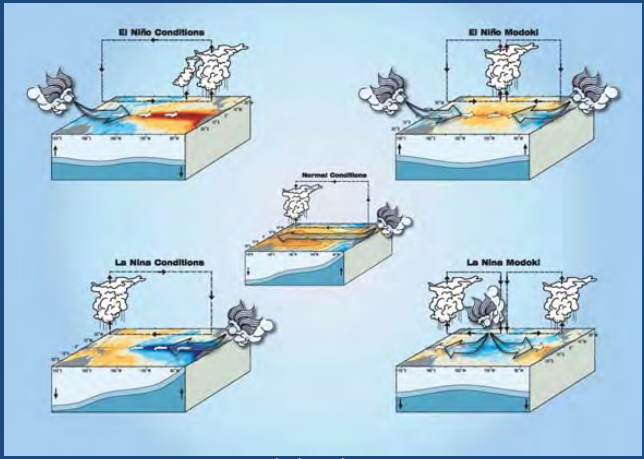


FIG. 1. Map showing the 15 Pacific island countries and East Timor examined. Stations listed in Table 1 are marked in blue. The approximate areas of the four climatic regions discussed in the text are also indicated (after Cambers et al. 2011).

Murphy et al. J. Climate, 27, 4015-4036 , 2014

El Niño Modoki, La Niña Modoki

Schematic pictures



Ashok and Yamagata Nature 2009

Evolving Climate

In the 1990s (2000s), the central Pacific warming (cooling) is more frequent with relatively cool (warm) SST anomalies in the eastern and western Pacific.

El Niño Modoki in the 1990s,
La Niña Modoki in the 2000s

(Ashok et al. 2007 ; Ashok and Yamagata 2009; Weng et al. 2007,2009)

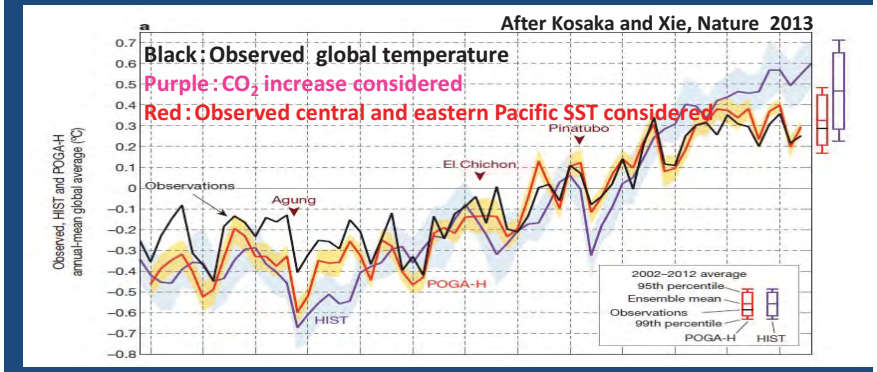
奇妙な最近のエルニーニョ/ラニーニャ

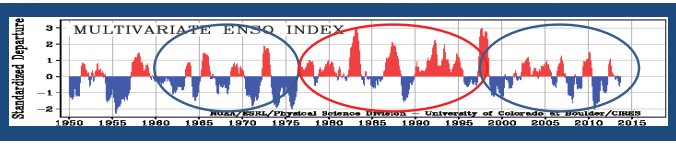
1990年代は日付変更線あたりが暖まり、
西太平洋とペルー沖はむしろ冷えるエルニーニョモドキが発生。

2000年代は、むしろその逆に日付変更線あたりが冷えて、
西太平洋やペルー沖はむしろ暖かいラニーニャモドキが頻繁に発生。

Hiatus of the global warming in recent 15 years !

温暖化気体の著しい増大にもかかわらず、最近15年間は温暖化していない！





Tropical Pacific islands are not located in one region from a climatic viewpoint; It is important to appreciate existence of 4 different climatic regions.

El Niño (La Nina) has at least two faces; one is canonical , another modoki-type. Appreciation of this difference is important to understand impacts of El Niño.

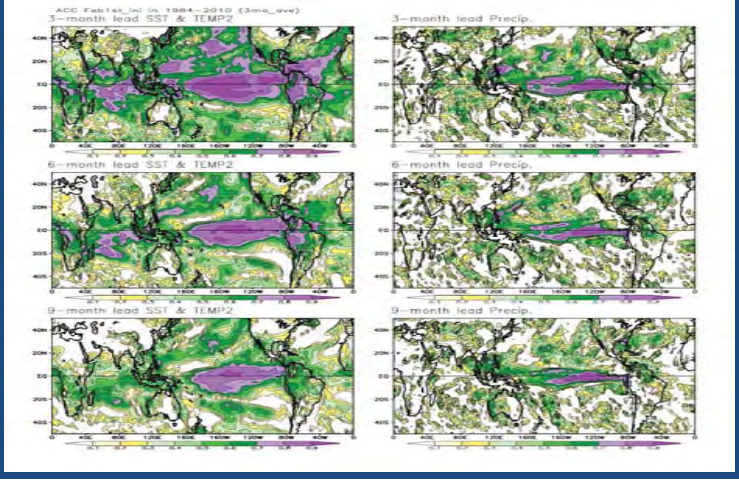
Interdecadal variations of ENSO also play important roles in a much longer timescale

Products from seasonal climate predictions based on TPOS will be extremely beneficial for identifying optimum reduction and adaptation measures.

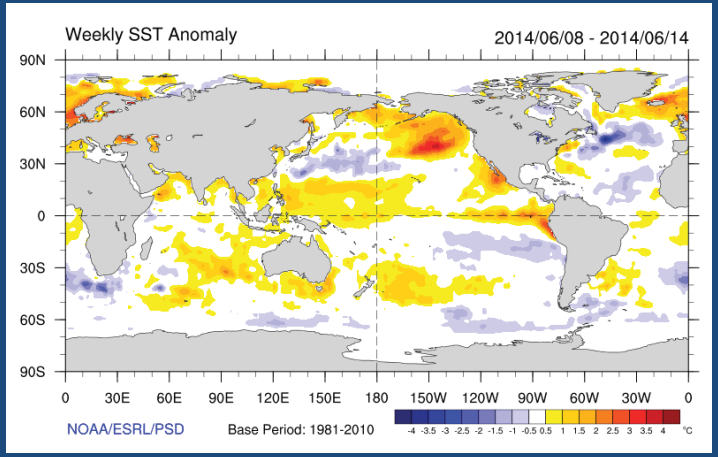
Experimental Seasonal Prediction (SINTEX-F1)

http://www.jamstec.go.jp/frcgc/research/d1/iod/e/seasonal/outlook.html

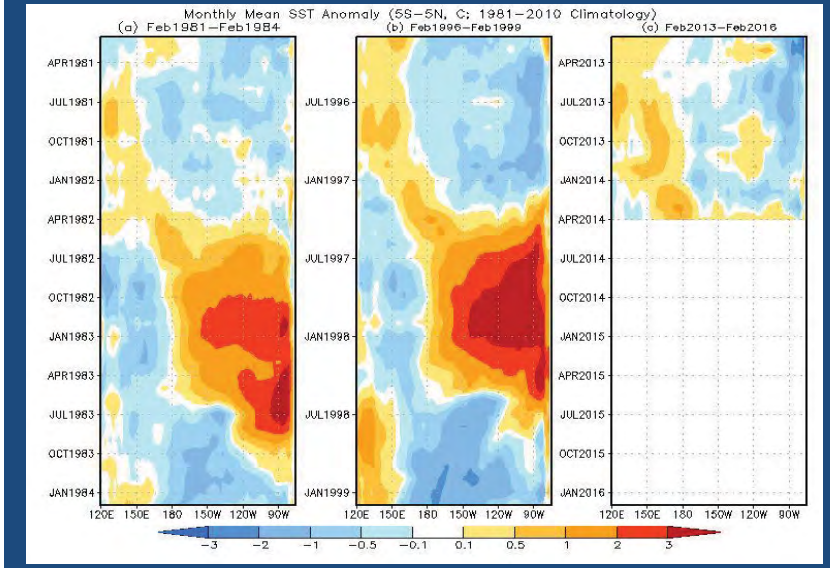
Temperature Precipitation



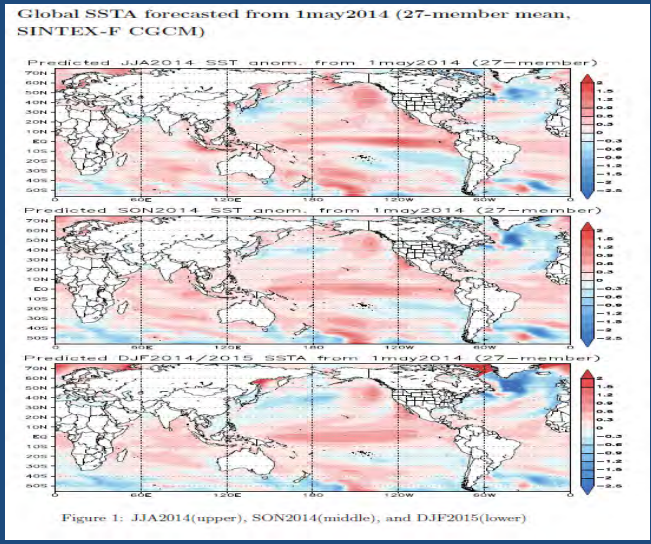
Current SST Anomalies



SSTA: Similar evolution in 1981-83, 1996-98, 2013-14



Prediction of SST (summer, fall, winter in 2014)



Coming July (T and P anomalies (left); Probability (right))

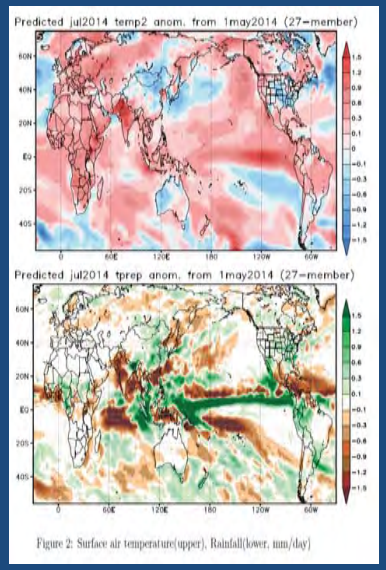


Figure 2: Surface air temperature(upper), Rainfall(lower, mm/day)

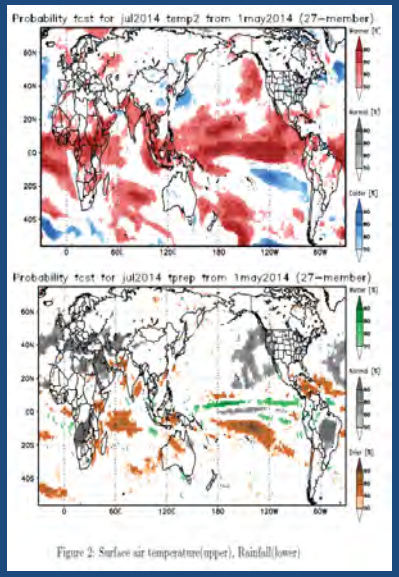


Figure 2: Surface air temperature(upper), Rainfall(lower)

Coming August (T and P anomalies (left); Probability (right))

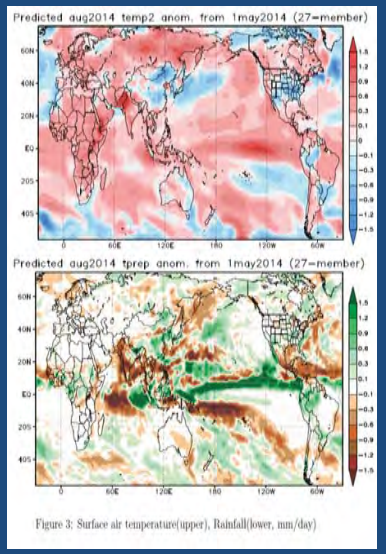


Figure 3: Surface air temperature(upper), Rainfall(lower, mm/day)

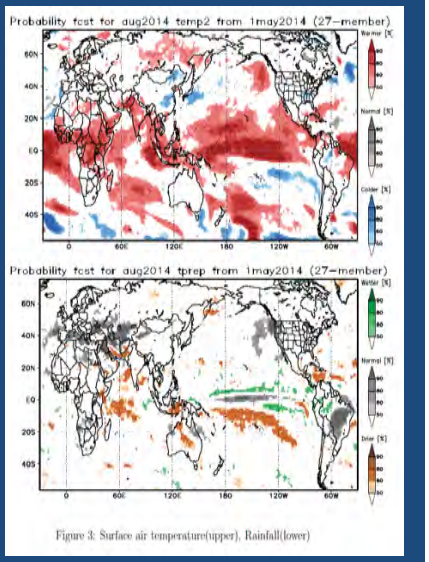


Figure 3: Surface air temperature(upper), Rainfall(lower)

Session 4

Conservation and Management of Islands

Purpose of this Presentation

Photo: *Heritage at Risk* (2006)

Into the SIDS Zero Draft (ver. 4 April 2014), following paragraph was *newly inserted*:

Para. 31 ter:

We support SIDS' efforts to conserve their valuable underwater cultural heritage, [in line with the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage – G77] [with harmonized and widely recognized scientific standards. – G77 delete] – EU, US and Australia agree with original formula]

To provide background information about the underwater cultural heritage (UWCH)

What is the UWCH ?

SS Maitai, Cook Islands. Illustrative of the intense commercial exchange between Tahiti and the Cook Islands is the wreck of the SS Maitai, a 3,393 ton Union Steam ship vessel that used to embark on this maritime trade route. Run onto a reef in 1916, the ship with its cargo of historic Ford cars is located directly offshore from the centre of Avarua. © The Dive Centre / UNESCO34. Photo: UNESCO (2010)

Ex. **UNESCO Conv. on the UWCH (2001)**

Art.1(1)(a): UWCH means…

all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years such as:

(i) sites, structures, buildings, artefacts and human remains, together with their archaeological and natural context;

(ii) vessels, aircraft, other vehicles or any part thereof, their cargo or other contents, together with their archaeological and natural context; and

(iii) objects of prehistoric character.

Significances of the UWCH

The post box is located at a small shipwreck just 5 minutes from The Reef Dive Resort. Scuba diving tourists can post their postcards at the 60 feet deep unique dive site....and off course, the holiday greetings also reach their destination in the usual time and with a nice underwater post box stamp on it. (Malaysia)

Source: http://www.treasure-images.com/whatsnew/files/0fc1f402468d176fa705e149bbb158ed-69.html

1) Archeological significance:

Academic Research to know about historical facts, etc.

2) Economic significance:

As a resources for tourism to increase employment of local people, etc.

3) Target by Treasure hunters:

Without rules, *find first, get first*.

"There are multi-hundreds of billions of dollars of potential in this industry"

- Sean Tucker, Galleon Ventures

Ex) In 2007, *Odyssey Marine Exploration*, discovered and recovered an estimated US$500 million worth of silver and gold coins from the Spanish frigate ship (sunk in 1804)

***After 5 years suite, Spanish government got back these treasures.**

Discovered in 180 nm west from Portugal, said Odyssey during the suite, but this is skeptical.

Convention on the Protection of the Underwater Cultural Heritage (adopted 2001, entry into force 2009)

Chuuk Lagoon, Micronesia. Photo: UNESCO (2010)

The Convention sets out **basic principles** for the
- protection of UWCH;
- State cooperation system
- widely recognized practical Rules for the treatment and research

This Convention is preferable for States which have heritage sites, not for treasure hunters.

Main principle 1

Shipwreck, Papua-New Guinea.
Photo: UNESCO (2010)

Preservation as first option

- The preservation of underwater cultural heritage (i.e. in its original location) should be considered as the first option before allowing or engaging in any activities.
- The Convention gives Coastal states "Coordinating State" status for control.

Many of its provisions are modelled on the Australian legislation (the Historic Shipwrecks Act 1976) and on the terms of its pioneering 1772 Agreement of the Australia Netherlands Committee on Old Dutch Shipwrecks (ANCODS Agreement) with the Netherlands Government to share knowledge and artefacts.
Lyndel Prott (2014)

Main principle 2

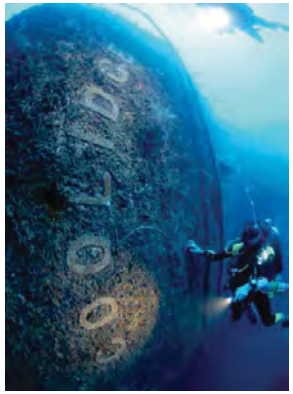
Wreck from WWII, Raratonga, Cook Islands.
Off the island of Rarotonga, two large wrecks from WWII lay at the bottom of the sea. c R. Smith / UNESCO
Photo: UNESCO (2010)

No Commercial Exploitation

- The 2001 Convention stipulates that underwater cultural heritage should not be commercially exploited for trade or speculation, and that it should not be irretrievably dispersed.

The Convention neither regulates the ownership of wrecks nor does it change maritime zones.

Main principle 3



Stern of the SS President Coolidge, Vanuatu
c Aquamarine Santo / UNESCO

Training and Information Sharing

- States Parties shall cooperate and exchange information, promote training in underwater archeology and promote public awareness regarding the value and importance of the Underwater Cultural Heritage.

In SIDS countries, human resource development is needed in this field.

The Convention is not popular as of now…

The remains of bottles on the Fujikawa Maru, a Mitsubishi-built ship. The holds contain a water tank, ammunition for the bow gun, propeller blades, cowling and many other aircraft parts. Chuuk Lagoon, Micronesia © G. Adams / UNESCO

As of today, 48 states ratified.
Japan, Australia are not member.
No Pacific countries ratified.

Why ?

The Convention provides:
* Strengthened jurisdiction of coastal states in EEZ/CS
* Incentives for explorers would be lost

Dr. Mark Staniforth (*Australian archaeologist*):
"Many countries are simply unwilling to expend funds in what is seen to be a relatively 'unimportant' area". (April.12, 2011)

UWCH protection offers the opportunities to economic growth for SIDS countries

I - 1 Submarine, Solomon Islands, now a tourist attraction.
© T. Drew / UNESCO; Photo: UNESCO (2010)

Otherwise, treasure hunters will discover and recover heritages of SIDS, lost the good opportunities for growth.

The Pacific Ocean contains a particular wealth of submerged traces of human existence. It spans three continents - Asia, Australia and America.

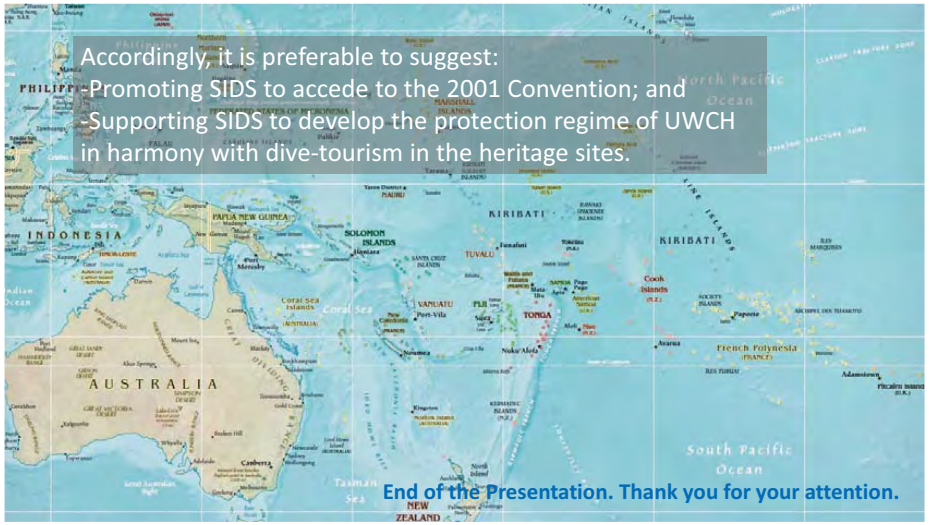
Due to the cultural richness of underwater heritage in the region and its complex history, the protection of these sites is of high importance for the region.

It offers a chance for development and defines cultural identity. The sheer multitude of submerged archaeological sites attracts tourists and passionate divers, contributing to the economies of many small archipelagos.

Especially in Oceania, tourism is the main industry of many islands and the leading element of their economies.

Understandably, given the picturesque locations and the clear waters, a large part of this tourism is dive-tourism.

Underwater Cultural Heritage in Oceania, UNESCO, 2010, p.16



Accordingly, it is preferable to suggest:
-Promoting SIDS to accede to the 2001 Convention; and
-Supporting SIDS to develop the protection regime of UWCH in harmony with dive-tourism in the heritage sites.

End of the Presentation. Thank you for your attention.

FORAM SAND PROJECT

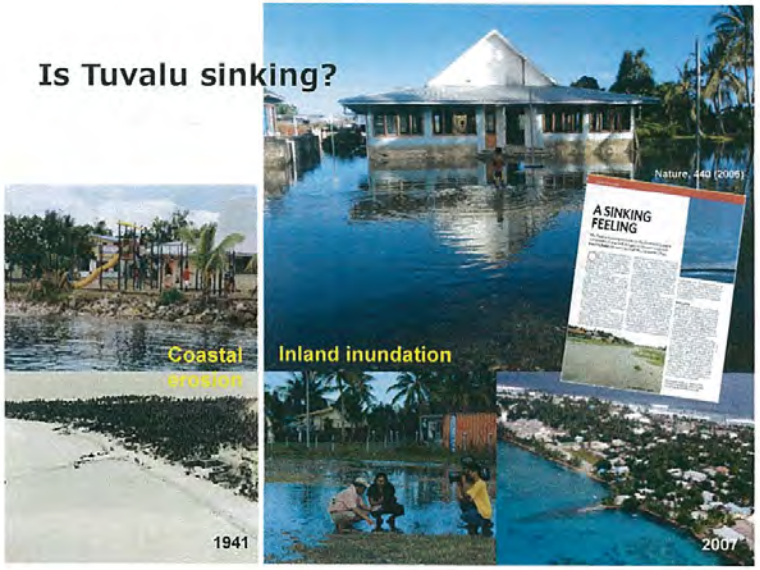
SATREPS (JST-JICA)

Eco-technological management of Tuvalu against sea-level rise

Goal: Regeneration of sandy beach along Fongafale coast

Dept Environment, Fishery Dept, Land Survey, Tuvalu; SOPAC, USP, Fiji
Univ Tokyo, Ibaraki Univ, Ntl Inst Environmetal Studies, Unv Ryukyus, Ntl Inst Land Infrastr Manag, Japan

Is Tuvalu sinking?

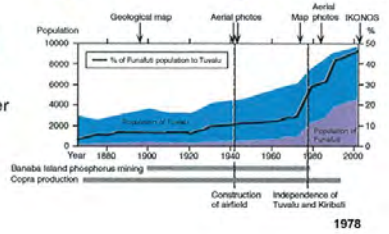


Loss of natural landscape and expansion of residential area to vulnerable low land

Yamano et al. (2007)

Land-use change in Fongafale Island, Funafuti Atoll, Tuvalu

Swamp fringed with mangroves extended over the central depression.
During WWII, an air strip was constructed,
Since 1980s, residentiral area has been extended to the lowland.



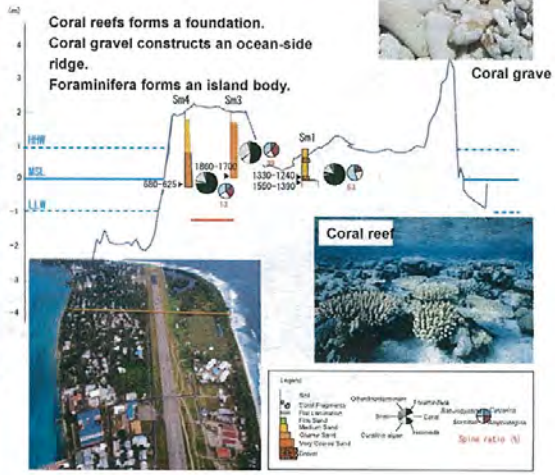
1978

Ecologicla process in land formation

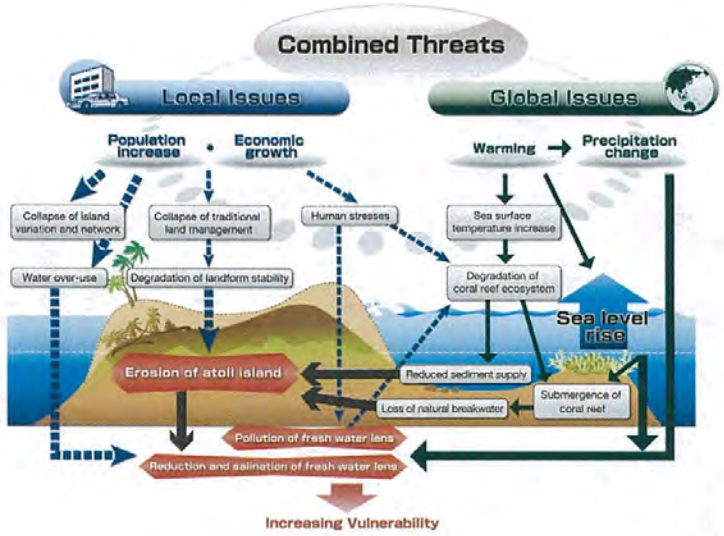
Foraminifera sand

Coral reefs forms a foundation.
Coral gravel constructs an ocean-side ridge.
Foraminifera forms an island body.

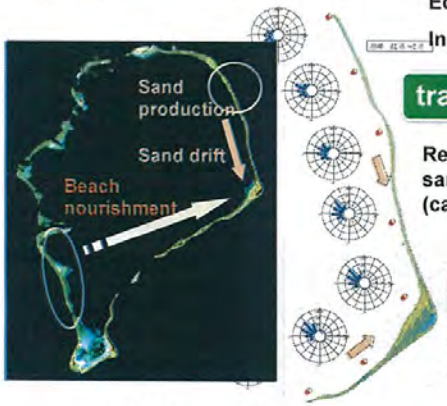
Coral grave



Geo-Ecological process is degraded by local human activities



Countermeasure plans to regenerate sandy beach



Production

Ecosystem rehabilitation

Increasing sand production

transportation

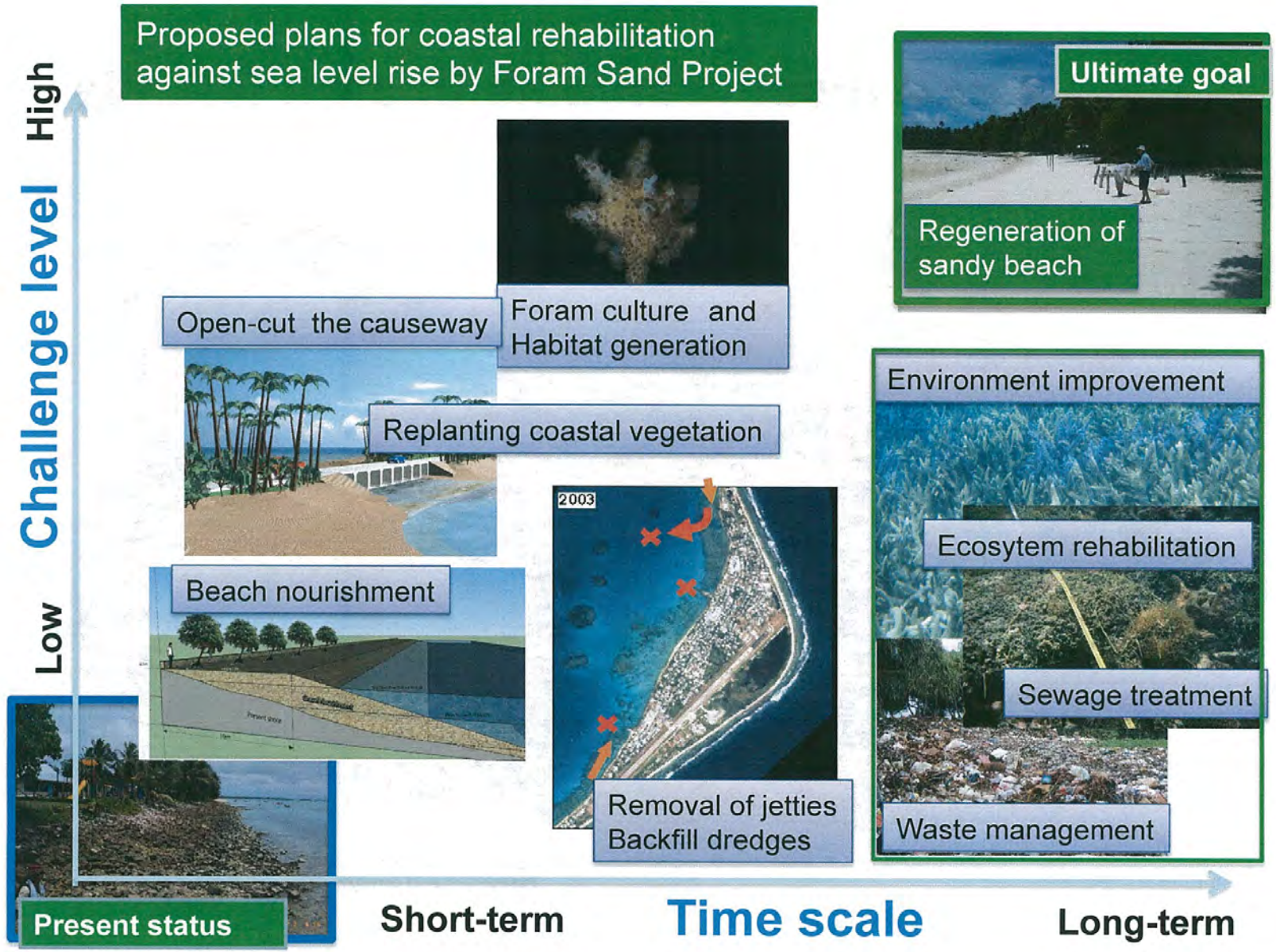
Removal of obstacles for sand transportation (causeway, jetties, dredges)

sedimentation

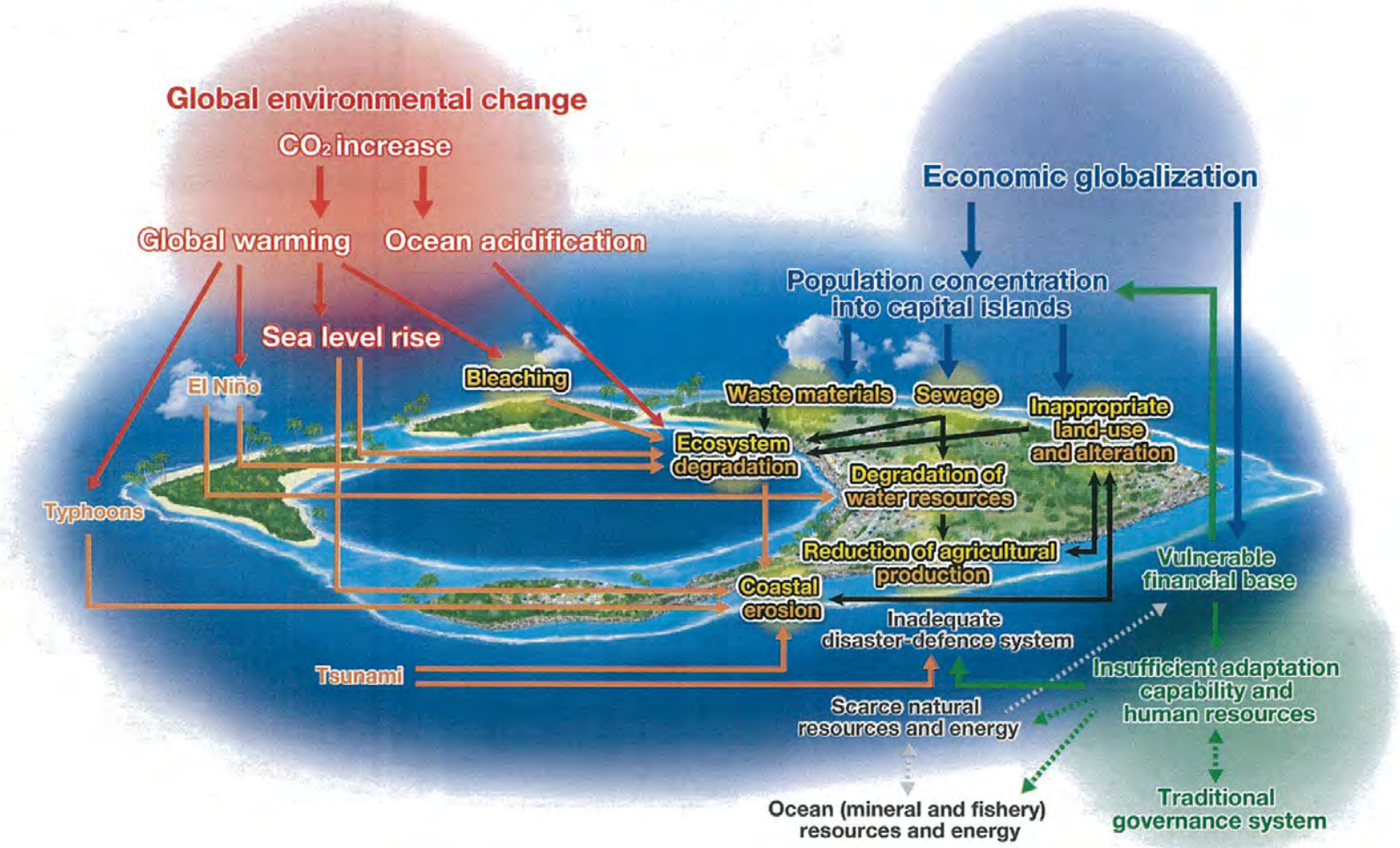
Beach nourishment

Coastal vegetation

Monitoring for evaluation

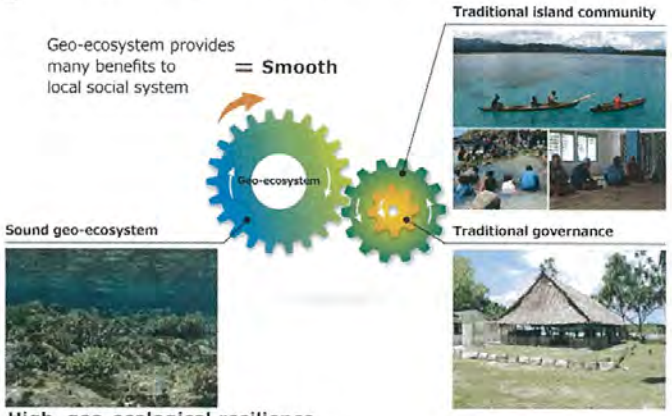

Proposed plans for coastal rehabilitation against sea level rise by Foram Sand Project
Challenge level
High
Low
Ultimate goal
Regeneration of sandy beach
Foram culture and Habitat generation
Open-cut the causeway
Replanting coastal vegetation
Beach nourishment
2003
Removal of jetties
Backfill dredges
Environment improvement
Ecosytem rehabilitation
Sewage treatment
Waste management
Present status
Short-term
Time scale
Long-term

Global and local problems in atoll islands



1 Adaptive geo-ecosystem

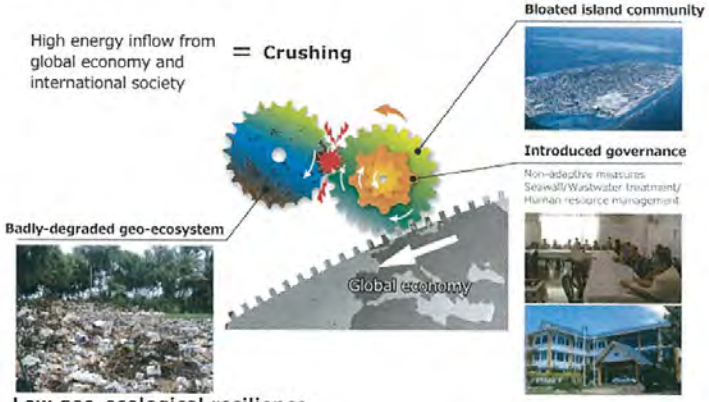
Geo-ecosystem provides many benefits to local social system = **Smooth**



High geo-ecological resilience

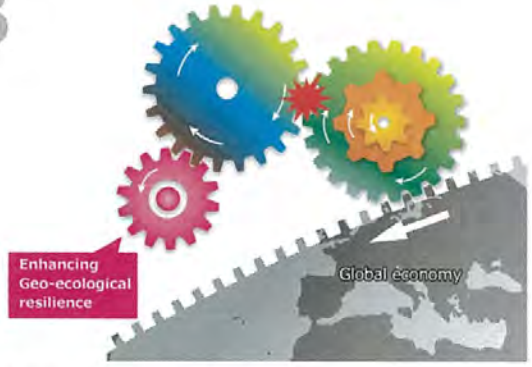
2 Current social system in Island community

High energy inflow from global economy and international society = **Crushing**



Low geo-ecological resilience

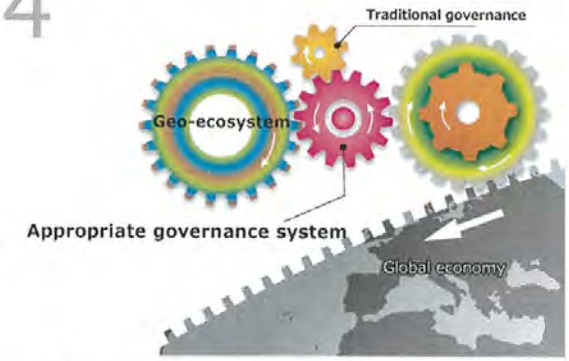
3



Current social system

In island community, low geo-ecological resilience directly links to the collapse of national land
We proposed several eco-technological measures...BUT

4



Adaptive social system with high resilience

Enhancing geo-ecological resilience beased on traditional governance
Creating new governance system to harmonize all gears (global economy, island community, geo-ecosystem)

DEVELOPMENT OF RENEWABLE ENERGY

Dr David Leary
Faculty of Law,
University of Technology, Sydney

UTS:LAW

BACKGROUND AND CONTEXT-RENEWABLE ENERGY SINCE STOCKHOLM 1972

UTS:LAW

OVERVIEW

- Background and context-renewable energy since Stockholm 1972
- Policy proposal parts d1 & d-2
- Zero draft provisions

- Environment vs Development

  OR

- Environment and Development
- United Nations Conference on the Human Environment, Stockholm 1972
- 1972 Stockholm Declaration
  - Principle 1- Principle of Intergenerational Equity
  - Principle 20-Technology Transfer
- 1992 Earth Summit Rio de Janiero- Rio Declaration
  - Principle 3- Intergenerational Equity
  - Principle 9- Scientific and technological transfer

→ Sustainable Development

AGENDA 21 AND RENEWABLE ENERGY

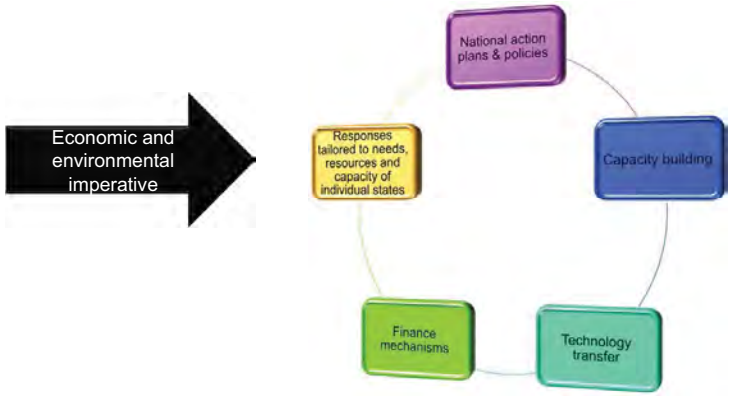
Developing Countries

- formulate national action programs to promote integrated development of energy saving and renewable energy technologies, particularly for the use of solar, hydro, wind and biomass sources
- promote wide dissemination and commercialisation of renewable energy technologies through suitable measures, inter alia, fiscal and technology transfer mechanisms
- carry out information and training programs directed at manufacturers and users in order to promote energy saving techniques and energy efficient appliances

International organisations & bilateral donors

- support developing countries in implementing national energy programs in order to achieve widespread use of energy-saving and renewable energy technologies, particularly the use of solar, wind, biomass and hydro sources
- provide access to research and development results to increase energy use efficiency levels in human settlements

KEY ELEMENTS TO PROMOTING GROWTH OF RENEWABLE ENERGY IN DEVELOPING COUNTRIES



- *Barbados Programme of Action for the Sustainable Development of Small Island Developing States*
- *Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States*

Pacific Island Countries and Territories	Existing National Energy Roadmap/Strategy	Status	Development Partners
Cook Islands	National Energy Policy 2003 Renewable Energy Chart 2011 Renewable Energy Chart Implementation Plan 2012		ADB, NZMFAT, EIB, PIFS, SPC, UNDP
Fiji	National Energy Policy 2006	In progress 2013	GIZ, SPC, UNDP,ADB, EIB, GIZ, IRENA, IUCN, PIFS, REEP, WB.
Federated States of Micronesia	Energy Policy 2010		ADB, EC, EIB, FSM, PIFS, SPC, UNDP
Kiribati	Kiribati National Energy Policy 2009	Target under revision 2013	EC, GIZ, IRENA, PIFS, UNDP, WB
Republic of the Marshall Islands	National Energy Policy and Energy Action Plan 2009	Under revision 2013	ADB, AusAid, EC, IUCN, JICA, PIFS, REEP, UNDP, WB
Nauru	Nauru Energy Policy Framework 2009 Nauru Energy Roadmap	Under review Under development 2013	AusAid, E, GIZ, ADB, IRENA, IUCN, UNDP
Niue	Niue Energy Policy and Action Plan		EC, IUCN, PIFS, UNDP
Palau	Palau National Energy Policy 2009		IUCN, EC, SPC, EIB, IRENA, JICA, REEP, SPC, UNDP, WB
Papua New Guinea	PNG National Energy Policy 2006		ADB, EIB, NZMFAT, UNDP, WB
Samoa	Samoa Energy Sector Plan 2012-2016		ADB, AusAid, EIB, NZMFAT, PIFS, REEP, UNDP
Solomon Islands	National Energy Policy Framework 2007	Review in progress 2013	ADB, AusAid, EIB, IUCN, JICA, NZMFAT, PIFS, SPC, UNDP, WB
Tokelau	Tokelau National Energy Policy and Strategic Action Plan 2004	Achieved 100% renewable 2013	NZMFAT, UNDP
Tonga	Tonga Energy Roadmap 2010-2020		ADB, AusAid, EC, EIB, GIZ, IRENA, IUCN, JICA, NZMFAT, PIFS, REEP, SPC, UAE, UNDP, WB
Tuvalu	Enetise Tutumau 2012-2020 (Master Plan for Renewable Electricty and Energy Efficiency in Tuvalu)		EC, GIZ, IUCN, NZMFAT, UNDP
Vanuatu	Vanuatu Energy Roadmap 2012	Scheduled for adoption 2013	AusAid, EIB, EU, GIZ, IUCN,JICA, NZMFAT, REEEF, UNDP, WB

(Adapted from IRENA 2013)

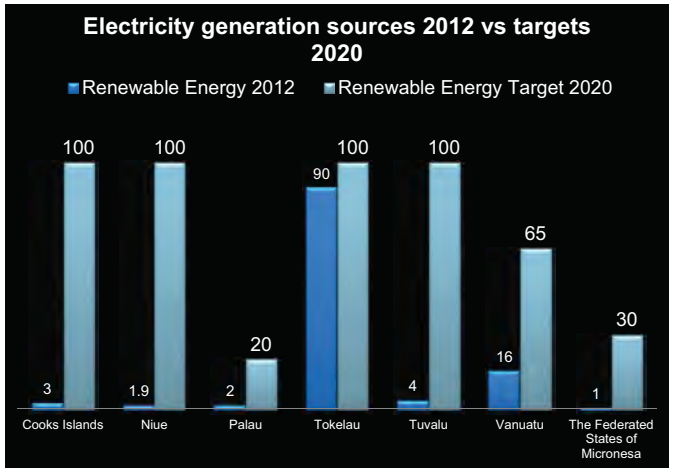


Figure 2 by Leary (2013) based on data contained in Pacific Energy Summit (2012)

WHY HAVE RENEWABLE ENERGY INITIATIVES FAILED?

Type	Barriers
Technical	Lack of sustainable renewable energy based energy system installations on the ground
	Absence of guidelines on renewable energy technical specifications suitable for PICTS
Market	Lack of private sector involvement in renewable energy service delivery
	High Cost of delivering renewable energy services
Institutional	Inadequate capacity to design and implementation of renewable energy projects
	Ineffective coordination among stakeholders
Fiscal & Financial	Absence of sustainable capital fund for renewable energy development
	Local investors are not confident on renewable energy projects
	Biased fiscal policies
Legislative, regulatory and policy	Climate change and energy legislation and policies are either not in place or ineffective
Knowledge, awareness and information	PICTS lack qualified nationals in area of renewable energy applications
	Inadequate national public awareness campaigns
	Lack of knowledge about renewable energy resource potentials in PICTs
	Absence of guidelines on renewable energy technical specifications suitable for the PICS

Barriers to renewable energy in PICTS (adapted and revised from PIGGAREP project brief)

NON 2020 TARGETS FOR RENEWABLE ENERGY IN PICTS

PICT	Current	Target
Cook Islands	3%	-100% by 2015 (across six islands)
Fiji	60%	-90% renewable for grid connected supply by 2014. -Rural-100% by 2016
Guam	Less than 1%	-25% by 2035. All future electricity plants must be a minimum 10% renewable
Kiribati	27%	-Tarawa-45% reduction in diesel usage for electricity generation by 2025 (renewable energy and electricity efficiency) -Kirimati 60% redduction in diesel usage by 2025
Marshall Islands	Unclear	-20% by 2020
Nauru	Less than 1%	-50% by 2015
New Caledonia	20%	-To be set in 2013
Niue	1.9%	-30% by 2013 -100% by 2020
Northern Mariana Islands	Less than 1%	-Unknown
Papua New Guinea	40%	-Unknown
Samoa	40%	-Increase the contribution of renewable energy to total energy consumption by 10% by 2016
Tonga	4%	-50% reduction on reliance on diesel for electricity generation

Table by Leary (2013) based on data contained in Pacific Energy Summit (2012)

POLICY PROPOSAL- PARTS D1 & D2

UTS:LAW

UTS CRICOS PROVIDER CODE: 00099F

d-1. A key to the economic independence of island States is to encourage societies that do not depend excessively on imported energy. Consequently, it is necessary to promote renewable energy innovation according to the natural conditions of each island, and provide business operators with the necessary incentives to promote the use and development of renewable energy as appropriate. In addition, there is a need to encourage measures to save energy and promote increased energy efficiency, including awareness-raising at both the political and civil levels.

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(Google Images)

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(Shutterstock)

FINANCIAL INCENTIVES FOR RENEWABLE ENERGY IN DEVELOPING COUNTRIES

East Timor

- Income and sales tax exemptions
- Customs duty exemptions

Indonesia

- Investment Credit 20% on new Geothermal energy projects
- Feed in tarriff

Philippines

- Net metering for consumer sales back to electricity grid
- Import of machinery for renewable energy projects duty free

Thailand

- Feed in tariff

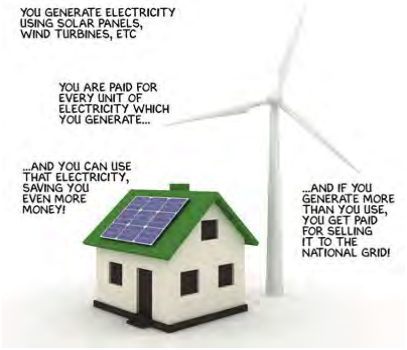
(DLA Piper 2013)

EXAMPLES OF FEED-IN TARIFFS IN DEVELOPING COUNTRIES

	Hydropower	Wind	Solar	Biomass
Thailand				
US$/kWh	0.03 to 0.05	0.11 to 0.14	0.21	0.01 to 0.02
Indonesia				
	0.07	Yet to be introduced	Yet to be introduced	0.09 to 0.10
Philippines				
US$/kWh	0.13	0.20	0.22	0.15

(Adapted from DLA Piper 2013)

FEED-IN TARRIFS



(Sustainable Homes)

CONTRAST THAT WITH WORLD LEADER GERMANY

	Hydropower	Wind	Solar	Biomass
Germany				
US$/kWh	0.04 to 0.17	0.05 to 0.25	0.02 to 0.32	0.08 to 0.33
Thailand				
US$/kWh	**0.03 to 0.05**	**0.11 to 0.14**	**0.21**	0.01 to 0.02
Indonesia				
	0.07	Yet to be introduced	Yet to be introduced	**0.09 to 0.10**
Philippines				
US$/kWh	**0.13**	**0.20**	0.22	**0.15**

PALAU ENERGY OFFICE

- National Development Bank of Palau and Palau Energy Office
  - Renewable Energy Subsidy Loan Program
    - ✓ Finances purchase and installation of renewable energy equipment for homes and businesses
      - On Grid Solar PV
      - Off Grid Solar PV
      - Solar Hot water
    - ✓ Funded by low interest loan- funding provided by GEF, Palau SEDREA project and National Development Bank
  - Energy Efficient Subsidy Program
    - ✓ home loan that that requires energy efficiency measures and product be incorporated in a new home construction ($3,000-$6,000)
  - RETRO-Energy Efficient Subsidy Loan Program

UTS

ANALYSIS OF ZERO DRAFT PROVISIONS

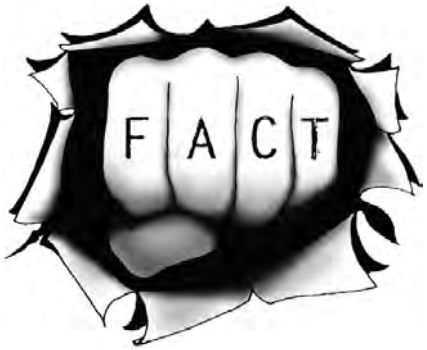
UTS:LAW

d-2. The international community should assist island States in the identification and adoption of feasible renewable energy technologies and their dissemination schemes appropriate to the environmental conditions of each country.

COMMENTARY ON ZERO DRAFT

COMMENTARY ON ZERO DRAFT

25. Energy dependence is a major source of economic vulnerability for many SIDS and has been a key challenge for many decades. At the same time, though SIDS are often considered resource poor, one source of wealth lies in their renewable energy resources.[35]



(Google Images)

COMMENTARY ON ZERO DRAFT

27. We will work to

a) Scale up financial support and investments as well as technological transfer and capacity building to develop and implement national, regional and inter-regional energy roadmaps, policies, plans and strategies, including the expansion of renewable energy.[37]

TABLE 2: STATUS OF ENERGY AND RENEWABLE ENERGY POLICY AND REGULATIONS IN SOME PICTS

	FJI	KIRIBATI	NAURU	PALAU	PNG	SAMOA	SOLOMON IS	TONGA	TUVALU	VANUATU
Renewable energy target	●	●	●	●	▬	●	●	●	●	●
Adopted national energy policy	●	●	●	●	●	●	●	●	●	●
Specific adopted national renewable energy policy	●	●	●	●	●	●	●	●	●	○
Adopted energy roadmap/action plan	●	○	○	●	●	●	●	●	●	○
Detailed implementation plan for the roadmap	●	●	●	●	●	●	●	●	●	●
Dedicated government unit to oversee effectiveness of renewable energy policy and achievement of target progress	●	●	●	●	●	●	●	●	●	●
Contractual framework for power generation (IPPs/PPAs/concessions)	●	▬	○	●	▬	●	●	▬	●	●
Support schemes (Feed-in tariff or net metering)	●	▬	●	●	▬	●	●	▬	▬	▬

● Yes or partially ○ Under development or discussion stage ● No ▬ No info

(IRENA 2012)

COMMENTARY ON ZERO DRAFT

26. The three overall objectives of the Secretary-General's "Sustainable Energy for All" initiative (securing access to modern energy services, increasing energy efficiency, and scaling up the use of renewable energy in energy systems) can provide a useful framework in this regard.[36]

SUSTAINABLE ENERGY FOR ALL

COMMENTARY ON ZERO DRAFT

b) Develop a strategy and targeted measures to promote marine renewable energy as well as wind, solar and geothermal energy in SIDS.[38]

COMMENTARY ON ZERO DRAFT

c) Develop a financing mechanism to support the implementation of renewable energy projects in SIDS.[39]

COMMENTARY ON ZERO DRAFT

d) Encourage bold and ambitious renewable energy targets for the next decade, recognizing that SIDS' leadership could contribute to shaping the post-2015 development agenda in this area.[40]

COMMENTARY ON ZERO DRAFT

c) Develop a financing mechanism to support the implementation of renewable energy projects in SIDS.[39]

gef GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

jica Japan International Cooperation Agency

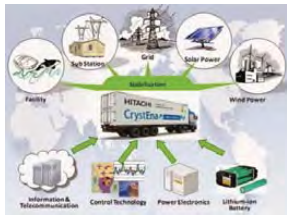
COMMENTARY ON ZERO DRAFT

e) Enhance regional and inter-regional SIDS-SIDS cooperation for research and technological development and implementation of appropriate renewable energy and energy efficient and environmentally-sound technologies.[41]

(Google Images)

COMMENTARY ON ZERO DRAFT

f) Provide technical studies on grid stability and innovative storage mechanisms.[42]



(Hitachi/University of Queensland)

CONCLUSION

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