

SPC-EU EDF10 Deep Sea Minerals Project Proceedings of Inaugural Regional Workshop 6-8 June 2011



March 2012

SOPAC WORKSHOP REPORT (PR24)

Ocean and Islands Programme



This report may also be referred to as SPC SOPAC Division Published Report 24

Applied Geoscience and Technology Division (SOPAC)
Private Mail Bag
GPO Suva
Fiji Islands
Telephone: (679) 338 1377
Fax: (679) 337 0040
E-mail: director@sopac.org
Web site: <http://www.sopac.org>



SPC-EU EDF 10 Deep Sea Minerals Project Proceedings of Inaugural Workshop 6-8 June 2011

SOPAC WORKSHOP REPORT (PR24)

March 2012

Ocean and Islands Programme

Compiled by:

Lala Bukarau, Emily Artack and DSM Project Team
SPC Applied Geoscience and Technology Division

DISCLAIMER

While care has been taken in the collection, analysis, and compilation of the information, it is supplied on the condition that the **Applied Geoscience and Technology Division (SOPAC) of the Secretariat of Pacific Community** shall not be liable for any loss or injury whatsoever arising from the use of the information.

SPC Applied Geoscience and Technology Division (SOPAC)

Private Mail Bag
GPO Suva
Fiji Islands
Telephone: (679) 338 1377
Fax: (679) 337 0040
E-mail: director@sopac.org
Web site: <http://www.sopac.org>

IMPORTANT NOTICE

This report has been produced with the financial assistance of the European Community; however, the views expressed herein must never be taken to reflect the official opinion of the European Community.

TABLE OF CONTENTS

GROUP PHOTO	2
CHAIR'S SUMMARY	3
SUMMARY RECORD	7
INTRODUCTION	7
Session 1 – Opening Session.....	7
Session 2 – SPC-EU DSM Project and Related Activities.....	8
Session 3 – Deep Sea Minerals Occurrence and Potential.....	13
Session 4 – Country Perspective and Legislative Framework.....	15
Session 5 – The PNG Experience	22
Session 6 – Fiscal Regime Options relating to Mining	26
Session 7 – Environment Conservation and Deep Sea Ecosystems	29
Session 8 – Private Sector Perspective and Interests.....	32
Session 9 – General Deep Sea Minerals Related Issues.....	35
Sessions 10 and 11 – Mini-workshop and Plenary on Three Major Issues.....	38
Session 12 – Discussion and Outcomes of the Workshop.....	38
CLOSING	39
 ANNEXES	 41-92
1) Issues raised during the Workshop that Form the Basis for the Chair's Summary	42
2) Opening Address.....	60
3) Programme and Short Background.....	64
4) List of Participants	71
5) Workshop Participants' Feedback Analysis	79
6) CD of Documents, Background Material, Presentations and News Coverage.....	88
7) List of Acronyms.....	91



CHAIR'S SUMMARY

SPC-EU EDF10 Deep Sea Minerals Project Inaugural Meeting, 6-8th June 2011, Nadi, Fiji Islands

“High Level Briefing on the Status of Deep Sea Minerals in the Pacific Islands Region and Planning for a Regionally Integrated Way Forward”

CHAIR'S SUMMARY

The inaugural regional workshop for the Secretariat of the Pacific Community (SPC)-European Union (EU) EDF10 Deep Sea Minerals (DSM) Project was held at the Tanoa International Hotel in Nadi, Fiji Islands, during 6-8 June 2011. The workshop was titled: *High-Level Briefing on the Status of Deep Sea Minerals in the Pacific Islands Region and Planning for a Regionally Integrated Way Forward*. The meeting noted that this summary was determined on the 8th of June 2011, the United Nations World Oceans Day.

The following member countries of the Pacific Africa-Caribbean-Pacific (ACP) States were represented: Cook Islands, Federated States of Micronesia, Fiji Islands, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu. The following governments also sent representatives: France, the Republic of Korea, the People's Republic of China and the United States of America..

International, regional and national agencies represented were: Commonwealth Secretariat, Duke University, European Union, IFM-GEOMAR, International Seabed Authority, International Union for Conservation of Nature (IUCN), Korea Ocean Research and Development Institute (KORDI), National Institute of Water and Atmospheric Research (NIWA), Pacific Islands Forum Secretariat (PIFS), Pennsylvania State University, Secretariat of the Pacific Regional Environment Programme (SPREP), UNEP/GRID-Arendal, United States Geological Survey (USGS), and World Bank.

The following private sector and civil society entities were represented: Anindilyakwa Land Council, Beca International Limited, Centre for Environmental Law and Community Rights Inc, Eco-Strategic Consultants, Envi-Green Pacific Consultancy Limited, Fiji Environmental Law Association, GeoPacific Limited, Greenpeace Australia Pacific, Kontiki Capital, Minerals Policy Institute, MUSKITS Law, Nauru Ocean Resources Inc (NORI), Nautilus Minerals Inc, and North-South Environmental Law.

Overview

With the vast ocean spaces, the livelihoods of most of the P-ACP¹ countries revolve significantly around the opportunity for sustainable use of the ocean and its resources in order to address their economic vulnerability and expand their narrow resource base by optimising the benefit from the size and extent of their EEZs and the mineral resource potential therein.

In recent years the interest in some of these mineral deposits has moved from just scientific resource assessment to commercial interests. This is due largely to the high grade of base and precious metals contained in Seafloor Massive Sulphide deposits together with sustained high prices of key metallic minerals. The meeting recognised that the establishment of SOPAC in 1972 was in large part due to the need for assessment of deep sea mineral resources in the region. Subsequently and largely coordinated by SOPAC, marine scientific research and sea bed mineral resource assessments within the region have

¹ The term 'P-ACP' refers to the 'Pacific' group of countries within the 'Asia-Caribbean-Pacific' grouping used by the European Union, the donors of the DSM Project. The fifteen P-ACP countries under the EU's classification are the following: the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Tonga, Samoa, Solomon Islands, Timor Leste, Tuvalu, Vanuatu. It is these fifteen countries who are participating in the DSM Project. One notable difference between this EU grouping and the SPC's usual 'Pacific Island Countries' terminology is the inclusion of Timor Leste.

located and identified a varied group of mineral occurrences on the sea bed within the EEZs of many P-ACPs.

The meeting acknowledged the current support of the European Union through the 10th EDF Pacific Regional Programme for the funding to support this 4-year project (2011-2014) entitled “*Deep Sea Minerals in the Pacific Islands Region: a Legal and Fiscal Framework for Sustainable Resource Management*”. The overall objective of the project is to expand the economic resource base of Pacific ACP States. The specific purpose is to strengthen the system of governance and capacity of Pacific ACP States in the sustainable management of their potential deep sea mineral resources through the development and implementation of sound and regionally integrated legal, fiscal and environmental frameworks, improved human and technical capacity and effective monitoring systems.

The meeting acknowledged the risks associated with deep sea minerals and the opportunity to sustainably manage them. The meeting further acknowledged that there is no such circumstance as “No Risk”. Having accepted that as a reality, the task at hand is to “Know Risk”. In other words it is a joint responsibility to work together to assemble all the necessary data and information leading to knowledge and a better understanding of risk, and ultimately the determination of an acceptable level of risk.

This meeting recognised that determining the level of acceptable risk in regard to the topic of deep sea minerals and potential for mining can be difficult and attracts differing opinions around the region. This is something that P-ACPs need to address and perhaps discuss through a regional consultative process.

This High Level Meeting provided the opportunity to have an interactive dialogue so all can become better informed about deep sea mineral issues, challenges and opportunities and, through this Project and other initiatives, move forward together to better understand and determine the level of acceptable risk and ultimately contribute in some manner to improving the livelihoods of Pacific communities.

The deliberations concluded with agreement that the correct way forward is a strategic one which is built on the following: (i) inclusiveness, and (ii) interactive dialogue, which lead to (iii) incremental actions by which means sustainable management of deep sea minerals may proceed for all Pacific States concerned.

Conclusions and A Way Forward

The participants were divided up into 12 groups and were asked to provide comment, using bullet points, on three main areas / issues:

- **Issue 1:** offshore exploration and mining, mineral potential, maritime boundaries, technology development and transfer, private sector perspective, implications of UNCLOS and other laws, stakeholder collaboration and partnership
- **Issue 2:** conservation of deep sea ecosystems, fishery and other marine resources, potentially impacted communities, community concerns, outreach, implications of UNCLOS and other laws, stakeholder collaboration and partnership
- **Issue 3:** fiscal regime and policy, development of the regional framework and national policy/legislation/regulations, legal drafting, implications of UNCLOS and other international/regional conventions, existing national policy and laws, stakeholder collaboration and partnership

Any other key points that were identified by participants during group discussions have been included under headings. The following list is a synthesis of issues raised by each of the twelve groups during group discussions and presentations. A more detailed list of group discussion outcomes is appended (Appendix 1).

- **Regional Approach:** A regional approach to address sea bed mining issues relating to economic activities and benefit sharing, governance and administration, capacity requirements and supplementation, a regional body to regulate the DSM sector, maritime boundary disputes and negotiation, independent review of research and exploration, sharing of data and information, regional capacity building initiatives be developed and enhanced, P-ACPs to be represented on the ISA, integrated planning and coordination, opportunities and challenges.
- **Capacity Building:** Need for capacity building in all aspects of DSM and the priority areas are: technical, legislative, fiscal, environmental, economics, governance, management, enforcement,

monitoring, enabling environment for capacity building, sharing of experience and expertise, partnerships with regional and international agencies, scientific research, and establishment of a regional training school.

- **Technology Development and Transfer:** Encourage and support technology development and transfer through partnership and participation in: exploration, mining and environmental management, development of appropriate, environmentally friendly technology for various mining methods, supporting long-term technology development and transfer as a value adding component.
- **Maritime Boundary and Trans-boundary Challenges:** The following maritime boundary issues are identified: declaration of maritime baselines, zones and limits, and defend extended Continental Shelf (eCS) claims, maritime boundaries to be defined and finalised in accordance with the UN Convention on the Law of the Sea ("UNCLOS"), resolve maritime boundary disputes with neighbouring countries, encourage regional dialogue and cooperation to resolve maritime boundary issues and manage "trans-boundary" effects.
- **Benefit Sharing:** The sharing of benefits derived from mining projects is a concern hence the following are proposed: setting up of state equity interest in offshore mining projects, mineral processing facilities to be established in the region, establishment of trust funds and other mechanisms for equitable sharing of financial and other benefits.
- **Data and Information:** Collation of existing DSM data and information are crucial to information sharing: collate and review existing data, establish ecosystem baselines before exploration, improve user access, develop and activate a regional database, use existing data to assess broad scale impacts.
- **Marine Scientific Research:** MSR need to be encouraged and promoted in the region through the following initiatives: P-ACPs to be more proactive in MSR, increase resources for research, encourage data and information sharing, evaluate DSM ecosystems, medicinal potential and bio-prospecting values, support strategic approaches to conservation and protection, encourage and promote systematic research, implement MSR regime in accordance with UNCLOS, ensure MSR data are delivered to the host country.
- **Community Concerns and Stakeholder Consultation:** Inclusive and ongoing consultations must be encouraged and these are the major issues: need for greater "country-specific" community consultation and participation, benefit sharing must cater for impacted communities, consider independent mechanisms for decision making, manage the expectations of communities, determine social and cultural interests of communities apart from other interests, need to focus on the benefits of deep sea mining and the assessment of risks associated with it, industry driven community projects need to be repackaged to ensure long term sustainability.
- **Environment Protection Guidelines:** Here are the suggested guidelines for environment management: regional environment framework and national policy and legislation to conform to UNCLOS / PIROP and other regional / international mechanisms, resource developers to collect environmental baselines, ensure effective pre- and post-mining impact assessments, use ESHIA [Environmental, Social (including cultural) and Health Impact Assessments] in addition to EIA [Environment Impact Assessment], independent decision making body to regulate environmental issues, need for strategic environmental planning and risk assessment for sea bed ecosystems, conduct knowledge gap analysis, ensure independent and peer reviewed EIA processes.
- **Environment Conservation and Monitoring:** Monitoring and conservation are essential environment protection initiatives and the main issues are: ongoing monitoring during and after mining, integrated regional approaches to deep sea ecosystem conservation and management of impacts, consider a regional "ISA Reserved Area" type approach for conservation purposes, the Solwara 1 Project offers a great learning opportunity, Marine Protected Areas (MPAs) be part of any mining plan, collaboration model for environmental management and monitoring, balance exploitation and conservation, protect and conserve marine biodiversity in accordance with UNCLOS, identify "Protected and Buffer Areas" for sea bed protected areas, apply the precautionary approach concept to protect unique and rare species associated with mineral deposits.

- **Information Sharing and Outreach:** Information sharing is an integral part of a regional approach and transparency and the key issues are: a regional web-based information sharing system, community awareness and dissemination of relevant information, use simple English during community awareness and may have to translate to local languages, use marine user map for planning, ensure community outreach is conducted from the outset, provide relevant information to potential impacted communities, establish a directory of experts in various DSM related areas.
- **Fisheries:** Stakeholders are concerned with the perception of mining impacts on fishery resources hence the following issues have been highlighted: apply precautionary integrated approach to ocean resources management, fishery resources must be protected from any impacts of offshore mining, ensure law enforcement and monitoring, assess the links and potential conflict of using deep oceanic areas for sea bed mining and fishery activities.
- **Resource Assessment:** Assessment of mineral potential is crucial in determining the exploitability of mineral resources and discussion outcomes are: assess sea bed mineral potential and provide baseline data, more effort on the assessment of manganese nodules and crust in the region, explain how mineral resources and reserves are estimated, need for systematic and reasonably detailed sea bed mineral evaluation in each country.
- **Mining Technical Information:** These technical issues have been put forward: consider impacts of onland processing facilities as a component of environmental costs, explain the different stages of the mining process, explore ongoing collaboration opportunities with partners and interest groups, encourage trial mining before granting a mining licence, facilitate P-ACPs' participation in the extraction of minerals in particular manganese nodules in "the Area", deep sea mining is a high risk and capital intensive investment, evaluate the concept of a 'regional processing facility' for offshore mining.
- **Legal Frameworks:** The discussion outcomes for the development of regional and national frameworks are: apply an adaptive approach to the development of legal frameworks, harmonise national policy, legislation and regulations with international and regional treaties and conventions, encourage inclusive and effective stakeholder engagement, include fiscal regime provisions in national policy and legislation, ensure mining and environmental laws and regulations are in place prior to exploration and mining, ensure balanced regulatory frameworks to avoid disincentive to investment due to the absence of regulatory regime and over-regulation, incorporate integrated approach to resource management, embody the concept of Ecosystem Based Management (EBM), policy to include regulation of activities in "the Area".
- **Fiscal Regime:** Pressing issues relating to the mining industry fiscal regimes are: avoid reinventing the wheel and learn from other nations, formulate sound fiscal regime guidelines for the development of country-specific fiscal regime, consider extractive industry fiscal regimes that are being practiced internationally, need to balance the need to attract investment with the desire for long-term sustainable benefits, tax instruments need to have flexibility / progressive elements to capture cyclical fluctuation in commodity prices, regionally harmonised tax base is essential, share tax information to avoid tax losses on transfer of assets between countries, a level playing field is required to avoid a "race to the bottom" scenario, a meeting of Finance Ministers is necessary to discuss and agree on a way forward.
- **Sustainable Economics:** Economic drivers such as mining are crucial and here are the outcomes to ensure long term sustainable benefits: sustainably manage mineral resources and mining revenue streams and benefits, balance economic imperative for intensive/efficient extraction with the precautionary approach to scale up production, optimisation of revenue streams to cater for national development priorities and a mechanism for future development needs, enhance long term economic stability through savings of mining revenue, DSM deposits are finite hence devise appropriate revenue management mechanisms, avoid the potential impacts of the "Dutch Disease".
- **Governance and Transparency:** Issues relating to governance and transparency are highlighted below: adopt the Norwegian model approach in managing mining revenue in particular a saving mechanism, encourage the use of the Extractive Industry Transparency Initiative (EITI) in the offshore mining industry, revenue transparency principles be included in regional and national frameworks, and contract agreements, expand the EITI to verify all payments and not just between government and company, put in place mechanisms that attract investment for offshore mining, ensure accountability and transparency mechanisms are established in any mining operations.

SUMMARY RECORD

INTRODUCTION

The inaugural regional workshop for the Secretariat of the Pacific Community (SPC)-European Union (EU) EDF10 Deep Sea Minerals (DSM) Project was held at the Tanoa International Hotel in Nadi, Fiji Islands, during 6-8 June 2011. The workshop was titled: *High-Level Briefing on the Status of Deep Sea Minerals in the Pacific Islands Region and Planning for a Regionally Integrated Way Forward*.

The following Pacific Africa-Caribbean-Pacific (P-ACP) States were represented: Cook Islands, Federated States of Micronesia, Fiji Islands, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, and Vanuatu. The following governments also sent representatives: France, the Republic of Korea, the People's Republic of China and United States of America.

International, regional and national agencies represented were: Commonwealth Secretariat, Duke University, European Union, IFM-GEOMAR, International Seabed Authority, International Union for Conservation of Nature (IUCN), Korea Ocean Research and Development Institute (KORDI), National Institute of Water and Atmospheric Research (NIWA), Pacific Islands Forum Secretariat (PIFS), Pennsylvania State University, Secretariat of the Pacific Regional Environment Programme (SPREP), UNEP/GRID-Arendal, United States Geological Survey (USGS), and World Bank.

The following private sector and civil society entities were represented: Anindilyakwa Land Council, Beca International Limited, Centre for Environmental Law and Community Rights Inc, Eco-Strategic Consultants, Envi-Green Pacific Consultancy Limited, Fiji Environmental Law Association, GeoPacific Limited, Greenpeace Australia Pacific, Kontiki Capital, Minerals Policy Institute, MUSKITS Law, Nauru Ocean Resources Inc (NORI), Nautilus Minerals Inc and North-South Environmental Law.

The inaugural regional workshop was chaired by the Director of the SPC Applied Geoscience and Technology Division (SOPAC), Dr Russell Howorth.

Session 1 – Opening Session

The Manager of the Ocean and Islands Programme (OIP)², Dr Arthur Webb, welcomed all the participants to the first day of the inaugural regional workshop of the Deep Sea Minerals Project. He explained that the DSM Project sits within the Ocean and Islands Programme of the SOPAC Division. He pointed out that although the initial Project proposal was developed in 2008, other factors such as the merge of SOPAC with SPC caused the delay in the commencement of the Project.

He acknowledged the presence of the leading experts at this workshop. SOPAC has always recognised the opportunities and challenges of the deep sea minerals in the region and the Project would assist Pacific ACP States in bringing the best range of options for effective engagement in this new area of DSM. Pacific ACP States are encouraged to interact with leading experts on various issues relating to DSM at this workshop and the experts are strongly urged to talk to Pacific ACP States and understand their needs. Dr Webb also introduced the DSM project staff – Project Team Leader (Mr Akuila Tawake), Legal Advisor (Ms Hannah Lily), and Project Officer (Ms Vira Atalifo) and also acknowledged the support of the other Secretariat staff at this workshop, such as the IT support and other staff. He concluded his opening remarks by requesting Niue's Secretary of Government (Richard Hipa) to deliver the opening prayer.

Akuila Tawake introduced the workshop theme, and encouraged all the experts to share their knowledge and discuss issues relating to DSM with other stakeholders. Akuila Tawake presented on the DSM Project, the background, implementation and project components for the next four years. Participants were also encouraged to share their experiences and concerns relating to DSM issues. This interaction and information sharing would contribute to the empowerment of representatives of Pacific ACP States at this workshop. Additionally, the DSM Project would explore collaboration opportunities with implementing partners.

² The Ocean and Islands Programme is one of three technical work programmes of the SPC Applied Geoscience and Technology Division, within which the DSM Project is operationalised.

The Project would hold national DSM workshops to collectively identify with in-country stakeholders the needs and priorities of each Pacific ACP State. Broad outcomes for the way forward for the next four years are part of the Chair's Summary at the beginning of this report and Annex 1 contains issues raised and discussed during the workshop. Akuila Tawake presented on the Expected Outcomes – for the participating countries to be aware of the scope of the DSM Project, and the activities identified in the Project Document that they can benefit from. The DSM Project would also like to listen to participants of this workshop to provide the necessary advice and guidance that would assist in the effective implementation of Project activities.

A list of participants can be found in Annex 4. All presentations heard during the workshop are provided electronically in Annex 6 on CD (see back pocket).

Structure of the Proceedings of the Workshop (this report)

This Proceedings document follows events at the workshop as they occurred see Workshop Programme, Annex 3).

The workshop format was lecture style, where questions and discussion were encouraged at the end of each presentation and this reporting follows that flow of events.

(Day 1 of 3)

Session 2 – SPC-EU DSM Project and Related Activities

(Please note that pdf versions of all presentations during the workshop are electronically available on the CD in Annex 6.)

“Overview of the SPC-EU EDF10 Deep Sea Minerals (DSM) Project: Background of offshore minerals exploration in the region, mode of project implementation, Key Result Areas and planned activities” presented by the SPC-EU EDF10 DSM Team Leader, Akuila Tawake

Summary of Presentation

Information presented is fully documented in the DSM Project Information Brochure 1 (also available on the CD). With the resurgence of commercial interest in offshore mineral exploration in the EEZs of P-ACPs a regional approach is needed to prepare a regional framework that encourages the harmonisation of many DSM issues such as legal environmental and fiscal regimes for the management of offshore mineral resources. Pacific ACP States are encouraged to use this regional framework to develop their national offshore minerals policy, legislation and regulations. The other components of the Project are to assist in capacity building in various DSM sectors and to effectively contribute to environmental management and monitoring. These are the primary objectives of the Deep Sea Minerals (DSM) Project, and the European Union (EU) has agreed to provide the required financial support (i.e. €4.7M) for the implementation of the Project over a 4-year period (2011-2014) in 15 Pacific ACP States.

DISCUSSION

Malakai Finau (Director, Mineral Resources Department, Fiji) asked how the €4.7M was to be apportioned to each of the 15 participating countries of the DSM Project.

Akuila Tawake (SPC) responded that there were no country-specific allocations in the Project budget; and that countries would be assisted through the DSM Project based on each country's needs and priorities, for example Papua New Guinea and the Cook Islands are in the process of finalising their national DSM policy and legislation and would ask for the DSM Project assistance in other priority areas.

Leonito Bacalando (Federated States of Micronesia) asked who would be deciding how Project funding would be allocated among countries.

Akuila Tawake (SPC) responded that participating countries in consultation with the SOPAC Division will decide on the priority activities for each country and the subsequent budget allocation. The agreed activities must be within the scope of the DSM Project.

Russell Howorth (The Workshop's Chair and Director of the SOPAC Division of SPC) informed that the SOPAC Division budget and work plan is reviewed annually by Pacific Island countries therefore countries are informed on progress on DSM Project work and budget allocated for each participating country.

Bryan Star (Nauru) sought clarification on the role of the DSM Project Steering Committee.

The Chair clarified the distinction between two steering committees that would be formed for the Project. One was a technical steering committee comprising experts and SPC Project Staff to provide guidance and support to UNEP/GRID-Arendal in compiling a state of knowledge report on Pacific marine minerals based on previous marine scientific studies and exploration. Secondly, the DSM Project steering committee will comprise representatives of participating countries and DSM Project staff, and this is where priority issues and concerns can be raised.

Richard Hipa (Secretary to Government, Niue) appreciated the guidance provided by the Project to small island countries and acknowledged the timeliness of the Project with respect to Niue's interests.

Fiji requested clarification on the mechanism for the development of national legislation at national level; and also advice on maritime boundaries support to Members.

Chair responded that SOPAC/SPC national focal points would remain focal points in the duration of the Project; however, technical focal points that would be the principal point of contact for day-to-day Project implementation would need to be identified by countries.

Arthur Webb (Manager Oceans and Islands Programme, SPC) clarified the mandate of the SPC-SOPAC was purely as a technical advisory to Members; and that settling maritime issues between countries was a diplomacy matter between states.

Eselealofa Apinelu (Attorney General, Tuvalu) requested clarification on whether the Project would be assisting small island countries like Tuvalu with policy drafting and legislative legal instruments relating to the UNCLOS.

Chair offered that the presentation to follow would likely address Tuvalu's question.

“Relevance of UNCLOS to marine mining and the rights of a coast state under UNCLOS, regional conventions/agreements, relevant national policies and laws, DSM Project proposed method of policy and legislation developments” was presented by Hannah Lily, Legal Adviser of the SPC-EU EDF10 DSM Project

Summary of Presentation

National regulation, underpinned by legislation, will be required for countries engaging with DSM. The great benefits of a regional approach to the development of such law and policy were explained. Relevant provisions of UNCLOS and other international agreements and initiatives that will support the development of DSM law and policy were detailed. Suggestions were provided for what the Project's regional legislative and regulatory framework (RLRF) might look like; emphasising that the Pacific region is leading the way somewhat in DSM mining and that much is unknown in the area, particularly about environmental impacts. Issues and obligations to consider and account for in the formulation of an RLRF include not only requirements of international law but also provision for; governance structures; public accountability and information sharing; responsible environmental management (especially pre-empting negative environmental impact); responsible financial management (how to legislate a fiscal regime); dispute resolution methods; and fitting in with existing national legislation and structures. Model documents/templates (which countries could start with to formulate national instruments) may be helpful. Overall regulation of DSM should balance enablement and enforcement; and provide incentive for third party investment while protecting states' interests.

DISCUSSION

Robert Makgill (Lawyer, North-South Environmental Law, New Zealand) advised using a New Zealand solution rather than the northern hemisphere model to pre-empt negative environmental impact. The northern model used an 'activities impacts' basis whereas he advised an 'activities effect impacts' basis.

Eselealofa Apinelu (Attorney General, Tuvalu) asked how the Project would assist countries to harmonise existing national laws that deal with all marine issues.

Hannah Lily responded that according to the Project document the RLRf had to be developed first, and with the Project's assistance, countries are encouraged to use the RLRf to develop national marine minerals and mining policy, legislation and regulations. Ensuring that new DSM focussed legislation complemented and didn't conflict with existing national legislation, would be important.

George Niumataiwalu (Director, Kontiki Capital) asked after the fiscal regime aspect of the RLRf; suggesting that it was usually written into policy; whereas royalty was legislated. He cautioned that it would be difficult to discuss the fiscal regime aspect of the RLRf without getting into details.

Ms Lily agreed that fiscal regimes tended to differ country by country; and advice would have to be provided on a country by country basis as the regional framework for this aspect would merely provide guidance to countries.

Graeme Hancock (World Bank) confirmed the complexity. From experience the detail of rates to apply would be via the contract; however the underlying basis of the fiscal regime needed to be in legislation. He suggested that a dedicated separate working group work on the highly complex subject. Where countries have no built in flexibility within fiscal regimes, normally pressure builds during periods of high commodity prices to modify the regime; rather than those regimes being flexible enough to respond to changes in commodity prices; hence the due care necessary to be applied at the design stage of fiscal regimes to prevent knee-jerk reactions that sometimes result in breaking contracts that is regretted later when commodity prices lower.

The Chair agreed to the concept of forming special working groups as deep sea mining was a new, huge and complex field. Special task working groups could usefully support the Project as it moves forward.

Shadrach Himata (Deputy Secretary of the Department of Mineral Policy and Geohazard Management (DMPGM), Papua New Guinea) informed that Papua New Guinea was currently reviewing national legislation and offshore minerals policy; something the government wants completed in July/August 2011. Even though his department was under great pressure to complete the reviews he expressed the hope of working closely with any Project committee – to ensure that whatever was being done nationally was consistent with the RLRf.

“SPC-UNEP/GRID-Arendal proposed collaboration on Pacific Marine Minerals and Deep Sea Mining Assessment, scope and deliverables, similar UNEP/GRID products” presented by Yannick Beaudoin (UNEP/GRID-Arendal)

Summary of Presentation

An introduction to the UNEP/GRID-Arendal collaboration with the SPC, currently underway and likely to last the duration of the SPC-EU EDF10 DSM Project. UNEP/GRID-Arendal is an environmental communication centre established by the Norwegian Foreign Affairs to assist UNEP members with a mission to 'provide environmental knowledge enabling positive change'. It has been contracted by the Project to work with a technical steering committee of 'experts' on a 'state of the knowledge' report for marine minerals in the Pacific.

DISCUSSION

Seni Nabou (of Fiji and representing Greenpeace) asked if the products described would be translated into the local languages of Pacific islanders.

UNEP/GRID-Arendal responded that as a UN Organisation, it worked with the five official languages of the UN. It was acknowledged that this product, given its specific target to the Pacific, and the importance to include a grassroots audience, would benefit from future local language versions – perhaps available digitally. This would have funding implications however. UNEP/GRID-Arendal could broach the subject with the Project team regarding this possibility.

Furthermore, the speaker elaborated that the unit's work with the DSM Project was a UNEP collaboration with SPC SOPAC Division and that at the higher level it was part of the programmed work of the UNEP – being reported at governing council level. Pacific island countries were active in pursuing a blue economy agenda given the great importance of the ocean to their particular needs and priorities. The 'green economy in a blue world' production, which will be presented at Rio+ 20 will have a chapter highlighting the work being done in this assessment as requested by Pacific island countries at preparatory meetings.

Steve Raaymakers (Principal, Eco-strategic Consultants, Consultant to PNG) suggested that hard copy products were more appropriate for translation into the local language; as it was the experience in PNG that local communities would have no or limited access to internet or computers.

Faatasi Malologa (Director of Lands, Tuvalu) asked whether products like the Geocap (software that the countries use for the determination of the outer limit of the extended Continental Shelf work) was going to be used by the UNEP/GRID-Arendal team to carry out further analysis of the data that is available.

UNEP/GRID-Arendal responded that discussions with the DSM Project have yet to take place in that regard; but acknowledged the possibility that some existing tools used for the continental shelf work could be adapted and made available to countries for DSM information management.

*“Status of Regional Maritime Boundary Delimitation and Extended Continental Shelf Claims”
presented by Arthur Webb, Manager of the Ocean and Islands Programme*

Summary of Presentation

Status of the technical work completed by SOPAC (and technical partners) was highlighted. States were advised that the presence of a complete dataset for boundaries was not legally binding itself, further steps were required. States had a part to play in updating national legislation to enable the use of technical datasets in the sovereign process of declaring boundaries. Only nationally declared and UNCLOS-established boundaries were recognised internationally and could be invoked in cases of breach of security; illegal fishing, to name a couple.

DISCUSSION

The Chair noted that the issue of maritime boundaries was very closely linked to deep sea mining in terms of ocean use.

Graeme Hancock (World Bank) enquired about the status of Australia and New Zealand in declaring their maritime boundaries limits.

Arthur Webb responded that complexities of maritime boundary processes within Australia and New Zealand was known only to its officials, as long as they conformed to the broader guidelines in the UNCLOS. Australia has declared its outer limits; but they had not declared their baselines. Most of the shared boundaries with Australia are already subject to treaties between it and the Pacific island countries concerned and are highly unlikely to be revisited. Remaining shared boundaries were still to be negotiated and agreed.

Richard Hipa (Secretary to Government, Niue) agreed with the importance of the legal/diplomatic issues and he was deeply appreciative of the support work being carried out to date by the SOPAC team, mentioning the visit by SOPAC officers following the (this) workshop to assist the Niue Government to endorse the technical report and make their submission to the UN. With respect to the EEZ, he stressed that there was much more at stake than just minerals and fisheries. While fisheries data came from FFA he further stressed that data collected in countries by any agency must

belong to the countries. He enquired as where Niue would fit in with respect to the high seas, the EEZ, the eCS boundaries; do we involve ourselves or is it beyond this forum?

The speaker noted that he would answer components of the question where he could as he was not a Law of the Sea expert. Niue's 200 nm EEZ boundary is the zone in which it exercises its sovereign rights over the resources. Niue does not have the potential for an eCS claim as far as SOPAC knows it at this point. In areas beyond that the speaker is not aware of the legal status of other areas that Niue could access and would need legal counsel to say. As manager of the Maritime Boundaries Team, the speaker acknowledged Niue's expressed gratitude to the team.

Malakai Finau (Director, Mineral Resources Department, Fiji) asked where countries have made their own arrangements what support could be provided when they are up against large countries like New Zealand and Australia in terms of shared boundaries? – with particular reference to the south Fiji and north New Zealand areas, because it is not a level playing field as everyone knows.

Arthur Webb responded that areas of extended continental shelf claims referred were subject to joint claims between Fiji and its neighbours and SOPAC is currently engaged in progressing the claims. The advice tendered is to continue with the joint proposal; but when it comes down to how resources in these areas might be divided, assuming the claims are successful, this will again be a matter for sovereign discussion. SOPAC can provide the technical detail to assist but these are questions for the countries themselves to answer.

Michael Lodge (Legal Counsel, International Seabed Authority (ISA)) enquired as to the current length of the queue at the UN to hear submissions for eCS claims as he was aware that it was very long at one stage. He mentioned an estimate of 25 years before the final submission would be considered and wondered where the Pacific island countries were placed in this queue, and whether the Project would continue to provide technical support to countries when they go to make their submissions to the Commission.

The speaker, as Manager of the Ocean Islands Programme, under which the Maritime Boundaries Team is managed, revealed that SOPAC had not even had a budget for the eCS work four years ago. The rally around this important issue was recent and quick, with the team managing in this short time to get in claims and partial claims by the deadline. Work to complete the partial claims continues. With EEZs, it is up to the countries themselves to develop solutions and lodge them with the UN, who publish the data. With eCS, the claim is lodged and then subjected to legal and technical review by the scientific and technical experts of the UN Commission on the Limits of the Continental Shelf – these then rule whether the countries might succeed in their claim or not. Ten more years of dedicated eCS work is expected to support countries in developing arguments to defend the claims lodged when they come up for review. Exactly what the mechanisms are to source funding for this work to continue is difficult to say at this time; but SOPAC acknowledges sterling support from partners in the work, e.g. UNEP/GRID-Arendal, Commonwealth Secretariat and Geoscience Australia and thus far the Government of Australia has been keen to continue the funding of the work and SOPAC would continue to provide arguments for AusAID to continue to do so. The Pacific island countries are encouraged to prepare and be ready to defend their submissions as all work and efforts so far could be lost if claims are not defended well – 1.8 million square kilometres of sea bed area is currently under claim! It would be of tremendous help to the boundaries team in seeking funding to continue its work, if beneficiary countries provide feedback directly to donors (like AusAID) about the progress and the level of importance of this work to them.

Paula Taumoepeau (Tonga Country Manager, Nautilus Minerals) sought SOPAC's opinion on the border issue between New Zealand and Tonga. The speaker replied that SOPAC represented the interest of the Member it was working with on boundary solutions. All data, advice and information provided to any Member with respect to this issue is kept confidential between the Member and SOPAC Division.

Richard Hipa (Secretary to Government, Niue) mentioned the treaty between Cook Islands and New Zealand where both parties worked together and agreed the technical maritime boundaries information. He asked whether the process toward declaration would be accelerated if countries agree with each other on the boundaries before going to the UN.

The speaker explained that, if a country submitted a claim for an eCS with which a neighbour did not agree, then the neighbour country could lodge a note of protest against the claimant country, which would result in the claim not meeting the criteria for advancing to the stage of review by the technical

commission. In the Pacific disagreements are rare and neighbours mostly have been able to agree the claims before submission. With respect to EEZ declarations, there is no specialised body to review the technical aspects of declared boundary lines and zones to the same extent that eCS claims are scrutinised. The main contention in the process for eCS claims is about the areas where two countries adjoin. In this area an equidistant half way line is drawn, and that border would be subject to a treaty between the parties. Once a treaty is agreed at the technical and diplomatic levels; the treaty and technical documents are lodged with the UN and the UN will not ask questions if state parties involved have agreed.

Paul Lynch (Consultant, Cook Islands) enquired which of the Pacific islands was ahead of the Cook Islands in being due for the review process of its eCS claim rumoured to be within 2011. The meeting heard that the Cook Islands is the first among island states in the Pacific that would come up in the queue to defend its eCS claim when it is subjected to the full technical review by the UN commission. SOPAC mentioned that their sources had indicated that the first defence from Pacific islands' claims would be due in about four years time.

On an earlier question (by Michael Lodge of ISA) of where Pacific island states were in the technical review queue; the meeting was informed that those details were publically available on the UNCLOS web pages.

Session 3 – Deep Sea Minerals Occurrence and Potential

“A global overview of the Deep Sea Mineral: Occurrence, trend and potential with case studies” presented by James Hein, Senior Scientist, US Geological Survey

Summary of Presentation

Global trends in what metals were in demand and who was producing them were presented; with allusions to the types of products and industries for which metals were in demand. The relatively untapped oceans present a new frontier for mining in the future, and the metal potential may be vast, as the planet's oceanic area is more than twice its land area. Technology currently in use for sampling and exploration of the sea floor was discussed; as well as the global distribution of known seafloor mineral deposits. Some reference was made to the biology of extreme environments e.g. hydrothermal vents; and the geology associated with different types of mineralisation.

DISCUSSION

Paul Lynch asked about a ship recently berthed in Auckland Harbour which was reported as having done exploratory work in the South Pacific without specifying where the work was done. The shipboard party reported good results on rare earth metals and he was interested in where the exploratory work had been carried out and more details on the results.

The speaker was aware of work being carried out in Southeast Asia and the Kermadec Arc but could not specifically answer the question without more information.

A KORDI representative asked the speaker to define what exactly he meant by “long term potential” of deep sea minerals in the context that he used it in his presentation.

The speaker explained that it was related to issues like: what was currently available on land and how depleted those deposits are getting; how abundant they are in the offshore deposits and in how many locations they are found.

“Deep sea mineral occurrence and potential in the Pacific Islands Region with case studies” presented by Akuila Tawake, Team Leader, SPC-EU EDF10 DSM Project

Summary of Presentation

A history of marine minerals exploration in SOPAC island countries' EEZs was presented. Manganese nodules were initially investigated; then cobalt-rich crusts; and then seafloor massive sulphides, as each different type of deposit was discovered. Results from the 20-year Japanese

exploration surveys for manganese nodules, cobalt-rich crusts and seafloor massive sulphides in several SOPAC island member states were highlighted as well as known mineral occurrences, with some discussion on abundance and grade (metal content) of sampled deposits. Some recent and current explorations by companies in SOPAC Members' EEZs were also mentioned.

DISCUSSION

Charles Domnick (Adviser in the Ministry of Resources and Development, Marshall Islands) enquired why there was a marked difference in results between the two surveys from the studies of 1996 and 1998.

The speaker responded that the 1996 and 1998 surveys made preliminary observations and took grab samples, from which crust thicknesses were estimated. However, during the latter survey of 2002, drilling was carried out and a better estimate of thickness of the cobalt-rich crusts could be obtained. The high average crust thickness based on drilling was largely responsible for the increase in the 2002 crust resource estimation of the three surveyed seamounts.

Arthur Webb (Manager Ocean and Islands Programme, SOPAC Division) referring to the manganese nodules and the metals contained – nickel, copper and manganese – asked whether the nodules also contained the trace rare earth metals that had been talked about in the earlier presentation.

The speaker replied that due to the market interest and strategic importance of rare earth elements now; there would be consideration of them in current work, when investigating the potential economic value of deep sea mineral deposits like manganese nodules apart from the other target minerals listed in the presentation.

Paul Lynch (Cook Islands) was not clear about the discussion of grades/quality of manganese nodules that was presented and enquired: if the number of exploration surveys that had been conducted in the Cook Islands had also been carried out in other Pacific island countries, would the abundances of manganese nodules found in the Cook Islands also be found in other Pacific island countries' EEZs?

The speaker responded that there could be no such conclusion and explained that geological and oceanographic processes dictate the distribution and abundance of manganese nodules on the ocean floor. The presentation spoke of three main types of deep sea mineral deposits. From the data on hand, Cook Islands has the richest deposits of manganese nodules. Marshall Islands is richest in occurrences of cobalt-rich crusts whilst Papua New Guinea, where Nautilus Minerals has been granted a mining licence for the Solwara 1 Project, has the best potential for seafloor massive sulphides. SOPAC Director added to the response confirming that the seafloors of different Pacific island states are not equally endowed.

“Manganese Nodules and Cobalt-rich Crusts – Previous studies, geology, characteristics and potential globally and in the Pacific region” presented by James Hein, Senior Scientist, US Geological Survey

Summary of Presentation

Formation processes and unsolved mysteries of deep ocean manganese nodules and ferromanganese crusts, and known areas of occurrences in the global ocean, were presented, along with the rationale and challenges of mining these deposits. The environment and biodata around seamount areas were described. Some current prices of common metals were also summarised; and the huge potential for the rare earth metals that may be found in deep sea mineral deposits was mentioned in association with examples of the use for these in emerging and next generation technologies.

DISCUSSION

Malcolm Clark (NIWA) enquired whether the crusts and manganese nodules were inert; or was there some natural leaching from those types of deposits in the way that some natural breakdown of massive seafloor sulphides is expected in their typical habitats. He wondered if there had been any recent work done on the sea chemistry around the manganese nodules and crusts deposits.

The presenter responded that there had been work done for nodules and it showed there was some desorption of deposits that had been broken up at the seafloor, requiring new equilibrium to be established through some metals being absorbed and some desorbed. This has implications for the mining technology to be developed: to ensure material escaping from chemical reactions is limited.

The first question was clarified by Malcolm Clark to mean: without breakup or crushing of the manganese nodules, was there any natural chemical reaction with the surrounding seawater? The presenter confirmed that the Germans had done a good study on the subject in the Peru Basin; and they had found some natural absorption-desorption.

Robert Makgill followed up the earlier question by asking the presenter his opinion on whether deep-sea mining of cobalt-rich crusts was more 'benign' than the onland equivalent.

The speaker responded that they had been asked to do a calculation on what was needed to support a 20-year cobalt mine site on the deep sea bed. The calculation showed that the mine sites would cover a relatively small area. That said, precautions would still have to be exercised as to how the mining is undertaken to minimise adverse impact e.g. it could mean certain areas left untouched as refuge or protected areas. Mining seamounts should not be like trawling, and crust mining should cover very very small percentages of some very very large volcanic edifices.

Session 4 – Country Perspective and Legislative Framework

“Cook Islands presentation” by Paul Lynch, Legal Adviser to the Minister of Foreign Affairs and Immigration, Transport, Minerals and Natural Resources, Cook Islands

Summary of Presentation

The presenter introduced the Cook Islands – a small developing island nation; with a small land area, but a large EEZ (2 million square kilometres). Tourism is a top source of income for the Cook Islands, and hence environmental considerations (or any matters which could impact the Cooks Islands' land and seascape) are taken seriously. Sea bed minerals exploratory surveys were undertaken in the EEZ from the 1970s to the mid 1990s; and these showed a high abundance of good grade manganese nodules. Cook Islands has long been waiting for technology advances to mine the deep ocean. A comprehensive sea bed minerals policy has been drafted, taken through consultation, and adopted by the Government. The policy sets principles to guide Government in the management of the deep sea bed and lays foundation for comprehensive regulatory framework to be established to ensure wise management of sea bed minerals for the benefit of present and future generations of Cook Islanders. The regulatory framework centrepiece is the Sea Bed Minerals Act 2009 that complements existing laws; and reflects international best practices in the extractive industries. The institutional arrangements for a national sea bed mining industry is described; as well as the associated foreign investment controls. The Cook Islands Government requires a certain percentage of local participation in any large contract. The Cook Islands' focus in setting and applying a regime of controls is to ensure benefits to the country from its future entry into sea bed minerals extraction; and its people need capacity building to prepare them to manage this new and exciting resource.

DISCUSSION

Malcolm Clark (NIWA) enquired whether the Cook Islands Sea Bed Minerals Act was linked to environmental protection legislation so that exploitation would be balanced by environmental protection that is required by legislation.

Paul Lynch responded that while the Cook Islands Act was comprehensive and contained a significant section on environmental management, Government viewed the Act and the sea bed mining policy as 'works in progress'. Participation at workshops such as this would be very useful for improving their legislation. Cook Islands' officials had recently attended a Commonwealth Secretariat workshop; and he was also interested in the "effects-based environmental management" concept mentioned during an earlier session of this workshop and would be taking that home to inform the continuing improvement of the Cook Islands sea bed mining regulations.

Tingika Elikana (Solicitor General of the Cook Islands) confirmed a link between the Sea Bed Minerals Act and the Cook Islands Environment Act with a requirement for an EIA for activities that would adversely affect the environment. Before mining or work within the sea bed, the proposed activities had to comply with the existing national Environment Act.

Moses Murray (Lawyer, Murray and Company, Papua New Guinea) introduced himself as a private lawyer with keen interest in the way his own country, Papua New Guinea, was moving forward in the area of mining the ocean sea bed. He congratulated the Cook Islands in having developed specific regulations for sea bed mining; something Papua New Guinea did not have, opting instead to extend the definition of land in an amendment to its current land mining Act to allow the permitting of the company Nautilus to mine the sea bed in Papua New Guinea waters. He expressed interest in hearing from his fellow countrymen, representatives of the government when they presented the Papua New Guinea case study later in the programme.

“Fiji – Resource potential and state of knowledge. Challenges in policy and legislation development and investment in offshore minerals exploration and mining” presented by Malakai Finau, Director of Mineral Development, Mineral Resources Department, Fiji

Summary of Presentation

A history of marine scientific research surveys was presented, along with a summary of the types and compositions of known deep sea mineral deposits in Fiji waters. It was emphasised that a sizable portion of known mineralisation areas are known only superficially – with further work desirable to inform the extent of the resource. Areas in Fiji waters that are currently under exploration licence application were mentioned. Current challenges in legislation and policy were summarised. Existing legislation inadequately covers deep sea mining. The Continental Shelf Act 1978 and the Marine Spaces Act 1977 deal primarily with delimiting maritime boundaries according to UNCLOS. The Mining Act 1978 is the main source of regulation currently relevant for deep sea mineral activities. The definition of land in the Act has been amended to cover the sea bed, and so to allow offshore exploration under the administration of that Act. But offshore mining in Fiji will only be granted after development of separate offshore mining legislation. An offshore minerals policy exists; and a revised fee schedule was recommended for regulation in recognition of deep sea bed mining as an “emerging sector which carries pioneering risks that require highly specialised expertise at all stages of licensing”. There are too many unknowns associated with deep sea bed minerals and their extraction, which makes it an industry not conducive to sound economic judgement yet. There may also be challenges ahead concerning transboundary deposits. Regional cooperation was suggested as a useful way forward.

DISCUSSION

Robert Makgill (NSEL, New Zealand) advised Pacific island states to make the mining company or the private sector responsible for the research and the gathering of the necessary data (for example environmental baseline data) and then to get that data peer reviewed by other international consultancies. While acknowledging the need for some capacity building in environmental management within island states, he viewed that islands need not necessarily focus on getting all that type of expertise immediately for themselves.

Steve Raaymakers (Eco-Strategic Consultants) shared the Papua New Guinea experience in terms of the fiscal regime which has been adopted with the offshore policy. Papua New Guinea has taken the terrestrial mining fiscal regime and applied it wholesale to the offshore situation and it was found to be workable and acceptable. The industry is happy with this reliance on the terrestrial fiscal regime and the plan is to continue on that basis. There is a lot in the terrestrial mining regulatory framework, which applies directly in the offshore situation and there was no need to reinvent the wheel. Certain regional guidelines, e.g. the Madang Guidelines, advised similarly.

Malakai Finau responded that Fiji was yet to finalise its fiscal regime; so at the moment the Government does not have one standard for the industry.

The Chair clarified that Fiji was currently following the Papua New Guinea model of extending the definition of ‘land’ to include the ‘offshore’ region to allow it to move forward; as opposed to the Cook Islands model which was well down the track with specific legislation and associated policy and

regulations. The meeting was reminded about the existence of the decade-old Madang Guidelines for Offshore Minerals Policy, which was available to delegates in hard and soft copies.

“Proposed legislative and administrative frameworks for Deep Sea Minerals and mining” presented by Robert Makgill, Director, North-South Environmental Law; and Keith Frenz, Technical Director, Beca International

Summary of Presentation

The presentation provided an opinion on what national legislation should look like in DSM; and what good environmental practice and management entails. Mr Makgill has worked in various legal capacities with a number of DSM stakeholders represented at the meeting (for example IUCN and NORI). Beca is a consultancy firm with more than 40 years of work experience in the Pacific. Relevant parts of UNCLOS were discussed in terms of obligations of States in DSM activities, both within their jurisdiction and within the Area. Laws and regulations must include the implementation of administrative measures; aim to prevent, reduce and control pollution; and to be no less effective than international rules and recommended practice. Principles of good environment practice and management and the precautionary approach, with respect to strong environmental and social objectives, were advocated; as well as seeking assistance in capacity building once capacity gaps have been identified. Island states were encouraged to strike a balance between the social, cultural, economic and environmental well being of the State and its citizens, when seeking resolutions to issues arising in the new industry presented by DSM.

DISCUSSION

Charles Roche (Executive Director, Mineral Policy Institute [a civil society organisation based in Australia with an Australian and Pacific focus] asked how current deep sea mining legislation were stacking up to international legal standards.

Robert Makgill replied that he was not familiar with Papua New Guinea's legislation. The Australian legislation he was looking at covered integrated coastal management out to a 12-mile limit only; so it didn't involve deep sea. He had first heard about the Cook Islands' legislation today and was really looking forward to discussing it with its architect. Mr Makgill's view was that, from an environmental regulatory perspective, Pacific island states could benefit from integrating their decision-making frameworks – meaning that, instead of having a multitude of legislation, establish a single system and one piece of legislation, dealing with different kinds of resources. That said, deep sea bed mining might be a specific case where a specific legislative regime was needed.

Malakai Finau (Fiji) asked for Robert Makgill's opinion on whether in Fiji's case amending the current land mining act was sufficient and that a new offshore mining law was not necessary.

Robert Makgill responded by advising that work on policy development was needed first. Research was required first and foremost on the matters requiring regulation, before a decision could be made about whether an existing piece of legislation can be amended or whether to look at something more comprehensive in terms of resource management, and maybe to create separate legislative regimes for the terrestrial environment, for the inshore environment, and for the farther EEZ. What Mr Makgill was advocating was that, regardless of whether different geographical regions were dealt with separately or together, the regimes need not be *activity* specific. If legislation were couched in environmental management terms, a single piece of legislation may be able to cover a variety of activities, not focusing specifically on minerals – and associated pieces of legislation could be formulated specifically to govern other, separate, important areas like fiscal management.

Malakai Finau continued that Fiji was in the process of reviewing its Mining Act, which would now have to account for deep sea minerals; and he identified this as an area where Fiji would need assistance.

Moses Murray asked Robert Makgill for advice on whether the format that enacts legislation specifically for mining, and includes its environmental management within that was a good approach, or whether a separate environment Act for that purpose was also needed.

Robert Makgill responded that a piece of legislation that regulates a particular area could be better. The international trend, he said, is to have legislation that controls the territory from the baseline all the way out to the EEZ. The UK has one piece of legislation that basically regulates all the activities in the environment whether it be mining, fishing, tourism, etc.

George Niumataiwalu (Kontiki Capital) suggested that if the Act were formulated using the generic framework model proposed by Mr Makgill then some details may be specified for sea bed mining in regulation.

Robert Makgill confirmed that it was the formula that his firm and Beca International would be encouraging. They view this model as a solid approach; in that legislation needed to make room for adaptive management – i.e. flexibility should be inbuilt to inject new information into the management regime as it becomes available. Overly prescriptive legislation for a specific activity may end up not being able to deal with associated activities or associated environmental effects further down the track. So it was better to keep a generic management focus, rather than an activity-specific focus.

Keith Frentz reaffirmed his fellow speaker's advice; advising the importance of keeping the flexibility through the legislation – citing the point made by Arthur Webb on the presentation on the status of maritime boundaries delimitation in island states; where overly prescriptive, outdated legislation in many island states was preventing them from declaring modern (more accurate) maritime boundaries because the legislation did not make provision to permit recognition of the data collected using modern methods and technologies. While legislation needed to be kept as broad as possible; certainty was needed on the outcomes of the use of a particular technology in a particular piece of legislation.

Michael Lodge (International Seabed Authority) commented that one of the critical differences in deep sea bed mining legislation at the national scale and terrestrial mining lies in the fact that attempts were being made to regulate or control an activity that has the potential of trans-boundary effects. The trans-boundary effect aspect is addressed in the interaction between articles 208 and 209 of UNCLOS; which basically requires that standards within national jurisdictions and outside national jurisdictions are comparable so that each was no less effective than the other. There's a trans-boundary effect between national jurisdictions and international area; and particularly between marine states in a region like the Pacific where there are neighbouring EEZs, where often underlying geological structures are related, and that the line on the water was not necessarily related to the geological structure. In his view this mitigated against the concept of simply extending existing terrestrial regimes to deep sea regimes because adopting that approach would not take into account that factor.

Michael Lodge asked Robert Makgill to comment on the suggestions by the International Tribunal on the Law of Sea (ITLOS) in its February 2011 Advisory Opinion for the establishment of a global compensation fund similar to the international oil pollution compensation fund for incidents arising from sea bed mining accidents.

Keith Frentz explained his view of the terrestrial and marine relationship with respect to legislation; he advised starting with what was known and building on it. Terrestrial legislation would not simply translate across different environments as that would not work.

Robert Makgill explained that he felt it was a mistake just to try and take a piece of terrestrial legislation and bolt it on top of a different environment in which there is less knowledge. He recalled his experience in Europe at the maritime institute of the Belgian international school of law where he was involved in preparation of a special plan for the Belgian part of the North Sea; which was a 60-mile long coastline bordered by France, England and Poland – an extremely busy environment with not much room for innovation. The European approach to management was specifically focused on the activities taking place in the environment. It was a very land-based approach. He emphasised that when you have perfect information, the activity-specific approach was okay; but when you have imperfect information as is the case in the deep sea, regulation and environmental legislation that accounts for the uncertainty is needed. This is not achieved by addressing set activities individually. Therefore he advises looking at new legislation for the marine environment.

On the establishment of a global compensation fund; Mr Makgill's co-counsel for the IUCN had led the argument on the liability regime; while he had argued the State responsibilities aspects. Mr Makgill pointed out a gap in the UNCLOS; which meant that the obligations placed on the States were ones of conduct, and not of result. This he explained meant that if a State has implemented

legislation that is the best practice available; has monitored the environment; and has enforced the legislation and there was still environmental catastrophe; then the State was not liable – which begged the question ‘who was liable’? He opined that this was a very good argument for the establishment of the global fund.

Richard Hipa (Niue) acknowledged the message that before a State moved into the area of sea bed mining, it must have legislation in place. He commended the Cook Islands for making good progress in the area, indicating that Niue would be looking at similar legislation. He reported that Niue has received expressions of interest in onshore and offshore mining. The companies concerned had strongly expressed the high costs involved with mining, and the technology required, as risks to them and their investors. Niue is also very cautious about its environment; especially its water sources. It was a challenge to States to balance concerns about the environment with economic benefits. In terms of legislation he didn't think there was any sense in reinventing the wheel and enquired whether the SPC Project would be developing a kind of template for legislation. He submitted this as an area for the Project to help states move forward by harmonising legislative input.

A representative of the Federated States of Micronesia (FSM) asked what would be the advice to small countries like FSM when it comes to deep sea mining? Would you advise FSM to have environmental impact assessment undertaken before it makes a generic decision whether to allow sea bed mining, and should FSM require environmental impact assessment each time an application for a licence is lodged with the Government?

Keith Frentz replied that, taking the New Zealand approach to managing the process as an example, usual practice would be that the applicant is required to conduct the environmental impact assessment before a decision with regards a specific application is made, and then the Government gets it peer reviewed. Costs are met by the applicant. A decision is made on the basis of that application and environmental impact report, by either Government decision makers or an independent body with expertise in that area. Once a decision has been taken that the mining activity can proceed, conditions are placed on that application; that application is monitored; reviewed; tested for compliance to conditions; and if the applicant is found to be wanting in certain areas then conditions may be reviewed or enforced. This was fairly standard process for consent application – or best practice processing for an environmental application. The other option would be for the Government to take on a proactive holistic role with regard to environmental management of the marine area, where the State stipulates the area it would allow to be mined and then undertakes its own environmental impact assessment for that area; being able to recoup the costs via the processes that follow. Mr Frentz was more familiar with the first model, which places the burden and the costs of conducting prior environmental impact assessment on the applicant.

The FSM official reiterated his understanding of the response to his earlier question – that there must be: due diligence, observance of a ‘no harm’ principle, and that each time an application for a mining licence is lodged, an environmental impact assessment will be required. The FSM official recalled that in the recent Advisory Opinion of the Seabed Disputes Chamber of the International Tribunal on the Law of the Sea, it was mentioned that the requirement for prior environmental impact assessment had now achieved a status of international law, and had also stressed the importance of the States’ obligations of due diligence. FSM and other countries would have to take all of these factors into account when considering the options of either using environmental impact assessment processes as a proxy to move ahead with licensing applications for deep sea mining; or first of all laying down dedicated legislation before permitting any mining.

Robert Makgill added to Mr Frentz’s response by stating that it was best practice to perform an environmental impact assessment each time an activity is undertaken – whether exploitation or exploration. If the information does not change it would simply be re-presenting information that was understood from another area. He advised retaining the flexibility to deal with new information if it becomes available. Mr Makgill called it a ‘very bad idea’ to conduct environmental impact assessment unless there was very good current knowledge upon which to base it. An EIA-based on historical knowledge would not give sufficient information about likely impacts to enable conscientious decision making.

Julian Roberts (Governance Advisor, Commonwealth Secretariat), responding to the question from the FSM, introduced the concept called ‘strategic environmental assessment’, which allows environmental managers (i.e. government) to make decisions at the outset about where they may allow mining and where they may preclude mining for whatever reasons. He said it was becoming quite widely used for oil and gas concession. He explained that the problem with impact

assessments in the extraction industries was that they are often undertaken after the concession was awarded. In Norway strategic environmental assessments are used in the oil and gas industry and the World Bank has used it in parts of Africa where certain countries are developing their oil and gas industries.

Robert Makgill argued that the strategic environmental assessment concept was a very northern hemisphere, or European approach. He felt it was useful in terms of high-level planning but not in an environment where knowledge was incomplete. He advised that it was necessary to understand the effects of each activity as it was proposed because they could change so quickly.

A speaker (who didn't identify himself) continued the discussion by stating that an environmental impact assessment could not be done unless the following were fully known – what was to be mined; what technology would be used to mine; where the mining would take place – hence an impact assessment was company specific; mineral specific; and had to be undertaken on an application-by-application basis. A broad assessment to say there would be no mining there, or there would be mining here, is not possible because each application would be different and would have to be assessed on an individual basis.

Keith Frenz agreed, acknowledging that over time as technology changes and ideas change, a current environmental impact assessment was needed on which to base any decisions.

“Tonga – Sea bed exploration in Tonga: new industry, potential for economic growth, capacity building, policy and legislation vacuum” presented by Rennie Vaiomounga, Assistant Geologist, Ministry of Lands, Survey and Natural Resources

Summary of Presentation

Offshore exploration history in Tonga was summarised. Four companies currently hold offshore exploration licences in Tonga waters: one for hydrocarbon and three for sea bed minerals. Details were given on the licensed companies and their areas of interest within Tonga's EEZ. Tonga currently has neither legislation nor policy for offshore prospecting and mining; hence this is an area where it needs assistance

DISCUSSION

Paul Lynch (Cook Islands) wanted to know how and who did the permitting in the application for licences in the Kingdom of Tonga.

Rennie Vaiomounga replied that approval of applications came through the responsible Ministry and through the Minister to Cabinet, which is the body empowered to approve or refuse applications.

The Chair commented that Tonga had no legislation but granted licences both for mineral and hydrocarbon exploration. He summed up member country participation – statements from Tonga, the Cook Islands; Papua New Guinea; and Fiji, and comments from Niue and the Federated States of Micronesia about having no legislation but a strong desire to move forward and get it right. The Chair encouraged other members to participate in the discussion.

Richard Hipa (Niue) informed that Niue did have some mining legislation but it needed review and updating hence the importance of consultation. He mentioned that the Beca presentation highlighted the importance of letting the people of the country know what was happening, for transparency in development and he believed that it was essential for the population to be informed.

Graeme Hancock (World Bank) made points about a number of presentations and comments. He clarified that Papua New Guinea did not have to amend its legislation to allow sea bed mining. The 1992 Act had always had jurisdiction over territorial seas. He made this comment based on his being the Director of Mines for the Government of Papua New Guinea at the time Nautilus made its first application for sea bed minerals exploration. The first thing done when the Nautilus application was received was to look at the law and it was found to have jurisdiction and there was no reason not to grant a licence. Mr Hancock advised small island states looking to whether they should have one or multiple pieces of legislation that, given their relatively small jurisdiction and small public service sector, and the importance to avoid unnecessary increase to the size of bureaucracy by duplicating functions, to consider having just one piece of legislation to cover the licensing function. One regime

to regulate mining activities, whether terrestrial or offshore, makes very good sense, rather than having two cadastre systems, two sets of jurisdictions and two sets of public servants – this is especially unfeasible in small island states. He added that going down the track of the New Zealand model with the resource management act to cover all activities in the marine environment, not just mining, is an approach worth considering. In the case of Papua New Guinea, it made good sense for them to extend their existing mining laws and to include a chapter which dealt with the specificities of offshore mining whilst retaining a single cadastre for a licensing management system. This was his view and advice to those Pacific states that already had mining laws: it was more sensible, from a licensing point of view, to retain a single act.

Steve Raaymakers [Eco-Strategic Consultants] added to Graeme Hancock's contribution by emphasising that in a country like the Cook Islands (as for most of the Pacific island states) there was no experience in mining nor any pre-existing legislation because there was no onland mining; hence the need to develop specific offshore legislation. A country like Papua New Guinea has had 50 years of mining, and has a strong experience, history and legislative base to draw from. Mr Raaymakers also pointed out that presentations so far have been about environmental law rather than the environmental regulation of mining. Mining legislation talked about tenement, exploration licences, mining leases, royalties, fiscal regimes, which was no different onshore than they are offshore and therefore do not need to be duplicated. For the environmental regulation of mining, Papua New Guinea was not proposing that this be done under the Mining Act; that was done under the Environment Act; which in Papua New Guinea was a modern piece of legislation that includes all the things the Law of the Sea requires, including trans-boundary issues. The Cook Islands' offshore mining legislation refers to its Environment Act for environmental regulation of offshore mining; and the terrestrial environment provisions (e.g. Environmental Impact Assessment requirement and procedures) were being used well to manage offshore mining. Steve Raaymakers advised against confusing regulating the actual mining operations with environmental regulation of the mining. Mining law was a specialised area and Mr Raaymakers felt that environmental lawyers should recognise that.

The Chair made a follow-up comment clarifying that many small island states, while having no legislation nor experience in metalliferous mining, were very much active in sand, gravel and aggregate extraction, with all the manifestations of its environmental problems.

Moses Murray [Private Lawyer and NGO representative from PNG] clarified that he was aware that the Papua New Guinea Mining Act 1992 had the jurisdiction to permit the Nautilus application for a mining licence to mine in PNG waters as he too had been part of the Ministry that was tasked to develop the terrestrial mining law without too much reference to an offshore mining component. Mr Murray hoped that the Papua New Guinea Government delegation would be clear about its direction regarding sea bed mining and the reasons behind it, as he perceived a danger in the smaller countries in the Pacific islands looking to the Papua New Guinea example as the way forward in the new industry. He cited experiences in Papua New Guinea where NGO organisations were involved in giving essential information to land owners with respect to mining, and he viewed that getting land owners won over and involved was a specialist area requiring some attention.

The Chair advised that there would be opportunity for further rich discussion on the Papua New Guinea case study the following morning after the Papua New Guinea Government team presentations.

Paul Lynch (Cook Islands) offered to share with interested delegates a copy of the Cook Islands legislation, and encouraged fellow island member country delegates to participate in the forum.

Paul Taumoepeau (Tonga Country Manager, Nautilus Minerals) felt that deep sea mining was a great opportunity for small island states and that state officials needed to be allowed to work with the private sector to balance the risk and the reward in the new industry.

(Day 2 of 3)

Session 5 – The PNG Experience – Legislative Development and Offshore Mining Potential³

“Overview of the review of the mineral policy and legislation” presented by Harry Kore, Director – Legislation Development, Department of Mineral Policy and Geohazards Management

Summary of Presentation

A national institutional restructure of the former Department of Mining initiated in 2004 established the Mineral Resources Authority (MRA) as the regulator of the mining industry in PNG; as well as the Department of Mineral Policy and Geohazards Management (DMPGM). The respective roles were explained with vision and mission statements. The DMPGM is tasked to review existing mining related policies and legislation and the review process was outlined with some insights. The notable inclusions in the review of the 1992 Mining Act are to account for offshore exploration and mining and a mechanism for conflict resolution. Consultants engaged in the process were listed. The contents of the policies and legislation; and the issues to be addressed were outlined. The consultations held, and the feedback obtained to date from local communities was mentioned.

“Overview of the draft PNG Offshore Mining Policy” presented by Steve Raaymakers, Principal, Eco-Strategic Consultants

Summary of Presentation

The resources sector is the backbone of Papua New Guinea's economy: at 64% of GDP, and driving the GDP growth of 9%. Sea bed mining presents great potential, with PNG being only the second country in the world to issue a commercial licence for deep-sea mining. An Offshore Mining Policy is needed to lay out Government's aims and objectives; provide certainty to industry and the people of Papua New Guinea, and to safeguard the environment. Policy formulation was conducted in parallel with reviews of the Mining Act and the Mining (Safety) Act. The presentation described parts of the Offshore Mining Policy, and the other documents and rationale that influenced what was in the policy. While compliance with international standards and law was essential, and regional harmonisation can be useful, Mr Raaymakers' view is that there is no 'one-size-fits-all' policy. There was significant diversity among countries in the Pacific; each country should tailor its offshore mining regime to suit its own circumstances and needs.

“PNG's claim for the extended boundaries of the continental shelf and its implications on the development of the policy” presented by Gregory Roaveneo, Assistant Director – Legislation Development, DMPGM

Summary of Presentation

The work in progress for Papua New Guinea's claim for an extended Continental Shelf (eCS), and to declare its maritime boundaries, was briefly presented. Joint submissions with the Solomon Islands and the Federated States of Micronesia are under development. Papua New Guinea met the deadline for preliminary submissions for the eCS in May 2009. Also to align with the offshore policy, a Maritime Zones Bill is being developed to assist in enforcement.

“A developing country's challenges in permitting/regulating underwater mining – PNG experience” presented by Jerry Naime and Lyndah Brown-Kola, Mineral Resources Authority of Papua New Guinea

Summary of Presentation

The challenges faced by Papua New Guinea in the process of permitting its first underwater mine included the lack of specific guidelines; lack of existing technology; lack of a precedent benefit sharing mechanism for such a project; and managing the perceptions of local communities that fear environmental degradation by the mining project. Nautilus was granted an exploration licence in 1997, applied for a mining licence in 2008; and was granted the licence in 2011. Due diligence,

³ Discussion on the PNG Experience was undertaken after all the presentations

appraisals, reviews, and consultations took place over two years before the licence was granted. Future challenges include the development of an underwater mining policy and associated guidelines; a benefit distribution mechanism that defines appropriate beneficiaries, and the continued management of stakeholder expectations. The Papua New Guinea State have taken up the challenge presented in permitting the first underwater mine in the Pacific. Advice from their experience so far is that there needs to be a proper definition within national law of deep sea mining; plus wide and public consultation was critical. It was hoped that Pacific states could learn from Papua New Guinea's experience (rather than follow it).

“State equity participation in the Solwara 1 Project” presented by Shadrach Himata, Deputy Secretary, DMPGM

Summary of Presentation

The case study of the Solwara 1 Project is used to illustrate the application of government policy on equity participation for mining projects. Papua New Guinea's Mining Act 1992 provides for the acquisition by the State either directly or indirectly of a participating interest in a mining development and the Mineral Policy sets this government participating interest at up to 30%. A state entity, Petromin PNG Holdings Ltd, was established to take up the State's full option of 30% equity in the Solwara 1 Project in the “full value chain” of the Project. The State's participation is deemed to signal confidence in the future prospects of a project; provides a sense of security for the offshore tenement; and shares the risks of a pioneering project in the hope of better returns.

“An overview of the Geohazards Management Division” presented by John Arumba, Director – Geohazards Management, DMPGM

Summary of Presentation

The Geohazards Management Division's structure and key results areas, ongoing projects, partnerships and collaboration with other institutions were outlined; and the Division's connection to offshore mining was highlighted. Papua New Guinea is interested in furthering partnerships with other Pacific countries in the area of natural disasters; along the conceptual lines of the Melanesian Volcano Network to ensure Pacific Islands prone to the same types of disasters share ideas and assist one another. Exploration licensed areas in Papua New Guinea's EEZ all lie in areas of high seismicity. The RVO (Rabaul Volcanological Observatory) and PMGO (Port Moresby Geophysical Observatory) branches of the Division's monitoring services can provide early warning advice to those operating in such potential hazard-affected areas.

DISCUSSION ON ALL SESSION 5 PRESENTATIONS

Daniel Damilea (Senior Crown Counsel, Attorney General's Chambers, Solomon Islands) posed a question related to the royalties and benefits in offshore mining and the issue of land owners; particularly the mechanism used to determine who among traditional sea users could share the benefits of offshore mining.

Steve Raaymakers (Consultant to PNG Government) led the PNG Government response and said that under the offshore policy and amendments of the legislation, a requirement for social mapping was being introduced to determine traditional sea use zones in the area of the proposed mining. If there was an overlap between the proposed mining area and the traditional sea users' area then they would be treated as the equivalent of landowners (but pertaining to the sea, in this context), and would be the recipients of the benefits. Traditional sea usage is likely to extend a limited way out to sea, (e.g. as far as one can go in a canoe). There would therefore be offshore mining in Papua New Guinea and in other island countries in areas that are well beyond traditional sea use areas. The concept of a substitute group for such instances has been developed in Papua New Guinea, looking at a 'coastal area of benefit'. In the example of the Nautilus Project; the area of operation was so far out in the open ocean that there was no traditional sea use there – however, Nautilus has entered into a memorandum of agreement with the local level governments and the provincial governments for flow of benefits to those people on the coastal areas that are immediately adjacent to their operation site.

Linwood Pendleton (NOAA) identified himself as a resource economist and Director of Ocean and Coastal Policy at Duke University (currently on secondment to NOAA). He pronounced the environmental regulations and sea bed protection Acts previously described as very ambitious and requested to hear an

estimate of the cost of enforcement of the regulations in the deep sea; as well as the cost of developing a sea bed protection act that was meaningful; and what mechanisms were already in place to ensure that a portion of mining revenue is directed to enforcement and environmental protection.

Mr Raaymakers clarified that it was not a specific sea bed protection Act that was being proposed; but marine protected areas under existing Acts. It was not decided yet which Act to use in Papua New Guinea – example of legislation that could be used were the Mining Act, which empowers the Minister to declare mining reserves where mining was prohibited; and the nation's biodiversity legislation. Strategic environmental assessment to identify protected areas is expected to be a long process, and the cost substantial. The first step is the formulation of the Government's statement of policy. Enforcing sea bed protection areas was actually reasonably simple and already happening in Papua New Guinea: once an area is declared as 'protected', mining leases are simply not granted in that area. This is part of the mining lease assessment process – hence it carries zero additional cost. Nevertheless, the Papua New Guinea Government acknowledges that there are major capacity limitations of its Department of Environment and Conservation to properly administer the Environment Act, therefore provisions are being made to address this. One measure has been the establishment of a multi-agency offshore mining assessment and enforcement unit; so that the Department of Environment and Conservation (DEC) along with the Minerals Resources Authority (MRA); the National Maritime Safety Authority; and the National Fisheries Authority (NFA) share jurisdiction and responsibilities in the maritime realm therefore supplementing the resources of the DEC. A proposal has also been made to delegate enforcement powers under the Environment Act to the inspector from the MRA; given that the MRA inspector is already in the field; on the mining ships, and with additional powers could also take on an enforcement role. This approach is used in other jurisdictions and could be adopted in the new industry.

Malakai Finau (Director of Mineral Development, Fiji), with reference to the coastal 'ownership' interpretation presented by Steve Raaymakers, advised that ownership should not be confused with accessibility to an area. He stated that islanders regarded the waters around the islands as owned by them irrespective of how it was accessed. He also enquired about the origin of some of the concepts presented and who was driving the Papua New Guinea process.

Harry Kore (Director of Legislation Development, DMPGM, Papua New Guinea) responded that the processes in Papua New Guinea are usually driven by the Department. When necessary, commentary from industry and other stakeholders is sought by the Department. Concepts are formulated within the Department. Ownership is a big issue in Papua New Guinea and people are not shy to tell the Department their interpretation of ownership. It is a challenge to demarcate who owns what area in the sea, as it is done on land. Papua New Guinea is an archipelagic state and traditional sea users access and travel back and forth across seas around where they live. The Department has interpreted that the benefit of deep sea mining should go to coastal dwellers along the coastlines closest to the mine site and therefore are working with provincial government and the local-level land owners on those coastlines to develop and upgrade infrastructure.

George Niumataiwalu (Kontiki Capital, Fiji) admired the courage and generosity of the Papua New Guinea team in coming to the meeting willing to share their experiences so the rest of the Pacific island states could learn from them; this demonstrated Pacific brotherhood. He enquired about the concept of state equity – and how the Government resolved the issue of conflict of interest.

Shadrach Himata (Deputy Secretary, DMPGM) responded that Petromin (formerly Orogen) was created by the State to enable a separation of ownership as a shareholder in the mining company, and of regulating the mining company. It is difficult for a State to operate dual roles of regulator and shareholder at the same time, so Papua New Guinea has taken the option to nominate a State entity to take responsibility for that equity issue, with the State maintaining its role as the regulator of the industry. In Bougainville the Government owned 19 % of Bougainville Copper Limited (BCL) and still does. Some time into the future Bougainville would have to be resolved in the same way. A review of the BCL agreement was underway and the State-owned shares would probably be offloaded to another entity to manage on the State's behalf – the matter was still under negotiation.

Daniel Dumas (Head of Economic and Legal Section, Commonwealth Secretariat) posed a follow-up question on the equity issue with respect to the State entity Petromin. If Petromin participated in the whole value chain of the Solwara 1 Project and within this value chain there was a major environmental accident, then was Petromin responsible to cover 30% of the cost of the clean up or mitigation measures; and was the State willing to enforce that Petromin cover this cost?

Shadrach Himata (Deputy Secretary, DMPGM) confirmed that Petromin's participation was on a commercial basis and it was not there as a bystander. So since Petromin owned 30% of a project; then it had 30% responsibility for whatever happened to a project – and that was the kind of risk that the Papua New Guinea State has committed to.

Lameko Talia (Principal Scientific Officer – Geology, Ministry of Natural Resources and Environment, Samoa) deeply appreciated the PNG delegation sharing their experiences and enquired whether there had been any research done on the effects of dust suspension in the mid-water level as well as its effect on the long shore drift; and if these effects were known to trigger red algae bloom infection in the water environment.

Consultant Steve Raaymakers responded that there had been a full Environment Impact Study (EIS) done for the Nautilus Project in accordance with national legislation, and this had covered the dispersal of sediments from the operation. The Nautilus representative (Samantha Smith) would be presenting on the subject later in the meeting.

Moses Murray (Lawyer of Murray and Company, Papua New Guinea) thanked the Papua New Guinea Government team for their presentations, and posed the following questions on ownership: Who owned the State's equity in Solwara 1? Was the State driving an agenda using UNCLOS to come up with a concept of usage of ocean space because of the difficulty of delineating what is owned by whom out in marine space? How were traditionally recognised sacred sea spots going to be protected for the people?

Shadrach Himata (Deputy Secretary, DMPGM) responded stating that the equity belonged to the State – the State representing the people of Papua New Guinea, therefore the equity belonged to the people. Current Papua New Guinea Government policy gave the State a 30% equity option in any mining or oil project to be held on behalf of the people of Papua New Guinea. Hence the State, through its independent entity Petromin (established by an Act of Parliament) will manage State investments in the oil and gas and mining projects. In the case of the Solwara 1 Project, the State has a dividend policy whereby from any spin-off from this offshore mining project, a 75% dividend goes to the Government. On the ownership of the continental shelf out in the deep sea, Government is taking this forward based on the definition of who owned the minerals; or the value derived from the minerals; and the PNG constitution clearly states that the State owned anything below the land. The wealth generated from that should be used to enhance the living standards of all Papua New Guinea citizens. Based on that principle, the government has work in progress trying to regulate any offshore mineral projects.

Charles Roche (Executive Director, Mineral Policy Institute) observed that everyone would agree that resource exploitation in Papua New Guinea was quite controversial with a lot of concern and unrest. He reported that en route to the meeting increased activity along the Watu River was noted in relation to the valley mine there. He asked: What could be done differently so that this new type of mining, whatever the legislative base currently in existence, would not end up with the adversarial situation where people are unhappy – where communities do not see the mining industry as a credible source of information. Furthermore, the unhappy communities affected by on-land mining projects do not have confidence in the governing bodies of Papua New Guinea to protect them and to deliver the benefits that they need. The speaker alluded to his experience in Papua New Guinea where on-land mine sites caused controversy, at times escalating to civil unrest or to resolution being sought through legal writs in the courts. From Panguna (Bougainville) or the Exxon Mobil-led Liquefied Natural Gas Project or events in Watu, Sulawesi [gold mine in Indonesia]; controversy appeared to be the common theme. While legislation was one aspect; the speaker challenged the meeting about what needed to change so that mining became much less adversarial and that the confidence of the people in the industry was restored.

Harry Kore (Director – Legislation Development, DMPGM), while appreciating the very valid comment made by the previous speaker, reported that the Department had a consultant (under an EU-funded Project) developing a policy on mining waste management – a major step toward addressing pollution and environmental damage. The department appreciated that it couldn't fully prevent mining having some effects, but it was striving to put in place systems that all could live with, and that can at least minimise environmental impacts. The mining waste management policy will include a list of requirements which companies would have to comply with. Another step the Department has taken is to build into the new Mining Act a mining closure policy. The revised Mining Act requires companies to put funds in a mining closure bank account; so that when the mining companies pack up and leave, the State can use the funds to rehabilitate the environment; and while the mine is operational the best that can be done is done to mitigate and minimise environmental harm. The approach is not without its errors but the Department corrects mistakes and moves on.

Shadrach Himata (Deputy Secretary, DMPGM) added to the previous comments and revealed that 97% of land in Papua New Guinea was owned by traditional landowners with the State owning only 3%. Mining has been undertaken in Papua New Guinea for more than 50 years. Since Panguna [on-land open pit mine operated by BCL on Bougainville, closed in the 1980s following protest, civil unrest, sabotage, and legal action around negative impacts to local populations, and to failure properly compensate], the Department has learned from its mistakes and has continuously improved legislation and tried to do things better. This is evident in the current practice of distributing benefits to local populations through various memoranda of agreements. The Department has no choice but to serve and deal with the people of Papua New Guinea given that the people own more than 90% of the land; and while it may be a difficult process to navigate, it is also an essential one, and the Department has learned to manage it. The Department concentrated on improving its services and refining its policies, both to ensure that these industries survive in Papua New Guinea; and at the same time try to improve the lives of all Papua New Guineans.

Tevita Bukarau (Legal Practitioner, MUSKITS Law) asked if the Papua New Guinea Government, being the ultimate trustee of its citizens, had a contingency in place for dealing with disputing landowners or disputing sea rights owners whilst it continued with the development programme.

One of the presenters on behalf of Papua New Guinea replied that in the case of disputed areas, it was usually suggested that royalties and payments be frozen into a trust fund account until resolution of the boundary dispute issue, at which point it could be distributed.

The Chair drew the discussion session to a close heartily thanking the Papua New Guinea delegation on everybody's behalf and commending them for the tremendous show of willingness to share information and their experience. The Chair also commended the admission by the team that they did not necessarily have it right first time every time, and that they were prepared to move forward with the precautionary approach.

Session 6 – Fiscal Regime Options relating to Mining

“Mining taxation regimes: range of mining taxation available, fiscal regime commonly used globally, what regime is best for the Pacific? A case study as an example” presented by George Niumataiwalu, Director, Kontiki Capital

Summary of Presentation

On the basis of key components of terrestrial mining taxation regimes worldwide, but accounting for fundamental differences between terrestrial and deep sea mining, an approach is suggested for formulating a DSM tax regime. It is necessary to keep government and company perspectives in balance: to undertake comparative analysis of Effective Tax Rates (ETR) to position a country competitively; and to undertake analysis of Internal Rate of Return (IRR) to position a company competitively. It is best to keep it simple, and not to reinvent the wheel. The case study of the Nautilus Minerals Solwara 1 Project in Papua New Guinea is used to illustrate the application of the universal competitive taxation regime for terrestrial mining as espoused by the World Bank; using two taxation scenarios to generate models. Findings include that commodity prices used in the formula should be discounted for long term projections, as current high prices may not be maintained; that DSM is potentially far more profitable than terrestrial mining due to high grades; that tax incentives should be front-ended and related to capital expenditure and how it impacts IRR; and that ETR should be no less than 40% if IRR is no less than 20%. Further issues for consideration are listed on the slides; and the DSM taxation model calculations used in the Solwara 1 case study presented are also made available [see CD, Annex 6].

“The importance of transparency and macroeconomic management in extractive industries economies” presented by Graeme Hancock, Consultant (formerly of the World Bank)

Summary of Presentation

The Extractive Industries Transparency Initiative (EITI) is an international standard for oil, gas and mining industries that promotes revenue transparency by using agreed methodology for monitoring and reconciling company payments and government revenues from the extractive industry. It is an independently verifiable process, which requires companies to publish what they pay and governments to disclose what they receive; transparency of revenue management being one part of good governance. Independent verification of the figures and oversight of the process is provided by

a multi-stakeholder group. Use of the EITI principles and process can help prevent negative impacts that often come with extractive industries. The World Bank manages a trust fund that provides grants to assist countries in moving to and implementing EITI. Some countries in the Pacific are considering compliance, with Timor Leste already fully compliant. A consideration of the economic impacts of sea bed mining in small Pacific economies was presented, with prudent advice on the careful fiscal management to prevent repeat of certain sad examples of the lack of responsible economic management already experienced in the Pacific to date (e.g. Nauru during its phosphate boom); and also given the very poor track record worldwide of governments turning mining revenues into sustainable economic growth.

DISCUSSION FOR FIRST TWO PRESENTATIONS OF SESSION 6

Yannick Beaudoin (UNEP GRID-Arendal) described the EITI as a good model for establishing an appropriate relationship of government to private sector companies. He wondered at the flexibility of the model and how prepared the Pacific island countries were to deal with the state-sponsored actors in the model. Referring to the presentation on rare earth elements from the previous day, Mr Beaudoin pointed out that there were other strategic priorities to which deep sea minerals related; and that sometimes it was not about profitability but about securing the resource in order to be able to manufacture priority goods, or to improve market position. In such a situation, the relationship between government and a company of non-state actors as proposed in the EITI was a bit different from the normal. Where would the assurance be in that scenario that engagement with the mining company remained very transparent and beneficial to the country?

Graeme Hancock responded that the life of sea bed mining relations in the Pacific would fundamentally be driven by the economics, rather than issues around strategic minerals. Strategic elements within crusts or nodules are primarily minor by-products rather than principal drivers of mining activity. At the moment one of the biggest challenges with respect to nodules and crusts is the mineral processing technology. The mineral processing for SMS deposits was more straightforward, and could be 'bought off-the-shelf', using the existing mechanics used for land-based projects; but nobody was mining a land-based equivalent of a manganese nodule or a crust at this point so the technology for processing to extract and separate the elemental components of nodules and crusts does not currently exist. An enormous amount of work is required for that aspect of this new industry; and as a result Mr Hancock saw it driven primarily by fundamental economics rather than issues of strategic deposits.

Lameko Talia (Samoa) enquired as to who made up the civil society board of the EITI, and asked whether, in addition to providing access to information to the population, EITI also looked at the employment benefits for the local communities brought by the industry, or any other benefits that civil society may obtain from the industry.

Graeme Hancock explained that civil society itself selected who participated in EITI, and the review body was not selected by government. It had to be a self-selected process to work. Many countries around the world have established a coalition of civil society organisations or the "publish what you pay" coalition to work hand in hand with EITI. Civil society can access a grant from the World Bank to help develop the capacity of civil society to participate in EITI. The main role of civil society in EITI is to ensure that this information ultimately ended up in the hands of the citizens of the country. If it were just a coalition between companies and the government, there would be no guarantee that comprehensive and accurate information would get out to civil society. Civil society was an integral part of the EITI process otherwise it would be incomplete and would not work.

Peter Jacob (First Secretary, Nauru High Commission, Fiji) thanked the speaker, and reacted to the reference to Nauru made in the presentation. He acknowledged that phosphate mining had been ongoing on Nauru for the last 100 years and that it was true that the resource curse had been witnessed in Nauru in this time. Mining brought a lot of changes to Nauru and a condition for being granted independence in 1968 was to continue phosphate extraction to supply the main markets of Australia, New Zealand and others. Mr Jacob regarded the 'GDP per capita' measure that placed Nauru as one of the richest countries in the world at one stage as misleading. In practice, only a few people derived wealth from the phosphate industry (the royalties) and the majority did not. Nauru now has another 20 years or so of secondary mining according to industry. Due to mistakes in the past, it is now hoped that money earned from it would be put to better use as an investment for the future. The EITI was something that Nauru could also benefit from. Such transparency may assist combat potential problems with landowners, who suspect the government of manipulating them and

misleading them about sums of money actually raised from the mining. Nauru's EEZ, while not rich in mineral deposits was rich in tuna; and the Nauru representative also mentioned that a representative of Nauru Ocean Resources Inc. would speak later in the meeting on its partnership with the State of Nauru to undertake mining in the high seas areas under the auspices of the ISA.

Graeme Hancock responded that the concept of GDP per capita was a very difficult one for many people to understand because whilst the country itself may have a high GDP per capita – i.e. the government earning very high revenues – converting that into prosperity for all citizens was where the big challenges lay. Many countries which have extractive industries, and are earning very high GDP per capita from it, actually have very high poverty levels. The GDP was not a measurement of incomes for individuals; it was a measure of the economic activity taking place within the national economy. Hence it was possible to observe many people continue to live at very basic levels even though very large amounts of money flowed through the national economy. Where there is a high GDP and yet low standards of living for the majority of the population, this is because the government's conversion of government revenues into economic well-being and prosperity for the citizens has been very poorly performed. It was on this aspect that Pacific Island countries could focus in the future.

With reference to landowners, Mr Hancock advised that EITI can be undertaken at various levels, i.e. at the local level, national or provincial – and could even be applied to payments to landowning communities – it was an in-country decision at which levels it should be applied. EITI was not prescriptive. The process was described; how it was implemented was up to the unique features of the environment, because every country was different.

“Mining the Deep: new economics for a blue world – alternative fiscal regime example from Norway” presented by Anne Solgaard, UNEP GRID-Arendal

Summary of Presentation

In a world of growing resource scarcity countries that are net providers of raw materials (e.g. minerals) have real leverage. Long-term fiscal policies should account for full and true value of an ecosystem and its goods and services. The Norwegian model of how oil and gas revenue is managed has led to Norway now being among the richest countries in the world. Norway was one of the poorest countries in Europe until the early 1970s when oil production began; after the discovery of oil and gas in Norway's offshore territory. Oil and gas reserves are defined by law as common property owned by the people of Norway. Most oil revenue is therefore set aside in a State petroleum fund; and in 2001 it was further legislated to limit spending of oil revenue to 4% of annual profit; and in good years less. Hence from 2001, the central bank was granted increased independence from government, managing the funds on behalf of the Ministry of Finance. Government laid down economic and ethical principles to guide investments to benefit current and future generations of Norwegians. Like a business, living from income and reinvesting in capital makes sense. A suggested starting point was to carry out SWOT⁴ analysis for the natural capital of a country; at the same time bearing in mind lessons learned on whether previous cases of natural resource extraction achieved desired societal outcomes. Some discussion on UNEP's 'green economy' concept was also presented.

DISCUSSION

The Chair summarised that it was helpful to be reminded of where Norway came from in the last forty to fifty years. He echoed the reference to the green economy mentioned in the presentation and reported that the Pacific island states led by their New York-based ambassadors would be promoting the “green economy in a blue world” concept for the Pacific in the lead up to Rio plus 20, in 2012.

⁴ 'Strengths, Weaknesses, Opportunities and Challenges'

Session 7 – Environment Conservation and Deep Sea Ecosystems

“Deep sea mineral resources – the challenge of environmental sustainability” presented by Jan Steffen, International Union for Conservation of Nature (IUCN)

Summary of Presentation

The Pacific Ocean covering 71% of surface water is among the largest reservoirs of biodiversity on planet Earth; and the least studied ecosystems. Mining would impact on deep sea biodiversity. Various international codes and guidelines for minimising mining impact are available; and some, albeit limited, progress is also being made toward 2012's target for marine protected areas (MPAs). Kiribati has boldly declared the entire Phoenix Islands seas as a Protected Area; applying the precautionary principle in managing straddling stocks of highly migratory species. Other Pacific Islands have yet to follow this example. Environmental priorities for deep sea mining are suggested, which include implementing ecosystem-based ocean management; as well as the precautionary approach that assumes DSM will have adverse ecological impacts in the absence of compelling evidence to the contrary; therefore industry should be regulated to contribute to the cost of environmental impact assessment and mitigation.

DISCUSSION

Natalie Askew, who was attending as an interested ‘independent person’ with a background in mapping sea bed habitats and environmental pressures, primarily in Europe – commented that the use of cost-benefit analysis (CBA) to try and quantify the environmental impacts of this kind of activity was a good idea. In most environmental situations it was good to try and quantify environmental impact but where the data was too scarce at the current stage of knowledge in this area of deep sea mining, then CBA perhaps would be meaningless. She was interested in the speaker's thoughts on that aspect.

Jan Steffen admitted that in the absence of the ideal amount of data; that is, in the absence of strong cost-benefit analysis studies, then the precautionary approach was the only remaining option; i.e. a given area (seamount) under certain circumstances may be permitted for mining if it was established that similar committees made similar estimate of other resources within the EEZ of the country that considers the decision. Jan Steffen reckoned that at this point it would be very tough to make that decision, so he was hopeful that, the different classification schemes presented, and collaboration between SOPAC, SPREP, NGOs, various CROP agencies, USP – would be able to assist the countries increasingly in collecting data. He envisaged that it would take 50 to 100 years to collect and be confident with better data on the deep seas.

Steve Raaymakers queried whether, if it would take a hundred years just to collect the environmental data, did the application of the precautionary principle mean that having marine protected areas should be delayed until all that data was available, or should protection of some areas move ahead, even though the site locations are yet to be determined because data is currently lacking.

Jan Steffen responded that in that regard, most countries had taken very bold steps. He estimated that with the exception of Kiribati most Pacific island countries had so far been protecting nearshore areas, probably because more was known about them. His personal view was that protecting areas should not wait but he advised countries to take a ‘generous look’ at the EEZ; and pointed to the interesting development in Fiji where it was proposed to protect 30 percent of its EEZ. Also, he advised, some decisions were better taken earlier rather than later.

“Hydrothermal vent ecosystems: discovery, species variability on temporal and spatial scales, importance and uses, conservation issues and vent protected areas” presented by Chuck Fisher, Professor of Biology, Pennsylvania State University

Summary of Presentation

An insight was provided into the biological characteristics of the creatures of the deep sea; and how they have adapted to exist in hydrothermal vent sites. The deep sea is a relatively stable environment of high pressure; very little light; low temperature; and low biomass. Biodiversity is high with 200,000 described animal species and likely thousands more yet to be discovered. Deep sea hydrothermal vents are extreme environments with high and highly variable temperature, extreme

gradients, low or no oxygen, and with toxic chemistry due to the presence of hydrogen sulphide, various heavy metals, and sometimes radioactivity. Organisms here are adapted to 'natural catastrophic events'. Some examples of such organisms were described in detail and shown in short film clips. The potential for some organisms located in these unique sites, through biotechnology, to have large impacts on mankind was mentioned. It is important for ecosystem stability to avoid extinction of species or key populations. While the uniqueness of vent systems are globally recognised and four such sites are specifically listed as protected; there is also a lot unknown about natural life spans, natural succession, spacing and distribution of vents; and organism population connections and interrelations. If mining deep sea sulphides moves forward carefully, risks could be minimised. The Solwara 1 "experiment" was hailed as a potentially useful project from which to learn what the effects of deep sea mining will be on the hydrothermal vent and surrounding communities.

DISCUSSION

The Chair appreciated that for most in the audience it was the first time that people were seeing visuals representing the rich biodiversity of the deep sea environment.

Michael Lodge (Legal Counsel, ISA) noted from his experience, where ISA was working to formulate recommendations and environmental guidelines for SMS deposits, that most of the research effort appeared to be into active vents, as opposed to the environment of the inactive vents, the locations in which miners are actually most interested.

Chuck Fisher agreed and explained that research was generated by federal government supported research grants, which have focussed on active vent environments. These are intellectually rich and interesting, and so have historically been funded for research. The speaker did not agree that mining was going to be confined to inactive vents and cited the Solara 1 site as an example. He stated also that organisms would be impacted by mining of inactive sites – for example many species of corals, echinoderms and smaller animals colonise inactive sulfides. He agreed that there was a lack of knowledge about inactive vent deepsea environments and that this is something that needed to be targeted to understand potential impacts of mining them.

Malcolm Clark (NIWA) reported that work focussed on inactive vents had been done five years back by *Neptune* in waters off New Zealand. That work collected information and data that suggested the communities are not too dissimilar to normal seamount knoll-type regional fauna.

Moses Murray (Lawyer of Murray and Company, Papua New Guinea) congratulated Dr Fisher on the 'beautiful' presentation and questioned the right to destroy such a rich and diverse environment which was the basis of the livelihood of bottom-dwelling creatures shown in the visuals.

Charles Roche (Executive Director, Mineral Policy Institute) commented that the environment would be impacted when actions were taken without due caution; however, it was reasonable to make mistakes when embarking on new ventures.

"Deep-sea nodule and crust ecosystems: benthic assemblages of manganese nodules and cobalt-rich crusts" presented by Malcolm Clark, Principal Scientist (Deepwater Fisheries), NZ National Institute of Water and Atmospheric Research (NIWA)

Summary of Presentation

The ecological context of deep-sea benthic habitats was described for abyssal manganese nodules and cobalt-rich ferromanganese crusts. While such environments are known to occur in the Southwest Pacific, there is generally a lack of public information on associated fauna; hence the results presented were based mainly on Northern and Eastern Pacific data. Whereas a lot of research has been done in the Clarion Clipperton Zone for biodiversity of manganese nodules, much less is known about cobalt-rich crusts. An ISA-sponsored study in 2009 by CenSeam assessed datasets for crusts from the Atlantic and the Pacific, and this was followed up by a further study in 2011. Depth and substrate appear to be key drivers of community composition, and the presence of ferromanganese crust may affect biodiversity. Understanding these drivers is key to successful conservation. Details of impacts of mining operations on biology were discussed and for both crust and nodule environments, it is clear that mining would not be 'sustainable' in terms of localised impact on fauna. The management objective then is not to "preserve" the fauna, but to balance exploitation and conservation. Issues that need to be considered for habitat conservation were

described, which would help inform management options. For example, a suggested approach for cobalt-rich crusts would be to regard the entire seamount to be a management area; and to assign no-go zones: leaving certain areas or adjacent seamounts unaffected by mining; as post-mining recovery in these environments is very slow. There is some guidance available: the ISA already has environmental guidelines with respect to these new industries; and there are others like the International Marine Minerals Society Code; and the InterRidge “code of conduct” for scientific operations.

DISCUSSION

Robert Makgill (Environmental Lawyer, NSEL, New Zealand) pronounced the presentation very helpful and took the opportunity to clear up a point he made the previous day about the relevance of strategic environmental assessment and the corollary – marine spatial planning; both of which he advocated. His view was that marine spatial planning and strategic environmental assessment were good ways of setting aside areas for protection at the outset and identifying areas where activities could be undertaken. His concern about the examples from Europe and North America were that they relied solely upon strategic environmental assessment as the engine room for environmental decision making, to the exclusion of other more targeted tools and methodologies. He emphasised that at this point there was very limited information about the area of operation and that environmental managers would rely upon the ISA and the private sector to pass on new information when they acquired it.

Malcolm Clark added that there was also an important difference that with deep sea mining in the Pacific there were not centuries of fisheries activity and arguments to factor in (as in the European situation), which made it much harder to get a sensible environmental spatial management plan in place. This industry at this point in the Pacific has a chance to get it right, from the outset.

“Current activities of KORDI’s Environmental Study for Deep-Sea Mining” presented by Ju-Won Son, Research Scientist, Korea Ocean Research and Development Institute (KORDI)

Summary of Presentation

KORDI’s two mineral exploration programmes in the Pacific were introduced, the first for Manganese nodules in the equatorial Pacific; and the second for sulphide deposits in the Southwest Pacific. Results were presented of environmental monitoring activities carried out on bottom currents; dissolved oxygen; total organic content; nutrient properties, distribution and variation; and composition and variation of ‘food’ for organisms. Results of the multi-year baseline study will provide useful information for the formulation of the mining code for the ISA; and will support stable deep-sea mining. The second study used plume detection in the Lau Basin and the Central Indian Ridge via water sampling with CTD (conductivity/temperature/depth) to conclude that an area earmarked for mining should be characterised and evaluated for impact of mining first, so that strategies to minimise those impacts may be developed before mining.

DISCUSSION

Malcolm Clark (NIWA) referred to a graph shown, which plotted total organic carbon at the seafloor over time (2003-2008), which showed a massive influx of organic material in 2008 much higher than in the other years. He asked whether the benthic fauna had shown an immediate response to the change caused by the massive influx?

Ju-Won Son explained that his focus was on chemistry, rather than biology, but that he welcomed further discussions on such matters.

Session 8 – Private Sector Perspective and Interests

“Solwara 1 Project Update” presented by Samantha Smith, Environment and Community Manager, Nautilus Minerals

Summary of Presentation

Information on the first DSM mining lease in the Pacific held by Nautilus Minerals in Papua New Guinea waters: the Solwara 1 Project was presented. Nautilus is the first company to commercially explore for seafloor massive sulphide (SMS) deposits, which are of interest due to the high grades of copper, zinc, gold and silver contained. Other potential advantages of sea bed mining were offered, e.g. the likely small physical footprint compared to on-land mines, and the absence of customary land issues at deep sea bed mine sites. The Solwara 1 Project area was described; with an animation description of the offshore production system being built for the mining operation. A snapshot history of offshore mining and technologies used in such operations to date was highlighted. The Papua New Guinea licensing process followed by Nautilus was explained, including legal instruments used to enable the granting of the licence, environmental management considerations, and the techniques used by Nautilus to continue to engage with Papua New Guinea stakeholders. Mining is expected to commence at the end of 2013.

“Deep Ocean Seafloor Mineral extraction: Environmental and Social Responsibility for a new industry” presented by Samantha Smith, Environment and Community Manager, Nautilus Minerals

Summary of Presentation

Nautilus' view is that any activity requires both a legal and a social licence. Nautilus' aim is to gain acceptance from all stakeholders for their plans to collect disaggregate seafloor massive sulphide materials and transport them to an onshore storage facility. Nautilus' approach to win this social approval is through being open and inclusive through holding multi-stakeholder workshops; for early stakeholder input into the project; and identification of issues. Results of baseline environmental studies being undertaken at the site will be of benefit to science, as well as industry. Research institutions and consultant groups (listed) are involved in Nautilus' work. A description of potential impacts was given. Examples of training and up-skilling of locals, and types of community awareness activities carried out were highlighted. Nautilus views the Solwara 1 Project as not just a project; but as the beginning of a new industry. As such Nautilus is thinking long term, and is keen to respond to concerns raised by communities on marine environment protection. One example is that, in response to concerns raised about the re-introduction to the ocean of process water from the dewatering plant, Nautilus has committed to “engineering out” impacts to surface waters by limiting surface disturbance to only the presence of the vessels and the presence of a fully enclosed riser pipe extending from the mining vessel to the seafloor, and by returning process water back to the sea bed via the riser pipe. Therefore no extraction impact is expected to occur shallower than 1300 m water depth at Solwara 1; well below the zone where tuna, etc, reside.

DISCUSSION ON BOTH NAUTILUS PRESENTATIONS PLUS A VIDEO

Natalie Askew commented that it was good to see that the data gathered by Nautilus would be made available to the PNG Government – the northern hemisphere practice does not usually emulate that arrangement. Secondly, it was reassuring to see how comprehensive the EIS had been, and the steps that Nautilus had taken to cover and minimise as much of the identified impacts as possible. She expressed interest in knowing more about the ‘noise’ impacts aspect mentioned in the presentation.

Samantha Smith explained that there are two main sources of noise. The first is noise from the vessel itself, which is well understood and easily defined because there are many similar vessels already operating around the world. The second is subsea noises caused by mining (cutting) activities. Assessing this was at present a work in progress and noise was being monitored during cutting trials. Based on what is known about similar sort of cutting that happens on land and a similar experience of other cutting activity that has happened underwater, it is likely avoidance by animals may be observed in reaction to the noise. Management strategies around that observation are being considered to address the issue. One suggestion was to slowly ramp up the noise at the outset to

warn animals that there was noise coming when operations at the mine site start or a maintenance period.

A representative from KORDI enquired with respect to Solwara 1 whether there were any plans for the recovery of the site especially after the close of mining; and also whether Nautilus was considering mining active or non-active vents or both.

Samantha Smith responded that the strategies being formulated to minimise environmental impacts were about recovery and rehabilitation; to ensure rehabilitation was happening as mining progressed. A lot of animal recolonisation within a few years after impact was expected; and plans exist to go back every year for three years (plus or minus depending on what kind of recovery or recolonisation was observed). Samantha Smith didn't think a specific industry decision had been made on whether to work on active or inactive areas. The Nautilus experience so far was that, if working at a site was technologically achievable and environmental management strategies to minimise impacts could be shown to be responsible, whether a site is active or inactive isn't the key issue. It became impossible at Solwara 1 to define active and inactive vents because any SMS deposit could be interchangeably active and inactive at a localised time and spatial scales.

Charles Roche (Mineral Policy Institute) informed that a number of groups in Papua New Guinea opposed to deep sea mining were not represented at this meeting and were growing noisier. These groups felt their concerns were not being addressed and he suggested that this was something that SPC could address through involving them in these proceedings. Charles Roche gave credit where it was due to Nautilus for being very open. He was permitted to visit a survey ship and observe operations in February (2011) and found Nautilus to be quite open; however, some challenges remained. Mr Roche enquired as to lessons learnt, if any, from the consultation process, and what could be done differently to improve and have better success the second time around. He concluded by reciting an experience where he, along with representatives of provincial government, had been walking around looking for the venue for a hearing on the (Nautilus) mining lease in April 2009; as no one knew where it was because it had been so poorly advertised. Consequently local participation was very low – there had been other factors along the way not of Nautilus's making that had not inspired confidence in the consultation process.

Samantha Smith responded that the environmental offshore campaign for a site the size of Solwara 1 could possibly be done in half the time, next time, given all the learnings around which methodologies work best. In terms of the wardens' hearings within the process, Samantha said she understood it is the national government's responsibility to advertise those sorts of hearings, which Samantha thought had been done. Certainly the hearings for the EIS were well advertised and many people attended those. In terms of the community engagements the company does, its own people visit the villages and aim to provide at least two-week's notice for a meeting. Company initiated meetings have been advertised on the radio and national and provincial governments contacted (as protocol) to assist in organising it; and processes continually improve. Samantha Smith noted that Nautilus meetings have had attendances up to 500 persons. On the 'anti-DSM' movement Samantha Smith said this seems to be mostly related to the 'fear of the unknown' in a new area and suggested that whilst a lot of effort had gone into informing the local governments and communities nearest to Solwara 1, that an education campaign to the wider public about the true impacts and advantages of deep sea mineral extraction, which did not necessarily have to be carried out by Nautilus, could assist to ensure that the real facts on the true impacts and advantages of deep sea mining were provided to the wider public.

Moses Murray (Lawyer of Murray and Company, Papua New Guinea) recorded his mistrust of the process of approval of the environmental impact study in the Nautilus project being vested in one man. He stated that a number of NGOs were struggling to get the national Environment Act amended in this respect. These groups also had the perception that the sole officer responsible for approving the Nautilus EIS was ill-equipped to do so, and had leaned heavily on advice from Nautilus. Moses Murray advised other Pacific island states to take care how national environment laws were drafted and not to follow the Papua New Guinea example. He concluded by disputing the account presented on the speaker's slides on the Nautilus communication and awareness programmes with Papua New Guinea communities and recorded that during his trips to New Britain and New Ireland provinces, village communities had denied that any meeting to inform them about the activities of Nautilus had ever constructively taken place.

Robert Makgill commended the interesting presentation by Nautilus and enquired whether, given the indication in one of the slides that there were no indigenous property rights (i.e. no title, but probably

some form of Crown title) to the sea bed, did that mean that government did not recognise indigenous claims to the sea bed? This was contrary to his experience of dealing with indigenous cultures where there were always indigenous claims to customary rights to the sea bed.

Shadrach Himata (Deputy Secretary, DMPGM) responded that the issue of ownership was currently quite hot in Papua New Guinea. The State moved forward with any mining project with the understanding (enshrined in the Constitution as explained earlier) that every mineral below the land or below the sea belongs to the State. The wealth derived from minerals would be shared and used by the State for the benefit of all Papua New Guinea citizens.

Robert Makgill revealed that in New Zealand, a UN special rapporteur had intervened when the Government legislated for Crown ownership over all the sea bed. New Zealand's particular regime now allowed tribal groups to bring claims to customary rights to sea bed; and there appeared to be growing momentum in international law to recognise the customary rights of indigenous groups.

Shadrach Himata enumerated certain well known facts about Papua New Guinea: 97% of the land was owned by the people; there were more than 800 languages and different cultures across the nation making it a complicated country to manage. He stated that it would be an administrative nightmare if Government legislated that all the minerals belonged to the people; and the easier option is the one in place, which enables the State alone to regulate the industry. It would be too difficult any other way.

The Chair, in drawing the discussion to a close, summarised that following the sessions on Papua New Guinea the two issues that would need to be captured in an outcome statement for the meeting were (1) the live issue of 'ownership' – especially with respect to the offshore area; and (2) that despite the mistakes Government had admitted to; and despite the efforts of Nautilus to move incrementally forward with best practice as they know it; the process of communication with the community appeared to be one that could be done better.

“Exploration activities of KORDI for deep sea minerals development in the Pacific region” presented by Jonguk Kim, Senior Research Scientist, Korea Ocean Research and Development Institute (KORDI)

Summary of Presentation

KORDI's ROV (remotely-operated underwater vehicle) surveys in the Tonga Arc are likely to give new insight into geology and hydrothermal activity in that region. The wider area of KORDI's research and development for DSM engagement is in the high seas of the north-eastern Pacific, Western Pacific, Indian Ocean Ridge, and also areas within the EEZs of Tonga and Fiji. A clip from the ROV survey of the Tonga Arc was shown, featuring both geological and biological aspects of the area (including what looks like a walking fish). Some details of major and trace elements in the volcanic rock sampled from the Tonga Arc were discussed, as well as features of the hydrothermal vents and associated alteration zones. Active hydrothermal vent sites would be subjected to further environmental studies; while the inactive vent sites would be possible targets for mineral extraction.

DISCUSSION

James Hein (Senior Scientist, USGS) asked whether there were any preliminary estimates on the tonnage of sulphides in the deposits, and where they were located in the study area.

Jonguk Kim responded that while there were several sites of sulphide deposits, knowledge of the continuity of the benthic area and the alteration still eluded them. The next cruise was planned to attempt a resource estimation of the sea bed deposit and possibly to carry out drilling tests.

Natalie Askew enquired whether KORDI made the data it collected available to national governments or even more widely for private interpretation and for adding to existing data catalogues.

Jonguk Kim responded that how the data was shared was different from site to site. KORDI had itself used bathymetry collected by others as a basis for one of its surveys (in the cruise presented in the talk), due to problems experienced with its multibeam bathymetry system; but mostly KORDI collected its own bathymetry data.

Paul Lynch (Cook Islands) commented that while the region in the KORDI study area was classified inactive in terms of the venting he observed that it was teeming with life in terms of the benthic flora and fauna. He asked how KORDI planned to clear the life forms in order to develop the site further.

Jonguk Kim was not sure if there had been any animals associated with the inactive sites shown in this presentation. He invited a fellow KORDI officer to respond; who then revealed that the current studies were focussed on collecting baseline data for the conservation and protection of the bio creatures and were not at this point focussed on the exploitation of the sites.

“Nauru Ocean Resources Inc (NORI): company update, interest in the Pacific, planned activities, challenges, benefits to Nauru and other PICs” presented by Robert Heydon, Vice President, Nauru Ocean Resources Inc. (NORI)

Summary of Presentation

After the phosphate mining slump, the State of Nauru was looking for other economic development opportunities, which led to a consortium which formed NORI; and to Nauru's sponsorship of NORI's application to access the Area⁵ under its rights as state party to the UNCLOS. If approved at the ISA's annual session in July this would set a precedent for Pacific island countries' to access the reserved areas in the Area. The presentation suggests that an opportunity has arisen for the Pacific to be the hub for DSM excellence, in much the same way that Norway is for offshore oil and gas. Land-based extraction of minerals was presented as starkly destructive compared to what is envisaged would happen in underwater mining. The essential services provided by metals like copper, manganese and nickel in advancing human livelihood were demonstrated. Pacific Island countries are advised to take up the opportunity proactively to formulate a strong DSM policy. This needs to account for the fact that economic feasibility of DSM is as yet unproven. The commercial terms of any State's regulatory regime needs to recognise the unique pioneering risks of starting a new industry: exploration costs are higher for DSM than on-land mining and new technologies need to be developed, so start up costs could be very high.

DISCUSSION

There was no discussion after this presentation.

(Day 3 of 3)

Session 9 – General Deep Sea Minerals Related Issues

The Chair in introducing the final set of presentations on the final day of the Inaugural DSM Project meeting announced that the day, 8th of June, was World Oceans Day; and recited a short history behind its declaration and celebration by the United Nations. He pronounced it befitting that the DSM inaugural meeting would formulate and release an outcome statement on the occasion of World Oceans Day 2011.

“Seafloor Massive Sulphides (SMS) – global characteristics, distribution, and regional Pacific potential” presented by Sven Petersen, Dynamics of the Ocean Floor, IFM-GEOMAR

Summary of Presentation

The anatomy of the formation of seafloor massive sulphide deposits was presented, along with where they are located in the global ocean. Most known sites are too small, of too low grade, occur too deep in areas too far from land, or are active, therefore too hot, to be viable prospects for mining; however there is potential to mine a few sites. Regional surveys to discover new sites were advocated as inactive SMS fields are usually buried under younger sediment. Regional geological and geophysical exploration using towed systems is necessary to define resource potential in the Pacific, as to date most known SMS fields are estimated to be 'small'.

⁵ The Area is defined in the International Seabed Authority presentation in Session 9 (Day 3)

DISCUSSION

Steve Raaymakers (Consultant to PNG) thanked the presenter for 'injecting some realism' into the SMS issue and asked for an explanation of the other squares on a map in the presentation that showed the two mining licences granted in the global ocean.

Sven Petersen responded that the two licences granted were in the Red Sea. The other boxes shown roughly depicted areas that are likely to be covered by the Russian and Chinese applications to ISA for exploration licences in the Area. The other areas of the Area under application were not indicated in the map as the data with respect to the new applications made by Member States to explore the Area was not yet available. The ISA would advise the exact coordinates of the boxes when they were released after the applications had been through the ISA Council for approval.

"The International Seabed Authority (ISA) and the regulatory regime for deep sea bed mining" presented by Michael Lodge, Legal Counsel, International Seabed Authority (ISA)

Summary of Presentation

An introduction was provided to the conception of the ISA and its functions and structure, which were established under UNCLOS, to manage the mineral resources of the sea bed beyond national jurisdiction (the Area) for the benefit of mankind, to promote marine scientific research (MSR) in the Area, and to ensure the protection of the marine environment from the effects of mining. The content of the Mining Code developed by the ISA to regulate prospecting, exploration and exploitation of marine minerals in the Area, was detailed. Applications for mining related activity in the Area must be State sponsored by one or more State parties to UNCLOS. The requirements of the application were set out; as well as the processes followed by the ISA for evaluating the merits of applications, and the content of the standard contract that is issued by the Secretary General of ISA upon an application being approved. The ISA has numerous studies and workshop reports on environmental protection that are available in the public domain. Future work remains for the ISA on the regulatory framework for *exploitation* of the mineral resources in the Area; as these currently do not exist. The concept of the "Reserved Areas" in the Area was explained. The NORI and TOML applications by Nauru and Tonga (respectively) as State Party nations are the first applications for reserved area licences. The distinct advantage of the reserved areas is that they are known to have commercial value, having already been prospected or selected by a developed State. Articles 208 and 209 of the Law of the Sea should guide coastal states when developing national regulatory policies for controlling pollution connected to sea bed activities. The ISA carries out regular workshops to up-skill and train State Parties' officials in these areas.

DISCUSSION

The Chair commented that the presentation was likely to be a first introduction to the International Seabed Authority for many in the room. He particularly urged island Member States to comment and ask questions.

Paul Taumoepeau (Tonga Country Manager, Nautilus Minerals) requested the presenter to repeat the bit in his presentation that mentioned 'the wealth of the reserve areas' being for the small island countries.

Michael Lodge explained that developed States applying to the ISA for nodule exploration licences in The Area are required to delineate two sites with equal estimated commercial value. This assumed that they had to have prospected two sites. The ISA's Legal and Technical Commission (LTC) would evaluate the offered sites to ensure that they really were of equal value, and then allocates one site to the contractor to develop, and retains the other site in a 'bank'. The one in the bank is reserved for developing States. Developing States can therefore apply to develop reserved areas, confident that the area had already been prospected. A figure of US\$30 million had been cited in the past as the cost of prospecting, hence it was a significant head start.

Mme Josiane Couratier (Deputy Representative of France to SPC) enquired whether there was any chance that "the Enterprise" could come into existence.

Michael Lodge explained that the entity called "the Enterprise" was provided for in UNCLOS. The concept behind it was that the Enterprise would be a commercial arm of the ISA that would carry out

sea bed mining on behalf of developing countries. It would have a board of elected directors and staff. Mr Lodge explained that provisions in UNCLOS allow for the Enterprise – or the existence of the Enterprise to be triggered in the future – but for the moment it remained a concept on paper without capital, directors nor an independent function. Certain functions that had been envisaged to be the responsibility of the Enterprise are currently carried out by the ISA Secretariat. The Enterprise can be triggered into existence basically via a request and a vote in the Council and an application for a joint venture operation with the Enterprise. At that point the issue would have to be confronted by the Secretariat, and this would be extremely complex. Mr Lodge further saw challenges with how the Enterprise would be capitalised; and how it would work in practice. He concluded that even with the difficulties, there was always a chance that the Enterprise would one day come into being, but it would require a serious investor to come along with the proposition, and with significant political support in the ISA Council, to bring “the Enterprise” into existence.

“Challenges of policy and legislation development in Pacific Island Countries and suggestions for improvement” presented by Clark Peteru, Legal Adviser, Secretariat of the Pacific Environment Programme (SPREP)

Summary of Presentation

SPREP's vision and mandate were articulated with respect to environmental protection and sustainable development for present and future generations. SPREP has in-house legal capacity and dedicated resources (e.g. a legal drafting handbook) to assist countries to formulate environmental policy and legislation tailored to their needs, and works in consultation with national authorities. Existing international and regional conventions and guidelines that would assist in the jurisdiction of regulating environmental pollution from sea bed, ship and land sources were listed to include the Rio Declaration; Noumea Convention; Madang Guidelines; Noumea Protocols; Pacific Plan; and IMO conventions.

“Economic considerations for deep sea mining” presented by Linwood Pendleton, Director, Ocean and Coastal Policy, Duke University

Summary of Presentation

Conducting an economic analysis is an essential aspect of planning ahead – to make sure of accounting for the most possible costs and benefits; to set proper expectations; to determine proper levels of investment and what to tax and when; and to understand future outcomes. The speaker's advice is to retain the notion of money versus value, while following the money. There should be more questions than answers at this stage, to stimulate the thinking and evaluation process needed at the beginning of a new industry. The advice is not to be sure; to think ahead; to act; and then to think again.

DISCUSSION FOR LAST TWO PRESENTATIONS

Robert Makgill (North-South Environmental Law) was very pleased to hear some discussion on ecosystem management and evaluation and asked if the speaker had a view on ‘intrinsic value’ and ‘value to future generations’.

Linwood Pendleton replied that from an economic perspective there was no such thing as intrinsic value because that would trump everything and undermine economic analysis. If there was an intrinsic value for everything on the planet, then trade-offs couldn't be made. From a future perspective, the ‘expected future value’ of something might be used, but it had to be recognised that this generation could not fully know how future generations were going to value things; so that would make it very difficult to look out much farther than beyond 10 or 20 years.

The Chair closed the discussion to move the focus of the meeting to the formulation of a statement from the meeting that ideally should emerge by the end of the day (also the end the meeting).

Having reached the end of the formal presentations sessions of the workshop the Chair prompted the meeting to thank all the presenters; and he encouraged further questions to speakers to be addressed directly to them outside the meeting.

Formulation of Chair's Summary Statement Procedure

The Chair introduced the three issues for consideration under Session 11, which would facilitate the formulation of the Chair's summary. The mechanism for allocating proper attention to each issue would be that while all twelve Tables of participants would deal with all three issues in total; a group of four tables were required to deal with the first issue first; another group of four tables would deal with the second issue first; and the third group of four tables would deal with issue 3 first. This was to ensure quality time was spent on each issue by a third of the participants, which would yield a better balance of resulting steps for each issue.

The Chair stated that the results from each table should be a set of bullet points of what participants consider to be incremental steps that are doable as a follow up from the workshop to be addressed in the short term and into the future.

After the bullet points from the twelve groups were collected the SPC team would perform a distillation on them to remove repetitions, group the actions/steps into categories and put them into a hierarchical structure determined by how many times a particular point emerged from the twelve groups.

The distillation of the bullet points formed the core of the Chairman's Summary that is the main feature of this Proceedings volume (see page 3).

Sessions 10 and 11 – Mini-workshop and Plenary on Three Major Issues

Three issues were presented for consideration by the working groups, to discuss and draw out bullet points describing incremental steps forward that the DSM Project could take as follow up to the workshop, aimed to advance the deep sea mining readiness of Project countries. The groups were requested to articulate steps that are doable and achievable in the short term and into the future of the Project, in the following areas:

Issue 1: offshore exploration and mining, mineral potential, maritime boundaries, technology development and transfer, private sector perspective, implications of UNCLOS and other laws, stakeholder collaboration and partnership.

Issue 2: conservation of deep sea ecosystems, fishery and other marine resources, potentially impacted communities, community concerns, outreach, implications of UNCLOS and other laws, stakeholder collaboration and partnership.

Issue 3: fiscal regime and policy, development of the regional framework and national policy/legislation/regulations, legal drafting, implications of UNCLOS and other international/regional conventions, existing national policy and laws, stakeholder collaboration and partnership.

The bullet points generated from the twelve groups were sorted; clear repeats eliminated; and were grouped under headings (see Annex 1). Part B of Annex 1 features the raw results from the 12 tables. The distillation of the bullets in Annex 1 makes up the core of the Chair's Summary at the beginning of this Proceedings report. Twelve group representatives were invited to present the list of bullet points generated by each group during this session; and then the Project team worked at finalising the distillation of all the points to inform the Chair's Summary that was presented in the final session (12) of the Workshop.

Session 12 – Discussion and Outcomes of the Workshop

The Chair commenced the concluding session of the DSM inaugural workshop by inviting the representatives of the governments of France and the United States to address the meeting.

The Representative of the French Government to the SPC Headquarters in Noumea, Mme Couratier, was pleased to identify herself as a part of a very privileged club of the former negotiators of UNCLOS in the late 70s-early 80s. She appreciated that "we have come a long way" since the First Commission and reminisced over the sense of tremendous hope at the time of negotiating for the mineral resources of the

sea bed when the concept of the 'common heritage of mankind' was born. It was a technical and legal challenge but a fabulous hope for developing countries, and was passed in UNCLOS after ten years of negotiations, in December 1982. Thirty years on, sea bed mining is now becoming a reality and Mme Couratier was happy to be present to see this opportunity for developing countries being realised. She expressed appreciation to the SOPAC Division and its Director for the Project's organisation of a very informative workshop; and she felt the inclusion of SOPAC into SPC was a positive and constructive move. She was also satisfied representing a member of the EU at the way the Project funds were being used. The EU, though distant geographically, remained concerned about the Pacific with respect to climate change, sustainable development and economic revenue; and the DSM Project was a good example of the expression of that concern. Mme Couratier also promoted the French-speaking territories that were full members of SPC and their research institutes filled with expertise and experience in marine resources and sea bed research. She concluded that the points that had been raised at the workshop were consistent with concerns in France and Noumea with respect to maritime delimitation, protection of the environment, and the regional approach – and that she would be pleased also if certain Project documents were made available in French.

Norman Barth from the American Embassy in Fiji, who acts as the regional environmental officer responsible for the Pacific, commended the 'super opportunity' of the funding by the European Union and expressed his view that the DSM Project was a fantastic activity to fund. He continued that it was exciting and refreshing to attend a workshop that had funding to move forward as opposed to many workshops where challenges of funding put pressure on membership dues. Challenges to finding funds for activities in the future would be much greater, he said. Norman Barth echoed the comments made by the French representative in thanking the Director of SOPAC Division for the vision to invite such a broad range of participants and experts to the inaugural Workshop. Also, he commended the ideas of how to organise the concluding bullet point exercise of the Workshop, which he found of great value and very refreshing. The representative thanked the US technical experts from the USGS, NOAA and academia and remarked that even though the US State Department may seem distant, he was happy to note that the United States was able to contribute to such an important discussion in other ways. He re-emphasised the fascinating opportunity presented by the fact that the Pacific region would actually lead the way on some very important activities and that the other regions of the world would be looking to this region to see how things would turn out. As someone who had spent 25 years in academia, the representative sensed a great openness to dialogue and exchange, which he said was fundamental to making progress more rapidly and making fewer mistakes. He concluded that the Pacific heritage was the closeness, the bonds and commonality of a large region where, if there was no working together, then survival was in doubt; and he offered the help of the Embassy in facilitating American participation in future events and activities of the Project.

The Chair presented the Chair's Summary, and the procedure to clear the text out of session.

Delegates spoke up to express appreciation at being invited; for all the arrangements; and the excellent quality of the presentations. The richness in diversity of the parties represented, and how informative and educational the sessions had been, was noted.

CLOSING

In noting Members' expressions of appreciation the Chair drew the Workshop to a close by inviting the Project staff to make final remarks.

Arthur Webb, the Manager of the Ocean and Islands Project, within which the Deep Sea Minerals Project is managed voiced his shared sense of achievement with the Project team over the tremendous meeting; which he viewed as bringing a balance to the discussion on deep sea minerals. Without the balanced and pragmatic approach, he felt it would be difficult to move forward and attributed the balance to the quality of open-minded participation during the meeting. He thanked the Project team for their efforts and expressed that the entire Ocean and Islands Programme was poised to accept the challenges ahead and support those efforts. He challenged the deep sea minerals interest groups, especially within Member countries to rally around the national efforts to complete the processes for declaring maritime boundaries; that has seen slow progress in the last 20 years.

The Project Leader thanked all the participants for contributions to making the workshop a success and UNEP/GRID-Arendal representatives for their assistance in organising the speakers at the workshop. The Project team looked forward to working very closely with all the Members in the four years of the Project.

The Project Legal Adviser designate declared she couldn't have had a better crash course or induction to the Project. She noted how generous people had been with their knowledge. If the collaborative work during the workshop was an example of how the Pacific Islands worked together then this would greatly facilitate the regional approach adopted by the Project.

After acknowledging the comments of Project staff, the Director of the SOPAC Division also thanked all the participants for contributing to the achievement of a productive and reasonable outcome from the Workshop, which would assist the Project and the Member countries chart a course for deep sea mining in the region that considered the risks well, and took the best course.

List of Annexes

- 1) Issues Raised during the Workshop that Form the Basis for the Chair's Summary
- 2) Opening Address
- 3) Programme and Short Background
- 4) List of Participants
- 5) Workshop Participants' Feedback Analysis
- 6) CD of Documents, Background Material, Presentations and News Coverage
- 7) List of Acronyms

ANNEX 1 – Issues Raised during the Workshop that form the Basis for the Chair’s Summary

PART A – DISTILLATION OF ALL ISSUES RAISED DURING THE GROUP WORK

Issue 1 – How offshore exploration and mining will operate

Regional Approach

- Challenge of integrating regional and national planning on various issues relating to deep sea mining and managing economic activities and benefits emanating from offshore mining.
- Challenge of governance and administration, resources ownership and access rights, capacity to ensure informed decision making, and competent and trustworthy regional institutional support.
- Evaluate the establishment of a regional body to regulate the DSM sector similar to the FFA role for fisheries in the Pacific Islands region as well as to coordinate activities relating to deep sea exploration and mining to ensure environmentally friendly and transparent operations as well as optimising revenue for P-ACPs. This can also offer a forum for supporting trans-boundary issues (environmental, mining, maritime boundary, etc).
- A regional approach is desired to address issues relating to deep sea mining and a mechanism for cooperation should be set up to address common issues such as maritime boundary disputes.
- Regional approach for independent review of sea bed mineral studies, and to coordinate the sharing of information between nations so that P-ACPs do not have to “reinvent the wheel” and learn from each others’ mistake and successes.
- Define regional approach and sovereign rights on the management of mineral resources to ensure overlapping responsibilities are avoided and regional organisations have clear guidelines in which to assist individual countries.
- Consider the implications of regional treaties and conventions such as the Noumea Convention on issues relating to deep sea minerals.
- Full and informed discussion of the opportunities and challenges of a regional approach to the overall interaction/management of the offshore mining industry.
- Regional cooperation is crucial and countries should share their expertise in managing these sea bed mineral resources hence regional capacity building initiatives for nationals of P-ACPs should be developed and enhanced (e.g. scholarships, short-term training, attachments, etc).
- Consider a permanent representative position for the P-ACPs on the ISA.
- Consider establishing DSM Working Groups (technical, environment, legal, fiscal) within the SPC.

Capacity Building

- There is a great need for capacity building and institutional strengthening programs on technical, legislative and fiscal and environmental issues, and twinning of personnel between participating countries is required;
- Support the enabling environment for capacity building within the region to ensure best governance and management practices of the DSM industry (e.g. universities, certificate programs, workshops, attachments, scholarships, fellowships, University of the Sea, etc.).
- Provide capacity building support for nationals of P-ACPs in specific areas relating to deep sea mining such as economics, governance, enforcement and monitoring to effectively regulate this new industry.
- Encourage sharing of experience and expertise under the regional approach on issues relating to deep sea minerals.
- Regional capacity requirement assessment for long term sustainable management of DSM.
- Develop collaborative partnerships with regional and international research and academic agencies.
- Encourage the fullest range of capacity building tools; e.g. Universities, fellowships, attachments, industry jobs and training, workshops, etc.
- Should PNG succeed in bringing the Solwara 1 Project to production, the PNG government is requested to consider assisting other P-ACPs in capacity building;

- Encourage collaboration with regional academic institutions such as USP and UPNG and add DSM courses to the curriculum to supplement capacity building and boost scientific research opportunities on this new industry in the region.
- Evaluate the establishment of a regional school for training and up skilling in all DSM related areas.

Technology Development and Transfer

- Need to encourage Technology Development and transfer and participation of P-ACPs in exploration, mining and environmental management.
- Significant challenge to develop green technology and develop technology for nodules and crust exploration and mining.
- Encourage and support long-term technology development and transfer as a value adding component of offshore mining. This can be done through a joint industry-P-ACPs partnership to ensure the region progressively becomes self sustaining in the future.
- Challenges of developing appropriate technology for sea bed exploration and mining as well as green technology for ore processing.
- Promote mining technology development that will have least adverse environmental impacts.

Maritime Boundary and Trans-boundary Challenges

- P-ACPs need to declare their maritime baselines, zones and limits as well as to defend their extended Continental Shelf (eCS) claims, and also settle shared boundary negotiations.
- Timor Leste is a special case – its maritime boundary with neighbouring countries is yet to be established and may take many years to do this.
- Resolve maritime boundary disputes between neighbouring countries to facilitate the issuance of sea bed minerals exploration licence to interested parties.
- Consider setting up a committee at regional level to deal with maritime boundaries negotiations in consultation with UNCLOS experts, for example from the IMO and ISA.
- Encourage regional dialogue and cooperation to resolve maritime boundary issues and manage “trans-boundary” effects, impacts and opportunities relating to DSM mining.
- Maritime boundaries must be defined and finalised as soon as possible in accordance with the UNCLOS to avoid future conflict over access rights and ownership.

Benefit Sharing

- Facilitate the setting up of state equity interest in offshore mining projects and this can be considered as local participation in the entity.
- Opportunities for mineral processing facilities in the region need to be investigated and the benefits and costs to the region from local processing versus shipping out of the region need to be examined.
- Consider the establishment of trust funds and other mechanisms for equitable sharing of financial benefits.

Issue 2 – Environment Conservation, Social Issues and Awareness

Data and Information

- Expert review and collation of existing data to support understanding of deep sea systems and establish ecosystem baselines before the commencement of exploration activities.
- Improved user access to support decision making and gap analysis.
- Develop and activate a central/regional information/data system.
- Consider broad scale impacts assessment using existing data.
- Collate existing data and information on deep-sea ecosystems from different sources (e.g. fisheries and seamount database from the FFA, SOPAC for geology and sea bed mapping, contact relevant experts on hydrothermal vents, seamounts and ocean basin ecosystems).

Marine Scientific Research

- Need to encourage Marine Scientific Research (MSR) within national jurisdictions and P-ACPs to become more proactive in MSR.
- Need to increase resourcing research and mapping of national waters and sea bed and share relevant data and information through a regional database.
- Improved understanding of DSM ecosystems, biology, opportunities beyond extraction. Without sufficient information DSM is seen as a mineral resource – there is significant potential for medicinal uses/bio-prospecting
- Improved research to support strategic approaches to conservation and protection – strategic approaches to MPAs, etc.
- Develop sustained approaches to research, technical assistance, etc (not just the life of this DSM Project).
- Different resource types (nodules, SMS, crusts, etc) if exploited are expected to have distinct impacts hence research must be developed to understand these differences and the implications.
- Encourage systematic scientific research to characterise and better understand marine ecosystems.
- Full and transparent implementation of MSR regime in accordance with UNCLOS and ensure all data are delivered electronically to the host country in accessible and readable format as oppose to previous experiences in the region.
- Develop a strategy to ensure ongoing funding for research and development through industry, donor partners and P-ACPs as this is an essential component for the future development of the deep sea mining industry in the region.

Community Concerns and Stakeholder Consultation

- Consultations and awareness must be timely, ongoing and brought to community level in a comprehensive manner that local people can understand.
- Encourage inclusive consultations (government, non-state actors, private sector, etc) and active participation of interest groups such as local communities and civil society.
- Two-way interaction between P-ACP's and "experts" is very important to ensure solutions and approaches are tailored to P-ACPs' needs.
- Develop an engagement strategy that caters for greater "country-specific" community participation on issues relating the deep sea minerals rather than just consulting them.
- Communities must be catered for in the benefit sharing of deep sea mining.
- Support for community led consultation and participation be made available to ensure local issues relating to sea bed mining are catered for.
- Consider independent mechanisms for decision making in the management of DSM issues including environmental concerns.
- Disseminate factual information to manage the expectations of communities on deep sea mining – it may take many years before some mineral deposits are considered for mining.
- Ongoing government-community-company consultations are required to communicate simplified industry messages that people can understand.
- Examine New Caledonia as a possible case study for community participation in mining development projects (e.g. Nickel mining).
- Need to carry out a survey of local communities to determine social and cultural interests and issues apart from environmental, scientific and economic interests.
- Need to focus not only on the benefits of deep sea mining but also on the assessment of potential risks associated with it. SPC through the SOPAC Division should assist on this.
- Rights of local communities need to be identified and acknowledged.
- Industry driven community projects need to be repackaged in way that will ensure long term sustainability.

Environment Protection Guidelines

- Develop broad legal frameworks for monitoring, enforcement etc.
- Consider broader impacts of the industry (not only the mine site), e.g. increase in ship movements, and land based impacts.
- National policy and legislation to conform to UNCLOS/PIROP and other regional/international mechanisms to support biodiversity and environmental protection.

- Resource developers (i.e. with commercial interests) should be required to collect environmental baselines as a condition for the issuance of exploration licence. This should have a broader scope than their immediate interests, i.e. improve ecosystems understanding not just management of impacts.
- Ensure effective pre-mining impact assessments (environmental, social, and health), coupled with monitoring and evaluation of post-mining impacts.
- EIA is perhaps inadequate given the implications of this industry; use of ESHIA [Environmental, Social (including cultural) and Health Impact Assessments] may serve regional needs and concerns better.
- Need for independent decision making body (regional and/or national) to regulate environmental issues and ensure greater transparency.
- Consider cumulative impacts of mining on the environment and develop mitigating strategy.
- Need for strategic environmental planning and risk assessment to evaluate the risks and threats to various parts of the ecosystem due to mining hence selected series of EIAs can be conducted.
- Ensure EIA processes are independent and peer reviewed.
- Need to conduct knowledge gap analysis to help interest groups (government, companies and marine scientific research groups) know what to collect.
- Encourage countries to ratify and implement IMO conventions hence marine pollution (including offshore mining pollution) can be legislated and enforced.
- Develop regional and national environmental management frameworks that are consistent with international law.
- Compensation of negative impacts and loss of use, to be properly addressed in an appropriate framework.

Environment Conservation and Monitoring

- Continue to monitor mining impacts during and after mining.
- Consider regional approach to biological exploration, conservation and protection within EEZs of P-ACPs and areas of interest beyond EEZs.
- Consider regional/sub regional approaches to deep sea ecosystem conservation and management of impacts relating to DSM exploration and mining – e.g. ocean currents can carry both biological recruits and pollutants for great distances from one jurisdiction to another.
- Establish a regional DSM expert group/environmental working group to be coordinated by the SOPAC Division.
- Consider a regional “ISA Reserved Area” type approach for conservation purposes.
- Through regional cooperation, the Solwara 1 Project can be used as an opportunity to learn and understand the actual environment impacts of offshore mining;
- Planning, designing and implementing of Marine Protected Areas (MPAs) should be part of any offshore mining plan (should be part of exploration and mining licensing conditions).
- Need to assess the full range of in-country stakeholders to manage the environmental aspects of SBM (e.g. agencies that deal with Environment, Fisheries, Marine Transport, etc).
- Consider regional intervention (i.e. involve SPC) for assistance and expertise in the area of conservation (deep sea ecosystem, fishing, other marine resources).
- Need for a multi-stakeholder collaboration model for environmental management and monitoring similar to EITI to increase effectiveness and transparency in the environmental management of deep sea mining.
- Need to balance between exploitation and conservation (“acceptable use”) based on credible scientific information that SPC needs to provide to decision-makers and stakeholders.
- Support conservation initiatives of unique sea bed ecosystem and determine the level of intervention (i.e. spatial and temporal).
- Meet UNCLOS obligation to protect and conserve marine biodiversity within national jurisdiction (coastal States) and beyond national jurisdiction (all States, the ISA and other relevant organisations).
- Consider reinvesting a portion of economic benefits into environment conservation.
- It may be necessary to develop separate set of regulations for each of the major three types of deep sea minerals (i.e. SMS, Nodules and CRC) due to their different nature of occurrence and deposit-specific mining methods with unique associated impacts.
- Identify “Protected and “Buffer Areas on the sea bed and if possible categorise environmentally fragile/valuable areas that need to be protected from mining (save the walking fish!)
- Consider assessing sea bed habitat distribution to facilitate planning and the establishment of sea bed protected areas which in turn boost conservation initiatives.

- Apply the precautionary approach concept during sea bed mineral assessment and mining for the protection of unique and rare species associated with such mineral deposits.

Information Sharing and Outreach

- SPC/SOPAC Division to host a regional web-based information sharing system for DSM.
- Use regional case studies to inform all countries.
- Need for community awareness so that local people can understand the benefits of deep sea mining against the environmental costs.
- Disseminate information about the industry using relevant communication tools and media outlets for stakeholder information.
- Encourage and support information gathering and sharing.
- Share DSM information in appropriate/accessible formats for communities.
- Consider the use of simple English in raising awareness and may have to translate to local languages in order to get the message across to local communities.
- Map marine users to show the spatial distribution of tourism (from SPTO), fisheries, land-coastal based activities, infrastructure development, etc, and use this map for planning deep sea mining related activities.
- Ensure information brochures, advisory/summary reports, etc are translated to local languages and made available in appropriate media.
- Ensure community outreach happens from the outset from which feedback on the impacts of outreach activities can be relayed back for improvement.
- Communications must be in accessible formats to ensure messages are well communicated to target audience hence internet communication is not good enough as accessibility is a major problem in the region.
- SPC through the SOPAC Division should assist in awareness and outreach and to provide relevant information to potential impacted communities including the fisheries and tourism sectors.
- Regular and ongoing awareness aids informed decision making.
- Establish a directory of experts in various DSM related areas within the proposed regional DSM webpage.

Fisheries

- Assess the existing use and possible biogeochemical links between DSM environments and fisheries of commercial and subsistence use.
- A precautionary integrated approach to ocean resources management must be adopted and driven by government.
- Fishery resources must be protected from any impacts of offshore mining through sound policy and legislation as well as enforcement and environment monitoring.
- SPC to collaborate with the FFA in identifying potential conflict of using deep oceanic areas for sea bed mining and fisheries (using VMS data).

Resource Assessment

- Consider mapping as a tool to assess sea bed resource potential and provide baseline data as well as filling in knowledge gaps that will contribute to better decision making.
- More efforts should be devoted to assessing the potential of manganese nodules and cobalt-rich crust within the Pacific Islands region as they appear to be under explored in some regions.
- Define mineral resources and reserves and explain how they are estimated as well as the values of those minerals based on current commodity prices.
- Need to conduct systematic and reasonably detailed evaluation of sea bed mineral resources within national jurisdiction to ascertain the real potential of each country.

Mining Technical Information

- Due to the environmental impacts associated with onland processing facilities, such impacts should be considered as a component of the environmental costs of deep sea mining.
- For the benefit of various stakeholders, explain the different stages of the mining process (i.e. from exploration to mining).
- SPC through the SOPAC Division should explore collaboration opportunities with the governments and exploration companies through active participation and independent review of exploration

results that need to be shared with other P-ACPs to learn from. A classic example is the Solwara 1 Project in PNG as well as the emerging interests of P-ACPs to submit applications for Manganese Nodules exploration in the international sea bed area (e.g. the Clarion-Clipperton Zone).

- Due to the unknowns and uncertainties associated with deep sea mining, this will be an on-going learning process (as technology improved, and environmental impacts better understood) and as countries build capacity, knowledge and expertise, there will be ongoing adjustments for better resources management.
- In view of the application of the precautionary principle, it would be necessary for any country to allow trial mining first to test certain operational criteria before granting a licence for full blown mining to proceed.
- The SOPAC Division to facilitate the involvement of other P-ACPs in the extraction of manganese nodules in “the area”.
- Note that deep sea mining is a high risk investment, expensive and raising capital can be challenging given the degree of uncertainty in regard to return on investment.
- Evaluate the concept of a ‘regional processing facility’ for offshore mining including the benefits and costs of ore processing in the region versus shipping out ore to other regions for processing.

Issue 3 – Legal and Fiscal Regimes, and Governance

Legal Frameworks

- Apply an adaptive approach so as to allow flexibility in developing and fine-tuning as a country’s knowledge base and capacity for managing the development of sea bed mineral resources evolves.
- Need to prioritise participating countries on the development of national policy and regulatory frameworks based on needs and priorities of each country thus encouraging sea bed mineral exploration and exploitation.
- With increasing interest in deep sea minerals exploration and potential mining in the region, it is imperative that regional and national framework developments are carried out quickly and in a consultative manner to ensure sound policy, legislation and regulations.
- Significant interest in the development of appropriate policy and legal frameworks to allow the exploration and development of Sea Bed Mining (SBM) at national and regional levels.
- Wide recognition of the knowledge gaps and the absence of adequate policy and legal frameworks to guide DSM management in a manner which protects the interests of all parties and the environment.
- Harmonise national policy, legislation and regulations with international and regional treaties and conventions (e.g. UNCLOS, IMO Convention, Noumea Convention).
- Policy and legislation pertaining to deep sea mining should also encompass onshore processing and pollution associated with it (e.g. water ways and coastal zone).
- Regulatory framework must incorporate inclusive and effective stakeholder engagement in licensing process and operational phases (i.e. exploration and mining).
- Develop a regional framework and assist P-ACPs in the development of national policy, legislation and regulations with the inclusion of relevant provisions addressing the fiscal regime.
- Review the Madang Guidelines in light of changing circumstances since 1999 and develop templates for national policy and legislation.
- Ensure sound mining and environmental laws and regulations are in place before the granting of exploration and mining licences.
- Develop regulations to address potential conflicts between mining activity and other sea users (e.g. fisheries, shipping, and tourism).
- Ensure balanced regulatory frameworks to avoid disincentive to investment due to the absence of regulatory regime, and an over-regulated industry.
- Develop and promote an integrated approach to resource management taking into account other sectors such as fisheries, maritime transport, tourism, etc.
- Ensure regional and national policy frameworks embody the concept of Ecosystem Based Management (EBM) that include, but not limited to, reference to relevant tools such as spatial planning, strategic environmental assessment and marine protected areas.
- Policy development must also include a focus on the regulation of activities in “the Area” (i.e. the International Seabed Area) that are being sponsored by P-ACPs.

- Consider the potential future impacts of climate change on P-ACPs and the implications on access to sea bed non-living resources and how can this be captured in the policy.

Fiscal Regime

- Avoid reinventing the wheel and learn from other nations by using the regional cooperation approach.
- Issues relating to appropriate fiscal regimes for offshore mining may need to be referred to a separate working group where specific P-ACPs representative and technical and policy experts can come together to share relevant information and digest what are the best options for the region and country-specific fiscal regimes.
- Encourage and support discussions among P-ACPs to formulate a set of sound fiscal regime guidelines that can be adopted to develop country-specific fiscal regime.
- Undertake a review of mining fiscal regimes that are being practiced internationally and also consider the fiscal regimes of other resource extraction sectors such as fisheries and forestry and determine what is most appropriate for offshore mining in P-ACPs.
- Need for gap analysis of fiscal policy and regulations as it relates to resource use and balance the need to attract investment with the desire to maximise long-term sustainable benefits.
- Need a regional body to advise on issues relating to fiscal arrangements for the exploitation of non-living natural resources (equivalent to FFA) and coordinate a regional training programme on fiscal policy options.
- Tax instruments need to have flexibility/progressive elements to capture cyclical fluctuation in commodity prices.
- Regionally harmonised tax base is essential particularly in depreciation arrangements and avoid a possible scenario whereby a country can be taken for a ride.
- Need to share tax information between countries to avoid tax losses on transfer of assets from one country to another.
- A level playing field is required to avoid a “race to the bottom” scenario that ultimately leads to loss of revenue for the countries concerned.
- Provide information on the benefits of harmonised fiscal regime for deep sea mining across P-ACPs and may need to convene a meeting of Finance Ministers to discuss this and agree on a way forward.

Sustainable Economics

- Challenge of having the wisdom and prudence to sustainably manage mineral resources and mining revenue streams and benefits including the establishment of long term investment funds.
- Balance economic imperative for intensive/efficient extraction with the precautionary approach to scale up production so as to better understand and minimise the environmental impacts of sea bed mining.
- Optimisation of revenue streams derived from deep sea mining to ensure national development priorities are taken care of versus a saving mechanism for future development needs.
- Assess the linkages between the use of revenue derived from deep sea mining and the desired economic development outcomes of other sectors, e.g. tourism, fisheries, infrastructure, etc.
- Recognise the interplay between socio-economic circumstance of P-ACP’s and their capacity to prioritise conservation issues. Overlay SE data (SPC PRISM) with resource potential.
- Enhance long term economic stability through savings of revenue generated from deep sea mining – e.g. Timor Leste and Norway.
- Recognise that deep sea mineral resources are finite hence appropriate revenue management mechanisms (preferably with zero political interference) should be put in place to ensure future generations will also benefit from these resources.
- Recognise that many P-ACPs have small economies hence it is essential that negative “Dutch disease” impacts emanating from the sudden significant inflow of DSM revenues are avoided.

Governance and Transparency

- Encourage and support the adoption of the Norwegian model approach in managing mining revenue in particular the setting aside of funds for future use (politicians should stay out of it).
- Encourage and promote the use of EITI in the offshore mining industry.
- Encourage the triple bottom line considerations (environment, social and economic) for sustainable resources management in order to balance the needs of P-ACPs with that of the industry.

- EITI and Revenue Transparency principles should be included in regional and national frameworks as well as contract agreements.
- Adoption of EITI+ will ensure transparency and openness of industry arrangements with governments.
- Encourage decision making to be inclusive and independent possibly through the establishment of an independent mining tribunal.
- Consider expanding the EITI to verify all payments (including government to resource owners, distribution of money among resource owners, use of the mining revenue by government) not just between government and company.
- Establish advisory working groups at regional level in relevant fields such as science, law, and economics to guide regional approach.
- Countries must put in place mechanisms that attract investment for the offshore mining industry particularly the private sector.
- Ensure accountability and transparency mechanisms are established in all components of any mining operation including the involvement of watchdog such as civil society and independent auditors.
- Develop appropriate mechanism to address undue political interference.

PART B – RAW RESULTS FROM THE TWELVE GROUPS ON THE THREE ISSUES DISCUSSED IN SESSION 10

CONCLUSIONS FROM TABLE ONE (1)

Group 1 Members⁶: Tingika Elikana (Cook Islands), Christopher Ioan (Vanuatu), Bryan Star (Nauru), Hyeon Su Jeong (KORDI), Charles (Chuck) Fisher (PSU), George Niumataiwalu (Kontiki), Akula Tawake (SPC)

Issue 1: How offshore exploration and mining will operate

- Lack of Resource capacity in Pacific Island Countries. This will require capacity building and institutional strengthening programs, and also twinning of personnel between various nations.
- Challenge of having the Wisdom and Prudence to manage the resource exploitation and benefits of mining sustainably.
 - Establish long term investment funds, management structures and legal protection to benefits for future generations.
 - Remove political influence and participation in the management of these funds.
- Lack of appropriate policy and legal frameworks to allow the exploration and development of SBM at the national and regional levels.
 - Need to prioritise countries who are dealing with interested developers, and this conference could facilitate and resource this.
 - Assisting each country to have its own appropriate policy and legal framework that balances regional vs national factors.
- May need regional cooperation to resolve disputed territories and boundaries.
- Need for a regional approach to coordinate the sharing of information between nations so that nations do not “reinvent the wheel”, and so learn from each others’ mistakes and successes.

Issue 2: Conservation of deep sea ecosystems

- Need to establish national ecosystem baselines well before exploitation activities begin, and also to continue to monitor impacts at post closure.
- Member nations need to encourage MSR so as increase the knowledge base of these ecosystems. They can do this by sharing data and information through a regional database.
- Use the Solwara 1 “experiment” as an opportunity to share knowledge and to learn of the real impacts of mining on the environment.
- Balance economic imperative for intensive/efficient extraction with the **precautionary approach** to scale up extraction/production so as to minimise and understand the environmental impacts of SBM.

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- **Do it quickly and do it right!**

⁶ Group membership was assigned by the Secretariat and does not imply full participation by each assigned member to group work

- Apply an **adaptive approach** so as to allow flexibility in developing and fine tuning as a country's knowledge base and capacity for managing the development of sea bed mineral resources evolves.
- **Do not reinvent the wheel.** Learn from other nations by using the regional approach!

Any Other Key Points

- SOPAC/SPC to facilitate the involvement of other P-ACPs in the extraction of manganese nodules in "the area".
- Compensation of negative impacts and loss of use, to be properly addressed in an appropriate framework

CONCLUSIONS FROM TABLE TWO (2)

Group 2 Members: Malakai Finau (Fiji), Harry Kore (Papua New Guinea), Norman Barth (United States), Faatasi Malologa (Tuvalu), Yannick Beaudoin (UNEP/GRID-Arendal), Zhang Yingying (People's Republic of China), Robert Makgill (N-S Law)

Issue 1: How offshore exploration and mining will operate

- Economic challenges
- Integrated national/regional planning challenges
- Legal/governance challenges
- Property rights challenges
 - Relationship between State ownership of minerals and customary title and use rights
- Informed decision making challenges
 - Capacity...internal and reliance on external expertise
 - Need for trustworthy regional support organisations
- Sovereignty challenges
 - State competence to make its own decisions

Issue 2: Conservation of deep sea ecosystems

- Transboundary ecosystem management challenges
 - Effects of operations in one country can affect the environment of a neighbouring state
 - Optimal protection of deep sea ecosystems likely very dependent on regional collaboration and implementation
- Transparency challenges
 - Consultation does not equal participation
 - Active participation of communities and greater civil society
 - Support for independent, community led and community based consultation that leads to effective and active participation
 - Participation in governance of SBM
 - Participation in governance of local issues linked to SBM

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Rate of allocation of claims/operations
 - Rate of knowledge needed for sound long term management
 - Optimisation of revenue stream over a time period coupled to national development priorities (i.e. planned extraction versus immediate "quick as possible")
- Fiscal Regime challenge
 - Linking revenue stream to desired economic development outcomes (e.g. "Industry Superpower" versus "Happiness Superpowers")

CONCLUSIONS FROM TABLE THREE (3)

Group 3 Members: Leonito Bacalando (Federated States of Micronesia), Peter Jacob (Nauru), Gregory Roaveneo (Papua New Guinea), Linda Kaua (PIFS), Linwood Pendleton (NOAA), Ross McDonald (ALC), Robert Heydon (NORI), Arthur Webb (SPC)

Issue 1: How offshore exploration and mining will operate

- Consider regional approach; idea to be explored; e.g. OPEC, FFA, P-ACP fisheries, etc.

- Mapping seafloor, ecosystems, resources etc. fill knowledge gaps/baselines etc. Supports improved decision making.
- Building the enabling environment/capacity within Pacific Island Countries (regional?) to ensure best practice management/governance of the DSM industry (e.g. universities, certificate programs, workshops, attachments, scholarships, fellowships, University of the Sea, etc.).

Issue 2: Conservation of deep sea ecosystems

- Mapping seafloor, ocean ecosystems, resources etc. fill knowledge gaps/baselines etc. Supports improved decision making and strategic approaches to this aspect of DSM.
- Recognition of the interplay between socio-economic circumstance of P-ACPs and their capacity to prioritise on conservation issues. Overlay SE data (SPC PRISM) with resource potential.
- Consider regional approach to biological exploration, conservation and protection and regional areas beyond EEZ's.

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Wide recognition of the gaps and frequent complete absence of adequate policy and legal frameworks to guide DSM in a manner which protects the interests of all parties and the environment.
- The question of fiscal regimes may need to be elevated to a separate working group where specific/appropriate P-ACP representation and technical capacity come together to share P-ACP needs and also discuss in depth all options to maximise sustained economic benefit.
- There remain critical questions regarding P-ACPs' maritime zones and limits and the successful claim of eCS territory. P-ACPs need to declare their maritime baselines, zones and limits; defend their eCS claims; settle shared boundary negotiations.

Any Other Key Points

- Consider a permanent representative position for the P-ACPs on the ISA.
- SPC/SOPAC to host a regional information sharing system – web based.

CONCLUSIONS FROM TABLE FOUR (4)

Group 4 Members: Josiane Couratier (France), Asipeki Palaki (Tonga), Vincente da Costa Pitno (Timor Leste), Gene Bai (Fiji), Sang-Bum Chi (KORDI), Damien Aseari (CEL), Samantha Smith (Nautilus), Moses Murray (Murray and Company)

Issue 1: How offshore exploration and mining will operate

- Challenges/needs/priorities:
 - #1 Priority: Maritime boundaries
 - Timor – don't have maritime boundary with neighbouring country – will take some time to develop maritime boundary (20-50 years?) – how to develop if the resource is between two countries
 - Tonga – boundaries are under discussion/overlapping boundaries (issue for many P-ACPs) – cannot issue some Prospecting Licences until this is resolved
 - Definition of Resource
 - Assessment of Potential (How much is there? Definition of resources)
 - Confirmation of Potential
 - P-ACP capability
 - Fiji perspective (related to capability): it's a new industry – the knowhow to start off is a challenge – how do we make it sustainable? Economically viable?
 - Governance
 - Human resources
 - Capacity building
 - Support for citizens of P-ACP nations
 - Needed in areas of regulation, monitoring too
 - Special expertise where needed
 - Short nominal mine life of project(s) – how to make technology and skills transfer, benefits, etc, more long lasting?
 - Regional approach vs sovereign rights to management of resources – is this an issue?
 - Number of treaties binding Pacific Island states – how does this effect what we are trying to achieve?

- Only some countries have signed the Noumea Convention – do all countries need to sign? If so, how do we achieve this?
- Recommended approaches and strategies:
 - Regional approach to share experience and expertise, consultancy, and on relevant overlapping issues such as environmental, social
 - Regional approach to set framework
 - Strategise, set up committee to deal with maritime boundaries, set calendar/agenda of negotiation – on regional level – set up timeframe to achieve finality to boundary decisions (can SOPAC assist?)
 - Committee of experts on UNCLOS and other maritime regulations (e.g. IMO, ISA) to provide advice

Issue 2: Conservation of deep sea ecosystems

- Challenges/needs/priorities:
 - Community concerns
 - PNG: Greater participation rather than consultation
 - Benefit sharing – getting payments to the people
 - More consultation by the government to bring “industry” messages to the people in a way that can be understood by the people (note: in Tonga, it is the government who does the liaising, not the company)
 - Wider consultation to all relevant/concerned in-country stakeholders
 - Working out how to bring the messages to the community at the right level (in a way that can be understood)
 - Need Meaningful integrated approach between the Company and Government, with government taking the lead
 - Marine Protected Areas – defining/developing specific marine protected areas
 - Cumulative impacts – sea bed, water column impacts (mining, fishing, shipping)
 - Language/terminology barriers
- Recommended Approach and Strategy:
 - Community:
 - PNG/Timor: More organised meetings (village leaders, LLG leaders, etc), relevant to a particular setting (country, region specific)
 - Regional approach
 - Examine New Caledonia as a possible case study for community participation in development projects (e.g. Nickel mining)
 - Involving SOPAC in providing assistance and expertise in the area of conservation (deep sea, fishing, other marine resources)
 - In relation to area of distribution of benefits – Norwegian approach to setting funds aside (politicians should stay out of it)
 - EITI approach recommended

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Challenges/needs/priorities:
 - Balancing needs of P-ACPs with needs of industry (and needs of environment) – triple bottom line considerations (people, planet, profit)
 - Dissemination of Information, communication
 - Implementing the relevant approach to explaining what mining industry is all about (explaining the difference between exploration and mining)
 - Gathering relevant Information
 - Language/terminology barriers
 - Obtaining agreement between P-ACPs on desired fiscal and policy regimes
 - Finding harmony between PI states that would be effected by international, regional conventions and existing national policy and laws
 - Harmonisation for international treaties and conventions
 - Will there be one governing body to ensure compliance with international legislation for Pacific Island Countries?
- Recommended appropriate approaches/strategies:
 - Regional approach and framework

- PNG: Should PNG succeed in bringing the first SMS production to the region, as the “big brother” (or sister), to consider setting some funds aside for its little siblings in the PI region for capacity building in the field of SMS extraction.

Any Other Key Points

- (what counts as independent? Multi-stakeholder involvement?)

CONCLUSIONS FROM TABLE FIVE (5)

Group 5 Members: Kabure Tamariti (Kiribati), Steve Raaymakers (Eco-Strategic), Thierry Catteau (EU), Anne-Solgaard (UNEP/GRID-Arendal), Malcolm Clark (NIWA), Seni Nabou (Greenpeace)

Issue 1: How offshore exploration and mining will operate

[Group 5 did not present anything under issue 1]

Issue 2: Conservation of deep sea ecosystems

Conservation of deep-sea ecosystems, fishery and other marine resources

Conservation of resources

Lack of data and information is a fundamental problem

- Collation of existing information on deep-sea ecosystems from different islands and resource industries (e.g., fisheries). So db from FFA on seamounts, fisheries. SOPAC for geology, sea bed mapping. The UNEP-GRID Arendel report on DSM will focus on the minerals, and is a starting point.
- Integration of marine use mapping, i.e. need to spatially map distribution of tourism (SPTO), fisheries, land-based. Spatial planning of resource use-land-coastal-deepsea.
- Need strategic Environmental Risk Assessment. Big picture evaluation of risks and threats to various parts of the ecosystem. Leading on from this could be selected series of EIAs as identified by the risk assessment.
- Gap analysis of what information is needed to help plan what governments/resource companies etc need to collect.
- Plan for future resource studies to describe aspects of the ecosystem (e.g. benthic communities, pelagic communities).
- Consider Strategic Environmental planning. Recognise and build on existing protected/conservation areas. Kiribati already closed Phoenix Is, proposal to close Line Is.
- Need to plan for enforcement-longer term but critical.

Education and Outreach

- Ensure brochures and information/reports etc are available in appropriate languages and mediums. So English as core, but translate into local language/s for each island.
- Ensure outreach happens from the outset. So an immediate task to distribute material to communities.
- Two-way flow, need feedback on the nature and extent of education and outreach activities.

Community concerns

- To develop an engagement strategy
- To map community concerns. i.e. carry out a community survey of local communities. Pick up the societal interests and issues, not just scientific or commercial interests.
- Evaluate capacity building concerns.

Implications of UNCLOS/other laws

- IMO-pollution from ships. Not only pollution from mining can have pollution from ships/transport etc. Ensure countries ratified and implement IMO conventions.
- Resolve issues of EEZ boundaries, as until that is done there will be ongoing problems between islands offshore.
- Need to make concerted effort to pass national legislation to implement UNCLOS. This then clarifies jurisdiction to deal to many other issues that will arise with DSM.
- Coastal pollution laws also may apply from onshore processing.

Stakeholder collaboration and partnership

- Identify stakeholders. Then can plan appropriate dialogue with the appropriate groups/agencies/etc.
- Set up a process of regular/continuous stakeholder engagement

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

Fiscal regime and policy

- Undertake a review of international practices with fiscal regimes (not restricted to DSM, but also fisheries, forestry) to determine what is most appropriate for P-ACPs. So other small island experiences are likely to be very important.
- Gap analysis of fiscal policy and regulation as it relates to resource use. Need to balance between desire to attract investment and desire to maximise long-term sustainable benefits to the people.
- Establish an official regional body to advise on fiscal arrangements for the exploitation of non-living natural resources (equivalent to FFA). Then develop a training programme (SOPAC coordination) regionally for such fiscal policy options.
- Adoption of EITI + will ensure transparency and openness of industry arrangements with governments.

UNCLOS implications

If haven't ratified UNCLOS then can't have an EEZ and hence benefit.

CONCLUSIONS FROM TABLE SIX (6)

Group 6 Members: HE Amatlain Kabua (Republic of the Marshall Islands), Lameko Talia (Samoa), Venasio Nasara (Fiji), Daniel Damilea (Solomon Islands), Graeme Hancock (World Bank), Jonguk Kim (KORDI), Keith Frenz (BECA), Hannah Lily (SPC)

Issue 1: How offshore exploration and mining will operate

- Regulatory Framework must include inclusive and effective stakeholder engagement through grant processes as well as operational phases of exploration and development.
- Communications must be in an accessible format and well communicated.
- Technical Assistance is required to assist countries to resolve Maritime boundaries disputes.

Issue 2: Conservation of deep sea ecosystems

- Fisheries Protection
 - SEA Regional Framework
 - Effective Environment Management – legal monitoring
 - Zero discharges in migration fish habitat – surface zone
 - Contractual requirements to host supervision and monitoring
- Need for ongoing TA from regional agencies.
- Need for multi-stakeholder collaboration models for Environmental management and Monitoring similar to EITI to increase trust and effectiveness of Env't actions in DSM.
- Ongoing need for access to experts by P-ACPs – Regionally co-ordinated by SPC.
- Community and Stakeholder Consultation processes needed in licensing and approval processes.
- Decision making to be inclusive and independent possibly through independent tribunal.

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Tax instruments need to have flexibility/progressive elements to capture cyclical commodities.
- Regionally harmonised tax base particularly depreciation arrangements.
- Sharing of tax information between countries to avoid tax losses on transfer of assets from country to country.
- Level playing field – avoid a “race to the bottom”.
- EITI and Revenue Transparency principles should be included in framework and contracts.
- In order to preserve economic integrity DSM revenues should go into separate savings fund – e.g. Timor Leste and then be drawn down to the budget.

CONCLUSIONS FROM TABLE SEVEN (7)

Group 7 Members: Michael Aroi (Nauru), Paul Lynch (Cook Islands), Rennie Vaiomounga (Tonga), Elaine Baker (UNEP/GRID-Arendal), Charles Roche (MPI), Tevita Bukarau (Muski's Law), Jan Steffen (IUCN), Wong Hen Loon (Fiji)

Issue 1: How offshore exploration and mining will operate

- *Offshore exploration and mining.* SOPAC should seek support from PNG and Nautilus to allow SOPAC to do an independent review of results on SOLWARA 1, and allow information to other SOPAC members, so we can all learn from this first DSM in the region.
- Same for SOPAC with Manganese nodules mining in CCZ. Get information out.
- Maritime boundaries need to be finalised. The issue of trans-boundary deposits needs co-operation and similar regime.
- Technical Development and transfer. P-ACPs need to benefit.
- Private sector perspective.-
- UNCLOS–P-ACPs need to comply with International obligations in DSM.
- Stakeholder collaboration and partnership needs to be involved and informed.

Issue 2: Conservation of deep sea ecosystems

- In DSM there needs to be a balance between exploitation and conservation (“acceptable use”) and this needs to be determined from credible scientific information (from SOPAC) which needs to be accessible to decision-makers and stakeholders.
- There is support to conserve these eco-systems, the level is to be determined, either by a percentage or “closing off”.
- SOPAC to assist awareness building, outreach and provide information to the affected communities, such as fishing and tourism sectors.
- SOPAC should have a focus on the initial assessments to evaluate potential risks of DSM and not just the benefits.

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Fiscal regime – Transparency and accountability is needed in each area of DSM so that lessons are learnt to ensure benefits flow down i.e. Norway model.
- DSM Tax rate and royalty rates needs to be covered in fiscal regime. SOPAC could explore the possibility of P-ACPs having the same effective tax rate across P-ACPs.
- SOPAC to provide information on the benefit of same DSM tax rate across P-ACPs to a Meeting of Finance Ministers.
- SOPAC to assist in the P-ACPs to help development of regional frameworks, national legislation, regulations and policies. Fiscal regime should be similar throughout region.
- Look at expansion of the EITI to include all payments not just between government and company i.e. All lead in payments (see Clark Peteru's presentation).

CONCLUSIONS FROM TABLE EIGHT (8)

Group 8 Members: Richard Hipa (Niue), Peni Suveinakama (Fiji), Brooks Rakau (Vanuatu), Michael Lodge (ISA), Sang-Joon Pak (KORDI), James Hein (USGS), Sandeep Singh (US)

Issue 1: How offshore exploration and mining will operate

- Challenge: how much ore to mine and how much to leave in reserve.
- Take action to delimit maritime zones in accordance with UNCLOS.
- Challenge: Develop green technology for ore processing.
- Challenge: Develop technology for crust exploration.
- Priority: reconnaissance surveys to assess nodule and crust abundance for island nations.

Issue 2: Conservation of deep sea ecosystems

- UNCLOS obligation to protect and conserve marine biodiversity on both coastal States (in national jurisdiction) and beyond national jurisdiction (all States, the ISA and other relevant organisations).
- Promote technology development for mining that will have least adverse environmental impact.
- Establish national environmental management frameworks consistent with international law.
- Encourage systematic scientific research to characterise ecosystems.
- Avoid impacts on fisheries (of critical social and economic value).
- Build capacity (natural sciences, social sciences, economics, management, environmental law).

- Designate appropriate reference sites and refuges.
- Build transparency into mineral licensing processes.
- Full and transparent implementation of MSR regime in UNCLOS.
- Encourage collaboration with regional academic institutions, e.g. USP, PNG University, to add DSM to courses, summer schools etc.
- Collect baseline environmental data as a condition of marine exploration permits.
- Clearly identify stakeholder groups and build consultation processes into all DSM-related processes.
- Ensure EIA processes are independent (e.g., peer review).

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Review, update and *implement* Madang Guidelines in light of changing circumstances since 1999.
- Identify gaps in existing legislation and regulatory regimes.
- Informed decision-making by increasing awareness.
- Develop model legislation and templates for policy.
- Establish advisory working groups at regional level for, e.g. science, law, economics.
- Consider trust funds and other mechanisms for equitable sharing of financial benefits.
- Reinvest portion of economic benefits into conservation.
- Consider equity-sharing as means of participation.

CONCLUSIONS FROM TABLE NINE (9)

Group 9 Members: Shadrach Himata (Papua New Guinea), Hubert Yamada (Federated States of Micronesia), Faainoino Laulala (Samoa), Ju-Won Son (KORDI), Daniel Dumas (Commonwealth Secretariat), Fereti Inoke (Geopacific), Paula Taumoepeau (Nautilus)

Issue 1: How offshore exploration and mining will operate

- The first point is to make sure proper mining and environmental laws and *regulations are in place before mining licences are granted and that actual mining takes place.*
- *Since DSM has a lot of unknowns and uncertainties, this will be an on-going learning process (as technology improved and environmental impacts better understood) and as countries will build capacity, knowledge and expertise, there will be a need for constant adjustments on how the resources is managed.*
- Regional cooperation will be important and countries should share their expertise in managing the resources – some regional initiatives should be developed to build regional capacity (scholarships or others).

Issue 2: Conservation of deep sea ecosystems

- In view of the application of the precautionary principle, it might be a good idea for countries to adopt a “phased approach and to limit mining in some areas first (of course allowing for commercially viable projects) and wait before granting licences on a large proportion of a country’s sea bed.
- Questions: Since SMS and manganese nodules have different impacts – the first having significantly more impact but on a limited area while nodules mining seems to be less intrusive but requires mining over a much larger area – would it make set to have two different sets of rules and regulation for each (SMS, Nodules and CRC).
- Necessity to determine “Protected and Buffer Areas” and see if it would be possible to rate the sea bed on criteria such as Environmentally fragile or Environmentally Valuable areas and mine the least fragile, least valuable areas first (save the walking fish !)

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Fiscal Policy should make sure DSM is attractive for investors BUT with the understanding that the countries own the deep-sea resources and as such, they should be the main beneficiaries of any economic rent created through a progressive fiscal regime.
- Recognise that DS resources are finite and that in view of intergenerational equity that some of the revenues management mechanisms (ideally with some independence from the government) should be put in place to insure future generations will also benefits from the resources.
- Recognising that many P-ACPs have small economies, it is essential that negative “Dutch disease” impacts that can come from sudden significant inflows of revenues from DSM (pacing issuances of licences over a number of years may help)

- In terms of legislation and regulation, although there is a need to have some regional harmonisation, it is important to stress that countries have national differences that should be taken into account. This said, the most important factor is to absolutely avoid a situation where countries enter in a “a raise to the bottom” either by relaxing environmental requirements, other conditions (employment, training, community projects) or by offering preferred fiscal conditions – where at the end all countries will be losing.

CONCLUSIONS FROM TABLE TEN (10)

Group 10 Members: Monica Rangel Da Cruz (Timor Leste), Kabure Yeeting (Kiribati), Jerry Nairne (Papua New Guinea), Clark Peteru (SPREP), Sven Petersen (IFM-GEOMAR), Poasa Vereti (Geopacific)

Issue 1: How offshore exploration and mining will operate

Challenges

- Establish national resource potential
- Lack of technological resources
- Attracting investment capital
- Enterprise structure: national or regional, private or public?

Needs

- Evaluation of the commodities and their resource potential
- Education and capacity building of local workers, engineers etc.
- Efficient administering body (granting through lifetime)

Priorities

- Efficient administration
- Political acceptance
- Maximise/optimize revenue for Government

Approaches/Way forward

- Desirability of a Regional approach
- Setting up equity interest in the company
- Establish Working Group within SOPAC

Issue 2: Conservation of deep sea ecosystems

Challenges

- Identify ecosystems to be affected
- How to protect the ecosystem?
- Public awareness of deep-sea biodiversity e.g. outreach programmes

Needs

- Identify ecosystems to be affected
- Identify representative areas of geology setting
- Environmental monitoring programme when mining commences.

Priorities

- Marine ecosystem surveys

Approaches/ Way forward

- Desirability of a Regional approach
- Protect by establishing representative deep-sea marine protected areas
- Establish Working Group (Conservation) within SOPAC

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

Challenges

- All countries need policy and legislation relating to deep sea minerals and mining
- Finalise maritime boundaries and extended continental shelf claims
- What treaties and domestic laws apply?
- Lack of knowledge and information in order to formulate policy
- How to transfer benefits to the people
- How to guarantee transparency throughout the process
- Government involvement?

Needs

- Need to discuss a fund structure, what purposes funds can be used for and extent (%) of expenditure

- Education and capacity building of civil servants and other stakeholders
- Accountability/transparency mechanisms (EITI, civil society, governance/ethical rules for companies and government) to be established

Priorities

- Establish policy (fiscal and legal)
- Enhance local participation and skills

Approaches/Way forward

- Desirability of a Regional approach
- Revenue sharing agreement between Government and mining company
- Establish Working Group (legal and fiscal) within SOPAC

CONCLUSIONS FROM TABLE ELEVEN (11)

Group 11 Members: Eselealofa Apinelu (Tuvalu), Jeremaiya Taganesia (Fiji), John Arumba (Papua New Guinea), Jan Steffen (IUCN), Jang-Wan Bang (KORDI), Tony Wurrarrarba (ALC), Natalie Askew (Independent)

Issue 1: How offshore exploration and mining will operate

- Challenge: tools, technology
- High risk investment, questionable returns, raising capital
- Way forward:
- Develop tools
- Training, up skilling all areas, regional school
- Directory of experts (various areas)-living document
- Website-links etc (SPC-SOPAC)

Issue 2: Conservation of deep sea ecosystems

- Assess sea bed habitat distribution to inform protected areas).
- Regulations to address potential conflicts between mining activity and other sea users (fisheries, shipping).
- Work needed between FFA and SOPAC to discuss spatial uses of the area away from the coast by fisheries (using VMS data), and potential conflicts.

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- develop effective fiscal regime, policies, legislation
- address undue political interference
- Review international conventions
- Stakeholder consultation to include all, govt, civil societies, NGO, applicants, industries
- Rights e.g. IP clearly identified

CONCLUSIONS FROM TABLE TWELVE (12)

Group 12 Members: Peter Auga (Solomon Islands), Charles Dominick (Federated States of Micronesia), Lyndah Brown-Kola (Papua New Guinea), Julian Roberts (Commonwealth Secretariat), Kiji Vukikomoala (FELA), Charlie Avis (WWF), Tausia Kerto (Geopacific)

Issue 1: How offshore exploration and mining will operate

- To avoid conflict over access rights in the future, maritime boundaries MUST be defined and promulgated as soon as possible in accordance with the UNCLOS – it is the essential first step to defining access and ownership rights.
- Ongoing research and development work is essential to the future development of the sector in the region. A strategy for ensuring ongoing funding for research through industry, donor organisations and P-ACPs must be discussed and formulated.
- There is a need to develop capacity and ensure technology transfer at a regional and national level to ensure that the region can become more self sustaining in the future. This would be done through a joint industry/P-ACP partnerships and result in long term benefits for all parties.
- It needs to be recognised that a weak or absent regulatory regime is a disincentive to investment. However, there is a balance between too little and too much regulation.

- Opportunities for mineral processing facilities in the region need to be investigated and the benefits and costs to the region from local processing versus shipping out of the region need to be examined. Should the concept of a 'regional processing hub' be examined?

Issue 2: Conservation of deep sea ecosystems

- UNCLOS requires states to protect rare and fragile habitats. How do we identify and define these? How do we apply the concept of precaution in the identification and permitting of areas for mineral extraction?
- One approach might be to emulate the ISA Reserved Area concept but for conservation value rather than mineral value.
- Managing the expectations of the local community of the benefits that will accrue to them from new projects must be carefully considered and started at the earliest opportunity by the Government. Similarly community and social projects operated by industry need to be carefully considered to ensure they are long term, sustainable and create real benefits – i.e. not just building a school but also training teachers and providing the materials needed to operate the school.
- Spatial planning and designation of protected areas should be considered an essential part of mineral licensing and exploitation.
- From the outset the process of permitting and licensing needs to be clear and transparent so that the local communities can understand what is going on. There is a need to provide clear advice and explanation to local stakeholders at the earliest opportunity.
- There has been much talk about EIAs but in fact the future focus should be in integrated 'environmental, social (including cultural) and health impact assessments' (ESHIA). It is not possible to separate the environment, social and cultural aspects in the P-ACPs and these need to be considered at the outset.

Issue 3: Development of Offshore Mining Policy and Legislation, and Fiscal Regime

- Regional policy should recognise the interaction with other sectors – it should take a more integrated approach rather than being purely sector specific.
- The policy should embody the concept of Ecosystem Based Management and include reference to relevant tools such as, but not limited to, spatial planning, strategic environmental assessment and marine protected areas.
- Policy development must include a focus on the regulation of activities in the Area that are sponsored by P-ACPs as well as activities under national jurisdiction.
- The policy development process should take into account existing frameworks and importantly the existing national policy/regulatory frameworks that exist in the region.
- The policy should take into account the potential future impacts on P-ACPs of climate change, and the implications for access to sea bed non living resources.
- Any P-ACP that wants to aspire to the policy should implement the EITI.

ANNEX 2 – Opening Address

Dr Russell Howorth, Director of the SOPAC Division of the Secretariat of the Pacific Community

Excellencies and High Level Representatives of Pacific ACP States and the SPC, representatives of national, regional and international agencies, NGOs, the private sector, civil society groups and the media, on behalf of the Director General of the Secretariat of the Pacific Community, Dr Jimmie Rodgers, I would like to warmly welcome you all to this inaugural regional meeting for the SPC-EU Deep Sea Minerals Project that is funded by the European Union under the 10th European Development Fund Regional Programme and is now being implemented by the SOPAC Division of the SPC. A special welcome to those who come from outside the Pacific Islands region and I trust that you all had uneventful journeys from whichever part of the world you have come from. I invite you all to enjoy the Pacific Islands' warmth and hospitality during your short stay here in Fiji.

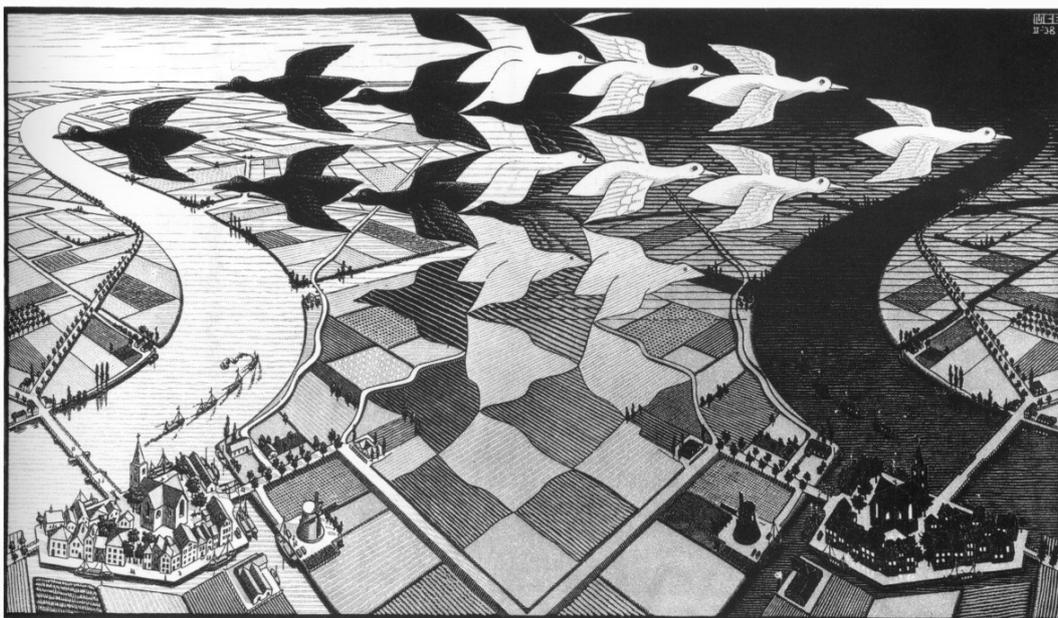
Colleagues, whilst this Project is new, let me assure you the topic is not. The first sea bed minerals, indeed manganese nodules, were lifted from the Pacific Ocean during the Challenger Expeditions 1872-1877.

So to get us underway a quote from Benjamin Franklin a Founding Father of the United States:

“The man who does things makes many mistakes, but he never makes the biggest mistake of all – doing nothing”.

Life is indeed full of mistakes and/or challenges for all of us no matter what our respective backgrounds or perspectives might be. Surprisingly though how often when we have addressed mistakes and/or challenges do we look back and reflect it was worth it.

Our perspective is necessarily often personal or institutional, as the drawing on the screen (below) by the Dutch graphic artist Maurits Escher entitled “Day and Night” illustrates. Do you see the birds at the top, or the fields at the bottom? ... Do you see the white birds flying to the right?... or do you see the black birds flying to the left??? Keep looking, as I will return to this Escher drawing at the close of my Opening Address.



No matter what our own perspectives might be I wish to start by emphasising that this EU/SPC/SOPAC Division Project which started just a few months ago is about all stakeholders engaging in an ongoing interactive dialogue to better inform, hone and focus our perspectives for the benefit of the island communities we all serve. The Project is scheduled to run for the next four years.

Colleagues, those communities we all serve, which for the SPC/SOPAC Division includes all Pacific island countries and territories, continue to face significant challenges.

In 1992, nearly 20 years ago in Rio, and subsequently in Barbados two years later those significant challenges were recognised. The “Special Case” in sustainable development attributed to Small Island Developing States was agreed. Next year 2012 in Rio, that Special Case I am sure will be reaffirmed. It still exists, the vulnerability, and risks experienced by communities on small islands has not gone away in the past two decades despite huge efforts by all. In fact there is a strong case that the vulnerability and associated risks are increasing, whilst capacity to cope is not. Vulnerabilities and risks in the environmental, social and economic areas of development continue.

Building resilience, in particular economic resilience is crucial as the recent global fuel, food and financial crises have demonstrated.

On the issue of vulnerability and risk, in 1982 some ten years before the Rio Summit and nearly 30 years ago, I had the privilege to address the then SOPAC Governing Council members on the topic of erosion focusing on landslides and coastal erosion. If I may quote:

“Throughout history, erosion along with other continuing geological processes has influenced man and his activities, causing considerable losses and costs to life and property. The chance of this happening is expressed as risk. Risk is expected to increase in the future unless man modifies his activities in the light of an increased understanding of the processes at work.

Man’s activities are to a large extent controlled by the planners and decision-makers, whereas an increased understanding of the processes at work stems largely from the work of the geologist regularly studying and monitoring the physical processes in action. It is thus very important that the planners, decision-makers and the geologist work closely together if an increase in risk is to be minimised, and if possible avoided”. Unquote

Colleagues, I ended that address by focusing on the issue of “The Level of Acceptable Risk”, and of course who is responsible for determining the level of acceptable risk.

It is within that context of risk that I will now address our collective task here at this meeting and the singular objective of this Deep Sea Minerals Project.

There is no such circumstance as “No Risk”. Having accepted that as a reality, the task at hand is to “Know Risk” In other words it is our collective responsibility to work together to assemble all the necessary data and information leading to knowledge and a better understanding of risk, and ultimately the determination of the level of acceptable risk.

Who determines the level of acceptable risk in regard to the topic of deep sea minerals and the potential for the mining of them? This will of course differ around the region. For sure it is not the SOPAC Division’s responsibility. The SOPAC Division’s task is to provide the platform for informing all stakeholders including through interactive dialogue such as this meeting will provide.

With the vast ocean spaces, the livelihoods of most of the Pacific island countries and territories revolve pretty much around the opportunity for sustainable use of the ocean and its resources. We know the tuna fishery example well. The question being asked by governments remains, “What else is out there in the ocean that can generate economic activities for our people? Evidently, the recent granting of an offshore deep sea mining licence in Papua New Guinea provides one answer to this question.

In 1972, nearly forty years ago, a representative of the Fiji Government speaking on behalf of their island neighbours and themselves drew attention to recent interest in offshore mineral potential, particularly for petroleum in Fiji and other countries (recent Tonga oil seeps) in the South Pacific Region, which the Fiji representative emphasised had little or no experience in the offshore activities that were being introduced and were in need of guidance in all aspects of that field.

This initiative resulted in the establishment of SOPAC, initially as CCOP/SOPAC. Subsequently, and largely coordinated by SOPAC, marine scientific research and sea bed mineral resource assessments within the region have located and identified a varied group of mineral occurrences on the sea bed within many EEZs. You will be informed of much of this work during this meeting as many of the scientific and technical experts that carried out this work are either here in this room today, or their organisation is represented.

Due to the rise in metal prices and the need to secure supplies of strategic minerals in the 1960s and 1970s, significant interest was shown in exploring for manganese nodules. Investigations for cobalt-rich crusts

started in the early 1980s, and this was followed by the discovery of hydrothermal vents in the Lau Basin in 1982 and 1984 and the first seafloor massive sulphide deposit in the region was confirmed in the Manus Basin of Papua New Guinea in 1985.

In recent years the interest in some of these mineral deposits has moved or is moving from scientific resource assessment to commercial. This is due largely to the high grade of base and precious metals contained therein together with sustained high prices of key metallic minerals. This presents an opportunity for many states to address their economic vulnerability and expand their narrow resource base by capitalising on the size and extent of their EEZs and the mineral resource potential therein.

With the recent issuance of a mining licence to Nautilus Minerals in Papua New Guinea, deep sea minerals that occur within the EEZs of many Pacific island countries and territories are increasingly becoming recognised as a future potential source of revenue and economic development. At this meeting I feel sure we will here from delegates from capitals around the region that for many, deepsea minerals may currently be being considered as a source of future revenue. Revenue, that will enable them to secure development gains to raise income levels, put food on the table, provide better education, and improve health services.

In other words track towards the achievement of the Millennium Development Goals, which address extreme poverty, hunger, disease, lack of adequate shelter, and exclusion, while promoting gender equality, education, and environmental sustainability. The MDGs also reflect basic human rights as pledged in the Universal Declaration on Human Rights and the Millennium Declaration.

In recognition of the potential of deep sea mineral resources within the Pacific region, SOPAC in collaboration with donor partners convened a regional workshop in Madang Papua New Guinea in early 1999 to discuss an enabling platform for the sustainable management of these resources. This resulted in the development of the “The Madang Guidelines” as a basis to formulate effective and enabling policy and legislation to govern offshore mineral exploration and development.

In response to the recent growing interests in deep sea minerals exploration within national jurisdictions of the Pacific Islands region, SOPAC initially and now SPC/SOPAC Division developed and promoted a regional approach to assist member countries. This proposed regional approach was supported by member countries and the Pacific Islands Forum, and was subsequently endorsed by the European Union (EU). As a result, the EU has agreed to provide 4.7 million Euro under the 10th European Development Fund to support a Project for the next four years 2011-2014.

The project entitled “*Deep Sea Minerals in the Pacific Islands Region: a Legal and Fiscal Framework for Sustainable Resource Management*” is now being implemented. The overall objective of the project is to expand the economic resource base of Pacific ACP States. The specific purpose is to strengthen the system of governance and capacity of Pacific ACP States in the sustainable management of their potential deep sea mineral resources through the development and implementation of sound and regionally integrated legal, fiscal and environmental frameworks, improved human and technical capacity and effective monitoring systems. The regional legislative and regulatory framework will enable countries to develop their respective national frameworks for the sustainable management of any marine mineral resources. The Project is of timely and critical importance if Pacific ACP States are to have effective and sustainable environmental, economic and social management instruments in place for the continued exploration for, and possible future exploitation of deep sea minerals that could support economic growth.

Colleagues, with your indulgence I will draw this Opening Address to a close with another quote this time by a former President of the United States, J.F. Kennedy:

“When written in Chinese the word crisis is composed to two characters. One represents danger, and the other represents opportunity”

Surely, it is our singular and collective responsibility to support the communities of the region and their aspirations to improve their livelihoods. We must together seek to identify and secure the opportunity that the mining of sea bed minerals presents. Whatever our different perspectives, we must all focus our efforts through a single lens.

Yes, there are acknowledged dangers and risks, but the Level of Acceptability of those Risks must be determined in a collective and collegiate manner in order to avoid a crisis along the way.

Colleagues, finally, may I return to the Escher drawing on the screen. Escher's drawings are acknowledged the world over as truly amazing mosaics which combine geometrical symmetries with real life objects. They exhibit both mathematical and natural beauty, a combination that many find irresistible.

Whatever your perspective of this Escher drawing of "Night and Day" has been over the past 20 minutes or so I hope it has been satisfying. Likewise, I encourage you to now turn an open mind to the topic at hand for this meeting, that of deep sea minerals in the region. I further urge you all to fully utilise the opportunity of this first interactive dialogue to become better informed so we can through this Project and other initiatives move forward together to better understand and determine the level of acceptable risk and ultimately contribute in some manner to improving the livelihoods of Pacific communities.

Surely we will all find that combination both amazing and irresistible.

Colleagues, I hope that our deliberations over the next three days will lead to agreement that the correct way forward is a strategic one which is built on the following: (i) inclusiveness, and (ii) interactive dialogue, which lead to (iii) incremental actions by which means alone sustainable use of deep sea minerals can proceed for all.

On behalf of the SPC/SOPAC Division and its staff here today, we look forward to the next three days, and personally I have the pleasure in my capacity as being responsible for the Project to be your Chair and Facilitator for this meeting.

I am pleased therefore to declare open this High Level Meeting on the Status of Deep Sea Minerals in the Pacific Islands Region for a Regionally Integrated Way Forward.

Thank you.

ANNEX 3 – Programme and Short Background

SPC-EU EDF10 Deep Sea Minerals (DSM) Project

Inaugural Regional Workshop

“High Level Briefing on the Status of Deep Sea Minerals in the Pacific Islands Region and Planning for a Regionally Integrated Way Forward”

Date: 6th – 8th June 2011

Venue: Tanoa International Hotel, Nadi, Fiji

Background

Marine mineral scientific research and exploration have been ongoing in the Pacific Islands region for more than forty years that led to the discovery of a number of promising mineral deposits. A number of these deposits have been identified for further exploration and potential development in the future. In recognition of the enormous potential of deep sea mineral resources within the Pacific region, the then SOPAC the Commission in collaboration with donor partners convened a regional workshop in Madang Papua New Guinea (PNG) in early 1999 to discuss an enabling platform for the sustainable management of these resources. This has resulted in the development of the “The Madang Guidelines” as a basis to formulate effective and enabling policy and legislation to govern offshore mineral exploration and development. The Madang Guidelines is a regional initiative with the primary objective of assisting and guiding individual nations in the region in developing their offshore mineral resources policy.

The discovery of ‘high grade’ Seafloor Massive Sulphide (SMS) deposits and the recent grant of commercial mining lease in Papua New Guinea (PNG) territorial waters has triggered growing interest in marine polymetallic deposits including manganese nodules and cobalt-rich crust throughout the Pacific region. This has resulted within a space of five-years in either applications for or grant of exploration licences in Fiji, Vanuatu, Solomon Islands, New Zealand, Papua New Guinea, Palau, and Federated States of Micronesia, with additional interest being expressed for exploration within the waters of the Cook Islands and Kiribati. The current exploratory work is being conducted for commercial purposes, with numerous mining entities raising public funds for resource quantification, feasibility studies and eventual mining.

Despite this surge in interest and activity around the Pacific, specific policy, legislation and regulations necessary for the governance of deep sea mineral resources are lacking. Also lacking is the specific technical and human resources capacity essential to ensure that P-ACPs are able to effectively manage these sea bed resources that offer significant economic potential. If sea bed mining can be shown to be profitable it will certainly become a new and maybe rapidly emerging economic activity for many P-ACPs. There is therefore a need for sound legislative and regulatory regimes to ensure sustainable management that brings tangible benefits to P-ACPs and their people.

Introduction

In response to the growing interests in deep sea minerals exploration and mining in recent years within national jurisdiction of the Pacific Islands region, the Secretariat of the Pacific Community (SPC) has developed and promoted a regional approach to assist member countries. This proposed regional approach has attracted the support of member countries and the Pacific Island Forum Secretariat (PIFS) and was endorsed by the European Union (EU). As a result, the EU has agreed to provide 4.7 million Euro under the 10th European Development Fund to support the Project for the next four years (i.e. 2011-2014).

The project entitled *“Deep Sea Minerals in the Pacific Islands Region: a Legal and Fiscal Framework for Sustainable Resource Management”* will be implemented by the Applied Geoscience and Technology Division (SOPAC) of the SPC. The overall objective of the project is to expand the economic resource base of Pacific ACP States by developing a viable and sustainable marine minerals industry. The specific purpose is to strengthen the system of governance and capacity of Pacific ACP States in the sustainable management of their deep sea mineral resources through the development and implementation of sound and regionally integrated legal, fiscal and environmental frameworks, improved human and technical capacity and effective monitoring systems.

The Project will deliver against the following four major components:

- (1) Formulation of the Regional Legislative and Regulatory Framework (RLRF) for Marine Mineral Exploration and Mining.
- (2) Development of National policy, legislation and regulations for the governance of offshore mineral resources within national jurisdictions in accordance with RLRf.
- (3) National capacities strengthened – to support active participation of Pacific-ACP nationals in the offshore mining industry.
- (4) Ensure effective environmental management and monitoring regime for offshore exploration and mining are in place.

The DSM Project will work with Pacific ACP States to develop a regional policy and regulatory framework from which they can develop their national frameworks for the sustainable management of their marine mineral resources. The work is of critical importance if Pacific ACP States are to have effective environmental, fiscal and social management instruments in place for the exploration and exploitation of deep sea minerals that could support economic growth.

With the recent issuance of a Mining Licence by the Papua New Guinea government for commercial mining to take place in the Bismarck Sea, the level of interest has risen to a new level. This is no doubt a milestone achievement for PNG and the region and may spread to other countries in the future. Apparently, stakeholder collaboration and partnership are crucial to ensure proper coordination of activities, stakeholder participation and effective use of resources. The DSM Project intends to work very closely with key stakeholders in order to deliver against expected outputs and outcomes.

This Project will be implemented in the following fifteen Pacific-ACP States: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu.

Purpose of the Workshop

The main objectives of the workshop are to present the SPC-EU Deep Sea Minerals (DSM) Project to stakeholders, provide an opportunity for the team of experts to brief country representatives on various aspects of deep sea minerals, and collectively discuss and agree on the way forward. The workshop is entitled “*High Level Briefing on the Status of Deep Sea Minerals in the Pacific Islands Region and Planning for a Regionally Integrated Way Forward*”, to capture the significance of this event together with the in-depth sharing of information that is expected to take place on a broad range of issues relating to deep sea minerals.

The specific purposes of the workshop are to:

- (i) present the proposed regional approach of the SPC-EU DSM Project together with the current status of marine minerals exploration and mining in the region to stakeholders;
- (ii) encourage participating countries to describe their understanding and opinion of regional and national deep sea minerals issues as well as their expectations of the project;
- (iii) enable the experts to present on their respective areas of expertise to boost knowledge on issues relating to deep sea minerals;
- (iv) stimulate discussion among stakeholders with appropriate advice and guidance from the experts;
- (v) consider feedbacks from stakeholders on improving task implementation and delivery as well as stakeholder participation;
- (vi) disseminate project information brochures to participants for information;
- (vii) discuss planned collaborative efforts with a number of potential implementing partners; and
- (viii) collaboratively develop modes of project implementation, and collectively endorse agreed priorities and the way forward for the next four years.

Participants

Representatives of participating countries, regional and international organisations, potential implementing partners and Non-Governmental Organisations (NGOs) together with selected scientist, technical and policy experts will be invited to attend and participate in this workshop. The DSM Project will be responsible for providing a return airfare and per diems of official representatives of participating countries and selected experts whose expertise are required to supplement SPC resource personnel.

PROGRAMME

<i>Time</i>	<i>Activity</i>	<i>Presenter</i>
Day 1 – Monday 6 June 2011		
8.15 – 9.15 am	Registration	Programme and Project Assistants
9.15 – 10.15	<p>SESSION 1</p> <p>Brief welcome and introduction</p> <p>Official Opening</p> <p>Introduction of Participants</p> <p>Workshop programme, workshop outline – purpose, expected results and outcomes, House keeping matters</p>	<p>Arthur Webb (SPC)</p> <p>Russell Howorth (Director – SOPAC Division)</p> <p>Participants</p> <p>Akuila Tawake</p>
	Group Photo for workshop participants	
10.15 – 10.30	<i>Morning Tea</i>	
10.30 – 12.30 pm	<p>SESSION 2 [SPC-EU DSM Project and Related Activities]</p> <p>Overview of the SPC-EU EDF10 Deep Sea Minerals (DSM) Project: Background of offshore minerals exploration in the region, mode of project implementation, Key Result Areas and planned activities</p> <p>Relevance of UNCLOS to marine mining and the rights of a coast state under UNCLOS, regional conventions/agreements, relevant national policies and laws, DSM Project proposed method of policy and legislation developments</p> <p>SPC-UNEP/GRID-Arendal proposed collaboration on Pacific Marine Minerals and Deep Sea Mining Assessment, scope and deliverables, similar UNEP/GRID products</p> <p>Status of the regional Maritime Boundary Delimitation and the Extended Continental Shelf claim</p>	<p>Akuila Tawake</p> <p>Hannah Lily (SPC)</p> <p>Yannick Beaudoin (UNEP/GRID)</p> <p>Arthur Webb (SPC)</p>
12.30 – 1.30	<i>Lunch</i>	

1.30 – 3.00	<p>SESSION 3 [Deep Sea Minerals Occurrence and Potential]</p> <p>A global overview of the Deep Sea Mineral: Occurrence, trend and potential with Case Studies</p> <p>Deep Sea Mineral occurrence and potential in the Pacific Islands Region with Case Studies</p> <p>Manganese Nodules and Cobalt-rich Crust – Previous studies, geology, characteristics and potential globally and in the Pacific region</p>	<p>Jim Hein (USGS)</p> <p>Akuila Tawake</p> <p>Jim Hein</p>
3.00 – 3.15	<i>Afternoon Tea</i>	
3.15 – 5.00	<p>SESSION 4 [Country Perspective and Legislative Framework]</p> <p>Cook Islands – manganese nodules exploration interests and state of knowledge, the new Cook Islands sea bed minerals policy and legislation, needs and required assistance?</p> <p>Tonga – Sea bed exploration in Tonga: new industry, potential for economic growth, capacity building, policy and legislation vacuum</p> <p>Fiji – Resource potential and state of knowledge. Challenges in policy and legislation development and investment in offshore minerals exploration and mining</p> <p>Proposed legislative and administrative frameworks for Deep Sea Minerals and mining</p>	<p>Paul Lynch (MFAI, Cook Islands)</p> <p>Rennie Vaiomounga (MLSNR, Tonga)</p> <p>Malakai Finau (MRD, Fiji)</p> <p>Robert Makgill (N-S Environmental Law)</p>
6.00 – 8.00	Cocktail – All participants are invited	
Day 2 – Tuesday 7 June 2011		
8.30 – 10.15 am	<p>SESSION 5 [The PNG Experience – Legislative Development and Offshore Mining Potential]</p> <p>Overview of the review of the mineral policy and legislation</p> <p>Overview of the draft PNG Offshore Mining Policy</p> <p>PNG's claim for the extended boundaries of the continental shelf and its implications on the development of the policy</p> <p>A developing country's challenges in permitting/regulation underwater mining – PNG experience</p> <p>State equity participation in the Solwara 1 Project</p> <p>An overview of Geohazards Management Division and its connection to deep sea mining</p>	<p>Harry Kore (DMPGM, PNG)</p> <p>Steve Raaymakers (DMPGM)</p> <p>Gregory Roaveneo (DMPGM)</p> <p>Jerry Naime/Lyndah Brown/Kola (MRA)</p> <p>Shadrach Himata (DMPGM)</p> <p>John Arumba (DMPGM)</p>

10.15 – 10.30	<i>Morning Tea</i>	
10.30 – 12.30 pm	<p>SESSION 6 [Fiscal Regime Options relating to Mining]</p> <p>Mining taxation regimes: range of mining taxation available, fiscal regime commonly used globally, what regime is best for the Pacific? A case study as an example</p> <p>The importance of transparency and macroeconomic management in extractive industries economies</p> <p>Mining the Deep: new economies for a blue world – alternative fiscal regime example from Norway</p>	<p>George Niumataiwalu (Kontiki Capital)</p> <p>Graeme Hancock (World Bank)</p> <p>Anne Solgaard (UNEP/GRID)</p>
12.30 – 1.30	<i>Lunch</i>	
1.30 – 3.15	<p>SESSION 7 [Environment Conservation and Deep Sea Ecosystems]</p> <p>Deep sea mineral resources – the challenge of environmental sustainability</p> <p>Hydrothermal vent ecosystems: discovery, species variability on temporal and spatial scales, importance and uses, conservation issues and vent protected areas</p> <p>Deep sea nodule and crust ecosystems: benthic assemblages of manganese nodules and cobalt-rich crusts</p> <p>Current Activities of KORDI's Environmental Study for Deep-Sea Mining</p>	<p>Jan Steffen (IUCN)</p> <p>Chuck Fisher (Pennsylvania State University)</p> <p>Malcolm Clark (NIWA)</p> <p>Ju-Won Son (KORDI)</p>
3.15 – 3.30	<i>Afternoon Tea</i>	
3.30 – 5.00	<p>SESSION 8 [Private Sector Perspective and Interests]</p> <p>Solwara 1 Project Update</p> <p>Deep ocean seafloor mineral extraction: environmental and social responsibility for a new industry</p> <p>Exploration activities of KORDI for deep sea minerals development in the Pacific region</p> <p>Nauru Ocean Resources Inc (NORI): company update, interest in the Pacific, planned activities, challenges, benefits to Nauru and other P-ACPs</p>	<p>Samantha Smith (Nautilus Minerals)</p> <p>Samantha Smith</p> <p>Jonguk Kim (KORDI)</p> <p>Robert Heydon (NORI)</p>
6.30 -8.00	<p>[Informal side event with representatives of P-ACPs]</p> <p>Examining higher level principles of New/Transitional Economics and how these principles can provide new options across many P-ACP economic sectors</p>	<p>Anne Solgaard, Yannick Beaudoin and Linwood Pendleton</p>

Day 3 – Wednesday 8 June 2011		
8.30 – 10.15 am	<p>SESSION 9 [General DSM Related Issues]</p> <p>Seafloor Massive Sulphides (SMS) – global characteristics, distribution, and regional Pacific potential</p> <p>International Seabed Authority (ISA) and the regulatory regime for deep sea bed mining</p> <p>Challenges of policy and legislation development in Pacific Island Countries, and suggestions for improvement</p> <p>Economic considerations of deep sea mining</p>	<p>Sven Petersen (IFM-GEOMAR)</p> <p>Michael Lodge (ISA)</p> <p>Clark Peteru (SPREP)</p> <p>Linwood Pendleton (NOAA)</p>
10.15 – 10.30	<i>Morning Tea</i>	
10.15 – 12.30 pm	<p>SESSION 10 [Plenary Session 1]</p> <p>Each group is required to discuss the three major issues given below and identify problems/concerns with recommended mitigating measures and solutions, and the way forward:</p> <p>Issue 1: offshore exploration and mining, mineral potential, maritime boundary, technology development and transfer, private sector perspective, implications of UNCLOS and other laws, stakeholder collaboration and partnership.</p> <p>Issue 2: conservation of deep sea ecosystems, fishery and other marine resources, potentially impacted communities, community concerns, outreach, implications of UNCLOS and other laws, stakeholder collaboration and partnership.</p> <p>Issue 3: fiscal regime and policy, development of the regional framework and national policy / legislation / regulations, legal drafting, implications of UNCLOS and other international / regional conventions, existing national policy and laws, stakeholder collaboration and partnership.</p>	Participants
12.30 – 1.30	<i>Lunch</i>	
1.30 – 3.00	<p>SESSION 11 [Plenary Session 2]</p> <p>Wrap up plenary discussions and Team Leaders to present individual team plenary report</p>	Participants
3.00 – 3.15	<i>Afternoon Tea</i>	
3.15 – 4.30	<p>SESSION 12 [Discussion and Outcomes]</p> <p>Discussion and agreement on the three plenary reports, priorities and the way forward</p>	Participants

4.30	Close of Workshop	SPC SOPAC Division
6.00 – 7.00	<p>[Meeting to discuss the DSM Project Steering Committee (Restricted Attendance)]</p> <p>Discussion by representatives of participating countries, RAO, SPC and the EU on the operations of the DSM Project Steering Committee</p>	

Plenary Teams

To increase the opportunities to contribute to discussions, participants will be divided into three plenary teams. Participants will be assigned to teams (individuals will be assigned to a team once all participants are confirmed), with representation across various stakeholder interests and disciplines. Each Team Leader will be required to report back after the plenary session and each team will also need a scribe to record notes.

Workshop Output

The DSM Project Team will put together the workshop proceedings which will be sent to participants once it is finalised.

Annex 4 – List of Participants

(Members of the Technical Steering Committee in italics)

MEMBER COUNTRIES

Cook Islands

Mr Tingika Elikana
Solicitor General
Crown Law Office
PO Box 494, Avarua
Rarotonga, Cook Islands
Tel: +682 29337
Mob: +682 54055
Fax: +682 20839
Email: tingika@crownlaw.gov.ck

Mr Paul Lynch
Senior Legal Adviser (Sea bed Minerals)
Office of the Deputy Prime Minister
PO Box 39
Rarotonga, Cook Islands
Tel: +682 29030/56388
Email: plynch.consulting@oyster.net.ck
blvilla1@oyster.net.ck

Fiji Islands

Mr Peni Suveinakama
Legal Officer
Ministry of Foreign Affairs, International
Cooperation & Civil Aviation
PO Box 2200
Government Buildings
Suva, Fiji Islands
Tel: +679 323 9643
Fax: +679 331 7580
Email: peni.suveinakama@govnet.gov.fj

Mr Malakai Finau
Director
Mineral Resources Department
Private Mail Bag
Suva, Fiji Islands
Tel: +679 338 1611
Mob: +679 990 4784
Fax: +679 337 0039
Email: mala@mrd.gov.fj
m_finau@yahoo.com

Following with same address as above:

Mr Venasio Nasara
Assistant Director – Mines
Email: nasara@mrd.gov.fj

Mr Jeremaiya Taganesia
Manager – Geological Survey
Email: jvtaganesia@gmail.com

Mr Wong Hen Loon
Senior Scientific Officer
Email: L_wong@mrd.gov.fj

Mr Gene Bai
Senior Legal Officer
Office of the Attorney General
Level 7, Suvavou House
Suva, Fiji Islands
Tel: +679 330 9866
Fax: +679 330 5421
Email: gene.bai@govnet.gov.fj

Federated States of Micronesia

Mr Leonito M. Bacalando Jr.
Assistant Attorney General
Department of Justice
PO Box PS-105
Palikir, Pohnpei FM96941
Federated States of Micronesia
Tel: +691 320 2608/2644
Fax: +691 320 2234
Email: junbacalando@yahoo.com

Mr Hubert Yamada
Assistant Secretary for Energy
Department of Resources and Development

Palikir, Pohnpei FM96941
Federated States of Micronesia
Tel: +691 320 2646/5133
Fax: +691 320-5854
Email: hyamada@fsmrd.fm

France

Mrs Josiane Couratier
Deputy Representative of France – SPC
French Delegation to SPC Noumea
BP 8043
Noumea, New Caledonia
Tel: +687 26 16 03
Fax: +687 26 12 66
Email: josiane.couratier@diplomatie.gouv.fr

Kiribati

Mr Kabure Temariti
Deputy Secretary
Ministry of Fisheries and Marine Resources
Development
PO Box 64, Bairiki
Tarawa, Republic of Kiribati

Tel: +686 21099
Fax: +686 21120
Email: Kaburet@mfmrd.gov.ki

Following with same address as above:

Ms Kabure David Yeeting
Mineral Development Officer
Email: Kaburey@mfmrd.gov.ki

Marshall Islands

HE Ms Amatlain E. Kabua
Ambassador
Embassy of the Republic of Marshall
Islands
41 Borron Road
Suva, Fiji Islands
Tel: +679 338 7899
Fax: +679 338 7115
Email: ambassador@rmiembassyfiji.org

Mr Charles Dominick
Advisor
Ministry of Resources and Development
PO Box 153
Majuro, MI 96960
Republic of the Marshall Islands
Tel: +692 625 3206/4020
Fax: +692 625 7471
Email: cdomnick@gmail.com

Nauru

Mr Michael Aroi
Acting Secretary for Foreign Affairs and
Trade
Yaren District, Republic of Nauru
Tel: +674 557 3040
Email: michael.aro@naurugov.nr

Mr Bryan Star
Director of Environment
Department of Commerce Industry &
Environment
Yaren District, Republic of Nauru
Tel: +674 444 3133
Email: bryan.star@naurugov.nr

Mr Peter Jacob
First Secretary
Nauru High Commission
PO Box 2420
Government Buildings
Suva, Fiji Islands
Tel: +679 331 3566
Fax: +679 331 8311
Email: firstsec@nauru.com.fj

Niue

Mr Richard Hipa
Secretary to Government
Office of the Secretary to Government
Premier's Department
PO Box 40
Alofi, Niue
Tel: +683 4620
Fax: +683 4232
Email: sog.hipa@mail.gov.nu

Mr Hubert Kalauni
Senior Surveyor
Department of Justice, Lands & Survey
Fonuakula
Alofi, Niue
Tel: +683 4217/4030
Fax: +683 4010
Email: Hubert.kalauni@mail.gov.nu

Papua New Guinea

Mr Shadrach Himata
Deputy Secretary
Department of Mineral Policy & Geohazards
Management
Boroko NCD
Port Moresby, Papua New Guinea
Tel: +675 321 4138 / 321 4011
Fax: +675 321 4995
Email: shadrach_himata@mineral.gov.pg

Following with same address as above:

Mr Harry Kore
Director – Mineral Policy & Legislation Div
Email: harry_kore@mineral.gov.pg

Mr John Arumba
Director – Geohazards Management
Tel: +675 321 5888
Email: john_arumba@mineral.gov.pg

Mr Gregory Roaveneo
Assistant Director – Policy Advisory Branch
Tel: +675 321 4238
Email: gregory_roaveneo@mineral.gov.pg

Mr Jerry Naime
Manager – Exploration Coordination
Mineral Resources Authority
PO Box 1906
Port Moresby 121, NCD
Papua New Guinea
Tel: +675 321 3511
Fax: +675 321 0189
Email: jnaime@mra.gov.pg

Following with same address as above:

Ms Lyndah Brown-Kola
Acting Manager Technical Assessment
Fax: +675 320 0188
Email: lbkola@mra.gov.pg

Samoa

Mr Lameko Talia
Principal Scientific Officer – Geology
Ministry of Natural Resources &
Environment (MNRE)
PO Box 3020
Apia, Samoa
Tel: +685 20856
Fax: +685 20857
Email: lameko.talia@mnre.gov.ws

Following with same address as above:

Ms Faainoinoi Laulala
Principal Land Development Officer
Tel: +685 23800
Fax: +685 23176
Email: faainoino.laulala@mnre.gov.ws

Solomon Islands

Mr Peter Auga
Director of Mines – Mines Division
Ministry of Mines, Energy & Rural
Electrification
PO Box G37
Honiara, Solomon Islands
Tel: +677 21500
Fax: +677 25811
Email: pwauga@gmail.com

Mr Daniel Damilea
Senior Crown Counsel
Attorney General's Chambers
PO Box
Honiara, Solomon Islands
Tel: +677 28395/28396
Fax: +677 28403
Em: danieldamilea@attorneygenerals.gov.sb

Timor Leste

Mrs Monica Rangel Da Cruz
National Director
National Directorate Petroleum Revenue
PO Box -18
Dili, Timor Leste
Tel: +670 333 9542/730 5710
Fax: +670
Email: mrangel@mof.gov.tl

Mr Vicente da Costa Pitno
Mineral Officer
Secretariat of State for Natural Resources
Dili, Timor Leste
Tel: +670 737 4299
Fax: +670 333 1372
Email: Vpinto81@yahoo.com

Tonga

Mr Rennie Vaiomounga
Assistant Geologist
Ministry of Lands, Survey and Natural
Resources
PO Box 5, Nuku'alofa, Tonga
Tel: +676 23611/23210
Fax: +676 23216
Email: rvaiomounga@lands.gov.to;

Mr Asipeli Palaki
Director of Environment
Department of Environment
PO Box
Nuku'alofa, Tonga

Tuvalu

Ms Eselealofa (Ese) Apinelu
Attorney-General
Office of the Attorney-General
PO Box 63
Funafuti, Tuvalu
Tel: +688 20123/20185
Fax: +688 20817
Email: eapinelu@yahoo.com

Mr Faatasi Malologa
Director of Lands
Department of Lands & Survey
Funafuti, Tuvalu
Tel: +688 20170
Fax: +688 20167
Email: fmalologa@gmail.com

United States of America

Dr Norman Barth
Regional Environmental Officer
Embassy of the United States of America
PO Box 218
Suva, Fiji Islands
Tel: +679 331 4466 Ext 8166
Fax: +679 330 2998
Email: BarthNH@state.gov

Following with same address as above:

Ms Sandeep K. Singh
Regional Environment Specialist

Tel: +679 331 4466 Ext 8210
Fax: +679 330 2298
Email: SinghSK1@state.gov

Vanuatu

Mr Christopher Ioan
Director/Commissioner of Mines
Department of Geology, Mines & Water
Resources
Private Mail Bag 9001
Port Vila, Vanuatu
Tel: +678 22423
Fax: +678 22213
Email: cioan@vanuatu.gov.vu

Following with same address as above:

Mr Brooks Rakau
Minerals Coordinator
Email: brakau@vanuatu.gov.vu

SUPPORTING GOVERNMENTS

China

Ms Zhang Yingying
Third Secretary
Embassy of the People's Republic of China
147 Queen Elizabeth Drive
Suva, Fiji Islands
Tel: +679 330 4817 Ext. 8001
Fax: +679 330 4564
Email: zhangyingying@mofcom.gov.cn

INTERNATIONAL and REGIONAL AGENCIES

Commonwealth Secretariat

Mr Daniel Dumas
Head of Economic & Legal Section
Commonwealth Secretariat
Marlborough House
Pall Mall
London SW1Y 5HX
United Kingdom
Tel: +44 (0) 20 7747 6263
Email: d.dumas@commonwealth.int

Following with same address as above:

Dr Julian Roberts
Adviser (Ocean Governance)
Special Advisory Services Division
Tel: +44 (0) 20 7747 6263
Fax: +44 (0) 20 7004 3769
Email: j.roberts@commonwealth.int

European Union

Mr Thierry Catteau
Attache' Natural Resources
Delegation of the European Union for the
Pacific
Private Mail Bag, GPO
Suva, Fiji Islands
Tel: +679 331 3633
Fax: +679 330 0370
Email: thierryqcatteau@gmail.com

International Seabed Authority

Mr Michael W. Lodge
Legal Counsel
International Seabed Authority
14-20 Port Royal Street
Kingston, Jamaica
Tel: +1 876 922 9105-9
Dir: +1 876 967 2200
Mob: +1 876 833 6189
Fax: +1 876 967 7487
Email: mlodge@isa.org.jm

International Union for Conservation of Nature (IUCN)

Dr Jan Steffen
Regional Marine Program Coordinator
International Union for Conservation of
Nature (IUCN)
Private Mail Bag
Suva, Fiji Islands
Tel: +679 331 9084
Fax: +679 310 0128
Email: jan.steffen@iucn.org

Following with same address as above:

Mr Bernard O'Callaghan
Oceania Program Coordinator
Mob: +679 860 7779
Email: bernard.ocallaghan@iucn.org

Pacific Islands Forum Secretariat (PIFS)

Ms Linda Kaua
Economic Reform Officer
Pacific Islands Forum Secretariat
Private Mail Bag
Suva, Fiji Islands
Tel: +679 331 2600/Extn 2251
Fax: +679 322 0249
Email: lindak@forumsec.org.fj

**Secretariat of the Pacific Regional
Environment Programme (SPREP)**

Mr Clark Peteru
Legal Adviser
SPREP
PO Box 240
Apia, Samoa
Tel: +685 21929/66262
Fax: +685 20321
Email: clarkp@sprep.org

UNEP/GRID-Arendal

Dr Elaine Baker, Ph.D
UNEP/GRID-Arendal
The University of Sydney
NSW 2006, Australia
Tel: +612 9351 3000
Fax: +612 9351 0184
Email: ebaker@usyd.edu.au
Elaine.baker@sydney.edu.au

Dr Yannick Beaudoin, Ph.D
Head of Marine Programme
Marine/Economic Geology
UNEP/GRID-Arendal
Postboks 183
N-4802 Arendal
Norway
Tel: +47 9542 9247
Fax: +47 3703 5050
Email: Yannick.Beaudoin@grida.no

Following with same address as above:

Ms Anne Solgaard
Project Manager, Green Economy
Tel: +47 48 23 99 44
Fax: +47 37 03 50 50
Email: Anne.Solgaard@grida.no

World Bank

Mr Graeme Hancock
Consultant
[At time of Workshop: World Bank]
Ph: +976-11-312647 Extn 206
Fax: +976-11-312645
Email: g.e.hancock@gmail.com

NATIONAL INSTITUTIONS

Duke University

Dr Linwood Pendleton
Director of Ocean & Coastal Policy
Duke University
135 Duke Marine Lab Road

Beauford, NC 28516
United States of America
Tel: +1 805 794 8206
Email: linwood.pendleton@duke.edu

IFM-GEOMAR

Dr Sven Petersen
Dynamics of the Ocean Floor
IFM-GEOMAR
Wischhofstr. 1-3, 24148 Kiel
Germany
Tel: +49 4316002110
Fax: +49-431-6002924
Email: spetersen@ifm-geomar.de

**Korea Ocean Research & Development
Institute (KORDI)**

Mr Hyeon Su Jeong
Team Leader
Seafloor Sulphides RandD Organisation
Ansan PO Box 29
Seoul 425-600, Korea
Tel: +82 31 500 4582
Fax: +82 31 500 4584
Email: jeonghs@kordi.re.kr

Following with same address as above:

Dr Sang-Bum Chi
Project Manager
Tel: +82 31 400 6374
Fax: +82 31 418 8772
Email: sbchi@kordi.re.kr

Dr Jonguk Kim
Senior Research Scientist
Tel: +82 31 400 6352
Email: jukim@kordi.re.kr

Dr Sang-Joon Pak
Senior Research Scientist
Tel: +82 31 400 7696
Email: electrum@kordi.re.kr

Dr Ju-Won Son
Research Scientist
Tel: +82 31 400 6383
Email: jwson@kordi.re.kr

Mr Jang-Wan Bang
Secretary of the Company
KORDI Minerals (South Pacific) Ltd
2nd Floor
Downtown Blvd
Suva, Fiji Islands
Tel: +679 330 7711/990 8701
Fax: +679 330 7678
Email: ratu88fiji@hotmail.com

Mineral Policy Institute

Mr Charles Roche
Executive Director
Mineral Policy Institute
PO Box 6043
Gurrawheen, Australia
Tel: +61 89343 0151
Email: charles.roche@mpi.org.au

Pennsylvania State University

*Professor Charles (Chuck) Fisher
Professor of Biology
208 Mueller Laboratory
The Pennsylvania State University
University Park, PA 16802
United States of America
Tel: +1 814 865 3365
Fax: +1 814 865 9131
Email: cfisher@psu.edu*

National Institute of Water & Atmospheric Research (NIWA)

*Dr Malcolm Clark
Principal Scientist (Deepwater Fisheries)
NIWA
Private Bag 14-901
Wellington 6241
New Zealand
Tel: +64 4 386 0300
Fax: +64 4 386 0574
Email: m.clark@niwa.co.nz*

United States Geological Survey (USGS)

*Dr. James R. Hein
Senior Scientist
U.S. Geological Survey
345 Middlefield Rd., MS 999
Menlo Park, CA, 94025-3591
United States of America
Tel: +1 650-329-5287
Fax: +1 650-329-5299
Email: jhein@usgs.gov*

PRIVATE SECTOR and CIVIL SOCIETY GROUPS

Anindilyakwa Land Council

Mr Tony Wurrarramba, Chairman
Anindilyakwa Land Council
PO Box 172
Alyangula, Northern Territory 0885
Australia
Tel: +618 8987 4008
Fax: +618 8987 4099
Email: twurrarramba@anindilyakwa.com.au

Following with same address as above:

Mr Ross McDonald
Mining and Environment Advisor
Email: RMcdonald@Anindilyakwa.com.au

Beca International Limited

Mr Keith Frentz
Technical Director
Beca International Ltd
PO Box 6345
Auckland 1141, New Zealand
Tel: +647 578 0896
Fax: +647 578 2968
Email: keith.frentz@beca.com

Center for Environmental Law and Community Rights Inc

Mr Damien Aseari
Principal Lawyer
Center for Environmental Law & Community Rights Inc
PO Box 4373, Boroko, NCD
Papua New Guinea
Tel: +675 323 4509
Fax: +675 311 2106
Email: dase@celcor.org.pg
daseari2@yahoo.com

Eco-Strategic Consultants

Mr Steve Raaymakers
Principal
Eco-Strategic Consultants
Cairns
Australia
Tel: +6140 9909 422
Email: steve@eco-strategic.com

Fiji Environmental Law Association

Ms Kiji Vukikomoala
Coordinator
Fiji Environmental Law Association
15 Ma'afu Street
Suva, Fiji Islands
Tel: +679 331 9084/7080997
Fax: +679 310 0128
Email: kiji.vukikomoala@fela.org.fj

Envi-Green Pacific Consultancy Ltd

Mr Lateviti Tuirotuma Saukura
Envi-Green Pacific Consultancy Ltd
Banaba House 1st Floor
Suva, Fiji Islands

Mob: +679 837 6644
Email: Itsaukuru@gmail.com

GeoPacific Limited

Mr Tausia Kerto
Manager
GeoPacific Limited
PO Box 9975
Nadi Airport, Fiji Islands
Tel: +679 672 7150
Fax: +679 672 7152
Email: tausia@geopacific.com.au

Following with same address as above:

Mr Fereti Inoke
Geologist
Email: fereti@geopacific.com.au

Mr Poasa Vereti
Assistant Geologist
Email: poasa@geopacific.com.au

Greenpeace Australia Pacific

Ms Seni Nabou
Pacific Political Advisor
Greenpeace Australia Pacific
Level 1, Old Town Hall
Victoria Parade
Suva, Fiji Islands
Tel: +679 331 2861
Fax: +679 331 2784
Email: seni.nabou@greenpeace.org

Kontiki Capital

Mr George Niumataiwalu
Director
Kontiki Capital
PO Box
Suva, Fiji Islands
Tel: +679 331 3188
Mob: +679 999 9081
Fax: +679 330 2183
Email: grln888@gmail.com

MUSKITS Law

Mr Tevita Bukarau
Legal Practitioner
No 3 Nakelo Lane
Vatuwaqa
Suva, Fiji Islands
Tel: +679 338 2845
Fax: +679 338 2845
Email: muskits.tvqb@gmail.com

Nauru Ocean Resources Inc (NORI)

Mr Robert Heydon
Vice President
NORI
Tel: +614 00767300
Email: rgh@nauruoceanresources.com

Nautilus Minerals Inc

Dr Samantha Smith
Environment & Community Manager
Nautilus Minerals
PO Box 1213
Milton, Qld 4064
Australia
Tel: +617 3318 5555
Fax: +617 3318 5500
Email: sls@nautilusminerals.com

Mr Paul Taumoepeau
Manager
Nautilus Minerals Inc
PO Box
Nuku'alofa, Tonga
Tel: +676
Fax: +676

North-South Environmental Law

Mr Robert Makgill
Director
North South Environmental Law
Lev 3, 60 Parnell Rd
Parnell, New Zealand
Tel: +649 304 0043
Fax: +649 303 2427
Email: rmakgill@nsenvironmentallaw.com

PRIVATE INDIVIDUALS

Mrs Natalie Askew
Tel: +679 839 6917
Email: nataliecjaskew@gmail.com

Mr Moses Murray, Lawyer
Murray and Company
Solicitors & Advocates Limited
PO Box 1226
Port Moresby, National Capital District
Papua New Guinea
Tel: +675 325 1142
Fax: +675 323 6077
Email: elishbru@daltron.com.pg

MEDIA REPRESENTATIVES

Pacific Reach Limited

George & Sangeeta Rubine
Pacific Reach Limited
Suva, Fiji Islands
Tel: +679 327 0181
Mob: +679 992 3853
Fax: +679 327 0182
Email: virgo@connect.com.fj

Islands Business International

Ms Dionisia Tabureguci
Journalist
Islands Business International
Tel: +679 330 3108
Mob: +679 900 5453
Fax: +679 330 1423
Email: dtabureguci@ibi.com.fj

SECRETARIAT OF THE PACIFIC COMMUNITY (SPC)

SOPAC Division
Secretariat of the Pacific Community
Private Mail Bag, GPO
Suva, Fiji Islands
Tel: +679 338 1377
Fax: +679 337 0040

Dr Russell Howorth
Director
Email: russell@sopac.org;

Dr Arthur Webb
Deputy Director, Ocean & Islands Programme
Email: arthur@sopac.org

Mr Akuila Tawake
Team Leader – Deep Sea Minerals Project
Email: akuila@sopac.org

Ms Emily Artack
Project Officer – Maritime Boundaries
Email: emily@sopac.org

Ms Hannah Lily
Legal Adviser – Deep Sea Minerals Project
Email: Hannah@sopac.org from 3/10/11
Email now: Hannah.lily@charitycommission.gsi.gov.uk

Ms Laisa Baravilala-Baoa
Travel & Conference Coordinator
Email: laisa@sopac.org

Ms Vira Atalifo
Project Assistant – Deep Sea Minerals
Email: vira@sopac.org

Mr Eliki Bula
ICT Support
Email: eliki@sopac.org

Mr Enele Gaunavou
Driver
Email: gauna@sopac.org

Mr Tuberi Lomani
ICT Support
Email: tuberi@sopac.org

Ms Lala Bukarau
Senior Advisor – Technical Editor
Email: lala@sopac.org

ANNEX 5 – Workshop Participants’ Feedback Analysis

Purpose

The purpose of carrying out the survey was to review all comments and feedback from the participants in order to ensure that improvements are made in future workshops.

Background [Extracted from the Workshop Circular of Invitation dated 1st April, 2011]

Marine mineral scientific research and exploration have been ongoing in the Pacific Islands region for more than forty years that led to the discovery of a number of promising mineral deposits. A number of these deposits have been identified for further exploration and potential development in the future. In recognition of the enormous potential of deep sea mineral resources within the Pacific region, the then SOPAC the Commission in collaboration with donor partners convened a regional workshop in Madang Papua New Guinea (PNG) in early 1999 to discuss an enabling platform for the sustainable management of these resources. This has resulted in the development of the “The Madang Guidelines” as a basis to formulate effective and enabling policy and legislation to govern offshore mineral exploration and development. The Madang Guidelines is a regional initiative with primary objective of assisting and guiding individual nations in the region in developing their offshore mineral resources policy.

The discovery of ‘high grade’ Seafloor Massive Sulphide (SMS) deposits and the recent grant of commercial mining lease in Papua New Guinea (PNG) territorial waters has triggered growing interest in marine polymetallic deposits including manganese nodules and cobalt-rich crust throughout the Pacific region. This has resulted within a space of five years in either applications for or grant of exploration licences in Fiji, Vanuatu, Solomon Islands, New Zealand, Papua New Guinea, Palau, and Federated States of Micronesia, with additional interest being expressed for exploration within the waters of Cook Islands and Kiribati. The current exploratory work is being conducted for commercial purposes, with numerous mining entities raising public funds for resource quantification, feasibility studies and eventual mining.

Despite this surge of interest and activity around the Pacific, specific policy, legislation and regulations necessary for the governance of deep sea minerals are lacking. Also lacking is the specific technical and human resources capacity essential to ensure that P-ACPs are able to effectively manage these sea bed resources that offer significant economic potential. If sea bed mining can be shown to be profitable it will certainly become a new and maybe rapidly emerging economic activity for many P-ACPs. There is therefore a need for sound legislative and regulatory regimes to ensure sustainable management that bring tangible benefits to P-ACPs and their people.

Methodology

The survey was conducted by way of a Feedback Form, which essentially carried two main questions with additional sub-questions under each. The Form was subsequently distributed to all participants to complete during the workshop. A Sample Feedback Form has been illustrated below:

WORKSHOP EVALUATION QUESTIONNAIRE

Your name is not necessary unless you particularly would like to identify yourself.

VENUE: Tanoa International Hotel, Nadi, Fiji.

DATE: _____

Give a rating to each item stated below on a scale of **1 - 5** by placing a tick in the appropriate box.

Scale: 1 – poor 2 – fair 3 – good 4 – very good 5 – excellent

AREA	RATING					ADDITIONAL COMMENTS
	1	2	3	4	5	
1. Questions						
1.1	Range of topics covered					
1.2	Coverage of topics					
1.3	Quality of information/data provided					
1.4	Time allocated to each topic					
1.5	Quality of presentations					
1.6	Quantity of shared materials (e.g. poster, information brochures, etc)					
1.7	Group discussions					
1.8	Individual participation during group discussions					
1.9	Performance of Presenters					
1.10	Facilities Available					
1.11	Assistance offered prior to and during the workshop					
1.12	Overall rating of the workshop					
2. Additional Questions						
2.1	Which Sessions were the most useful and why?					
2.2	What Sessions you would like more information in future?					
2.3	What else can be done to improve stakeholder participation?					
2.4	Suggestions for improvement?					

Thank you for your participation and completing this form

Workshop Sessions (Modified Programme)

Time	Activity	Presenter
<i>Day 1 – Monday 6 June 2011</i>		
10.30 – 12.30 pm	Session 2 [SPC-EU DSM Project and Related Activities]	
	Overview of the SPC-EU EDF10 Deep Sea Minerals (DSM) Project: Background of offshore minerals exploration in the region, mode of project implementation, Key Result Areas and planned activities	Akuila Tawake
	Relevance of UNCLOS to marine mining and the rights of a	Hannah Lily (SPC)

	<p>coast state under UNCLOS, regional conventions / agreements, relevant national policies and laws, DSM Project proposed method of policy and legislation developments</p> <p>SPC-UNEP/GRID-Arendal proposed collaboration on Pacific Marine Minerals and Deep Sea Mining Assessment, scope and deliverables, similar UNEP/GRID products</p> <p>Status of the regional Maritime Boundary Delimitation and the Extended Continental Shelf claim</p>	<p>Yannick Beaudoin (UNEP/GRID)</p> <p>Arthur Webb</p>
1.30 – 3.00	<p>Session 3 [Deep Sea Minerals Occurrence and Potential]</p> <p>A global overview of the Deep Sea Mineral: Occurrence, trend and potential with Case Studies</p> <p>Deep Sea Mineral occurrence and potential in the Pacific Islands Region with Case Studies</p> <p>Manganese Nodules and Cobalt-rich Crust – Previous studies, geology, characteristics and potential globally and in the Pacific region</p>	<p>James Hein (USGS)</p> <p>Akuila Tawake</p> <p>James Hein</p>
3.15 – 5.00	<p>Session 4 [Country Perspective and Legislative Framework]</p> <p>Cook Islands – manganese nodules exploration interests and state of knowledge, the new Cook Islands sea bed minerals policy and legislation, needs and required assistance?</p> <p>Fiji – Resource potential and state of knowledge. Challenges in policy and legislation development and investment in offshore minerals exploration and mining</p> <p>Proposed legislative and administrative frameworks for Deep Sea Minerals and mining</p> <p>Tonga – Sea bed exploration in Tonga: new industry, potential for economic growth, capacity building, policy and legislation vacuum</p>	<p>Paul Lynch (MFAI, Cook Islands)</p> <p>Malakai Finau (MRD, Fiji)</p> <p>Robert Makgill (N-S Environmental Law)</p> <p>Rennie Vaiomounga (MLSNR, Tonga)</p>
Day 2 – Tuesday 7 June 2011		
8.30 – 10.15 am	<p>Session 5 [The PNG Experience – Legislative Development and Offshore Mining potential]</p> <p>Overview of the review of the mineral policy and legislation</p> <p>Overview of the draft PNG Offshore Mining Policy</p> <p>PNG's claim for the extended boundaries of the continental shelf and its implications on the development of the policy</p> <p>A developing country's challenges in permitting/regulation underwater mining – PNG experience</p> <p>State equity participation in the Solwara 1 Project</p> <p>An overview of Geohazards Management Division and its connection to deep sea mining</p>	<p>Harry Kore (DMPGM, PNG)</p> <p>Steve Raaymakers (DMPGM)</p> <p>Gregory Roaveneo (DMPGM)</p> <p>Jerry Naime/Lyndah Brown/Kola (MRA)</p> <p>Shadrach Himata (DMPGM)</p> <p>John Arumba (DMPGM)</p>

10.30 – 12.30 pm	<p>Session 6 [Fiscal Regime Options relating to Mining]</p> <p>Mining taxation regimes: range of mining taxation available, fiscal regime commonly used globally, what regime is best for the Pacific? A case study as an example</p> <p>The importance of transparency and macroeconomic management in extractive industries economies</p> <p>Mining the Deep: new economies for a blue world – alternative fiscal regime example from Norway</p>	<p>George Niumataiwalu (Kontiki Capital)</p> <p>Graeme Hancock (World Bank)</p> <p>Anne Solgaard (UNEP/GRID)</p>
1.30 – 3.15	<p>Session 7 [Environment Conservation and Deep Sea Ecosystems]</p> <p>Deep sea mineral resources – the challenge of environmental sustainability</p> <p>Hydrothermal vent ecosystems: discovery, species variability on temporal and spatial scales, importance and uses, conservation issues and vent protected areas</p> <p>Deep sea nodule and crust ecosystems: benthic assemblages of manganese nodules and cobalt-rich crusts</p> <p>Current Activities of KORDI's Environmental Study for Deep-Sea Mining</p>	<p>Jan Steffen (IUCN)</p> <p>Chuck Fisher (Pennsylvania State University)</p> <p>Malcolm Clark (NIWA)</p> <p>Ju-Won Son (KORDI)</p>
3.30 – 5.00	<p>Session 8 [Private Sector Perspective and Interests]</p> <p>Solwara 1 Project Update</p> <p>Deep ocean seafloor mineral extraction: environmental and social responsibility for a new industry</p> <p>Exploration activities of KORDI for deep sea minerals development in the Pacific region</p> <p>Nauru Ocean Resources Inc (NORI): company update, interest in the Pacific, planned activities, challenges, benefits to Nauru and other P-ACPs</p>	<p>Samantha Smith (Nautilus Minerals)</p> <p>Samantha Smith</p> <p>Jonguk Kim (KORDI)</p> <p>Robert Heydon (NORI)</p>
6.30 – 8.00	<p>[Informal side event with Representatives of P-ACPs]</p> <p>Examining higher level principles of New/Transitional Economics and how these principles can provide new options across many P-ACP economic sectors</p>	<p>Anne Solgaard, Yannick Beaudoin and Linwood Pendleton</p>
Day 3 – Wednesday 8 June 2011		
8.30 – 10.15 am	<p>Session 9 [General DSM Related Issues]</p> <p>Seafloor Massive Sulphides (SMS) – Previous studies, geology and characteristics, global and Pacific region potential</p> <p>International Seabed Authority (ISA) and the regulatory regime for deep sea bed mining</p> <p>Challenges of policy and legislation development in Pacific Island Countries, and suggestions for improvement</p> <p>Economic considerations of deep sea mining</p>	<p>Sven Petersen (IFM-GEOMAR)</p> <p>Michael Lodge (ISA)</p> <p>Clark Peteru (SPREP)</p> <p>Linwood Pendleton (NOAA)</p>

10.30 – 12.30 pm	<p>Session 10 [Plenary Session 1]</p> <p>Each group is required to discuss the three major issues given below and identify challenges/needs/priorities and recommend appropriate approaches/strategies, and the way forward:</p> <p>Issue 1: offshore exploration and mining, mineral potential, maritime boundaries, technology development and transfer, private sector perspective, implications of UNCLOS and other laws, stakeholder collaboration and partnership.</p> <p>Issue 2: conservation of deep sea ecosystems, fishery and other marine resources, potentially impacted communities, community concerns, outreach, implications of UNCLOS and other laws, stakeholder collaboration and partnership.</p> <p>Issue 3: fiscal regime and policy, development of the regional framework and national policy / legislation / regulations, legal drafting, implications of UNCLOS and other international / regional conventions, existing national policy and laws, stakeholder collaboration and partnership.</p>	Participants
1.30 – 3.00	<p>Session 11 [Plenary Session 2]</p> <p>Wrap up plenary discussions and Team Leaders to present individual team plenary report</p>	Participants
3.15 – 4.30	<p>Session 12 [Discussion and Outcomes]</p> <p>Discussion on the needs/priorities and agreement on issues to be addressed and the way forward</p>	Participants
6.00 – 7.00	<p>[Meeting to discuss the DSM Project Steering Committee (Restricted Attendance)]</p> <p>Discussion by representatives of participating countries, RAO, SPC and the EU on the operations of the DSM Project Steering Committee</p>	Representatives of participating countries, RAO, SPC and EU

Actual Responses Received

An enormous amount of response was received to the Feedback Questionnaire sent out. A total number of 39 responses were received – a detailed account of which has been completed in Table 1 below:

Table 1: Result Table

Options: 1 – Poor 2 – fair 3 – good 4 – very good 5 – excellent

Questions/Items	Responses to Options				
	Option 1	Option 2	Option 3	Option 4	Option 5
1.1 Range of topics covered	0	0	2	12	25
1.2 Coverage of topics	0	0	5	12	22
1.3 Quality of information/data provided	0	0	2	16	21
1.4 Time allocated to each topic	1	5	10	14	9
1.5 Quality of presentations	0	0	4	15	20

1.6 Quantity of shared materials (e.g. poster, information brochures, etc)	0	3	10	13	13
1.7 Group discussions	0	2	8	12	17
1.8 Individual participation during group discussions	0	1	9	18	11
1.9 Performance of Presenters	0	0	4	16	19
1.10 Facilities Available	0	1	4	18	16
1.11 Assistance offered prior to and during the workshop	0	0	5	16	18
1.12 Overall rating of the workshop	0	0	2	20	17

Items 2.1 to 2.4 asked for participants' feedback on:-

- Which sessions they view most useful and why
- What sessions to have more information in future
- What else can be done to improve stakeholder participation and
- Suggestions for improvement.

A range of responses were received from the participants from all works of life providing better insight on the overall activities of the workshop and lessons for improvement. The respondents comprised of the Secretariat of the Pacific Community (SPC) member countries: *Cook Islands, Federated States of Micronesia, Fiji Islands, France, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, United States and Vanuatu*; various civil society entities; government agencies; international, regional and national agencies and others (which included lawyers, researchers, private firms, professors, etc). The following provides the broad occupational representation of responses:

Figure 1: Occupational Representation (in %)

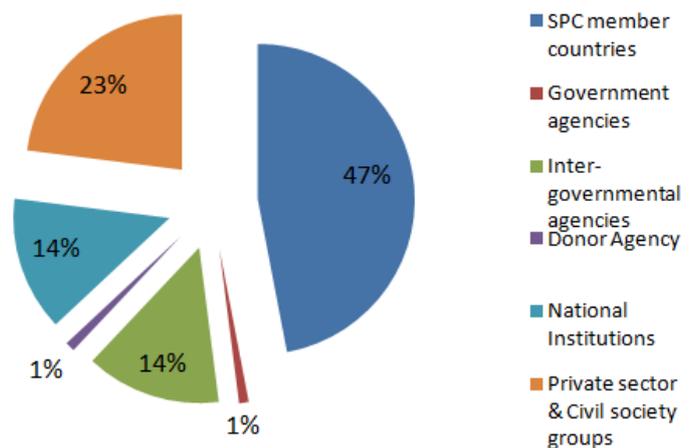
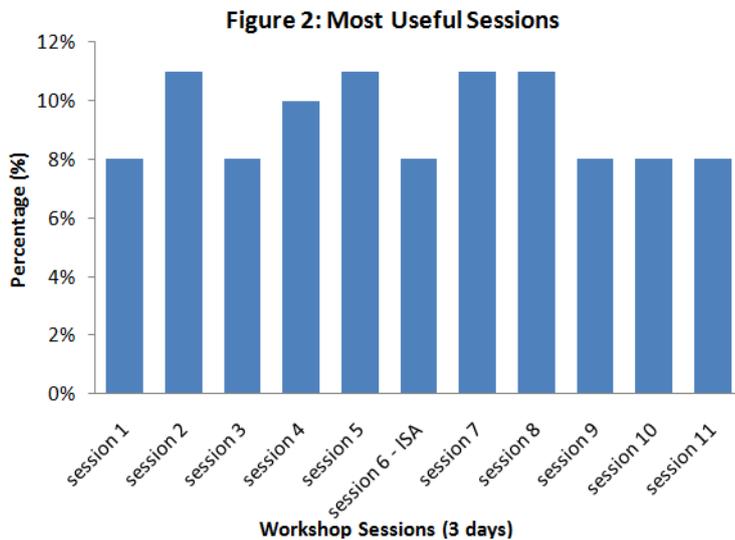


Table 2: Occupational Representation

Occupation	Attendance	%
SPC member countries	40	47%
Government agencies	1	1%
Inter-governmental agencies	12	14%
Donor Agency	1	1%
National Institutions	12	14%
Private sector & Civil society groups	20	23%

Item 2.1 Most Useful Sessions – Survey Outcome

Item 2.1 on the feedback form acquired responses with reference to the sessions viewed most useful by the participants. Figure 2 showcases the results of a session wise analysis of the same. The 8% accounts for the 12 responses that made indication that all the sessions were just as useful. As indicated in the chart, all but one of the feedbacks made specific reference to the International Seabed Authority presentation in

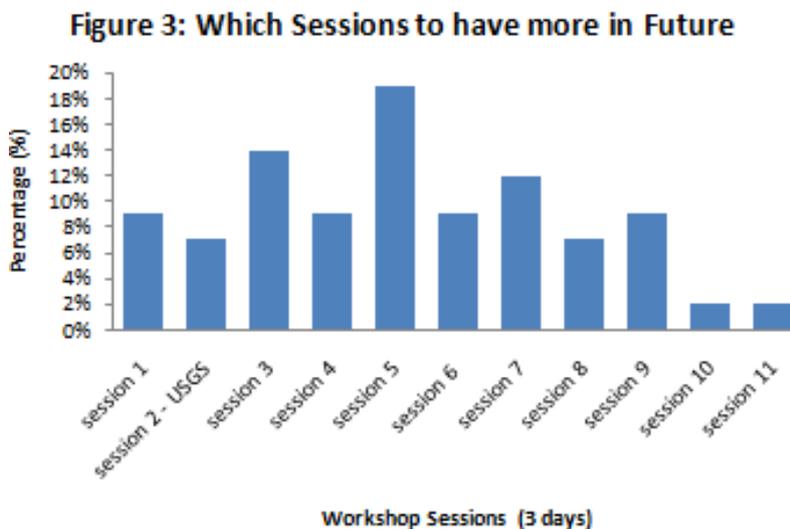


Session 6 as one of the most useful appearance. According to a few of the responses that stated the rationale in choosing sessions 2, 4, 5, 7 and 8 as more constructive than others are for the reasons that these session presentations were more informative, discussed important issues that needed to be analyzed and provides a holistic view on the topic of deep sea mining in a P-ACP's context.

Item 2.2 Sessions that needed more Information in Future – Survey Outcome

Analysis of the responses to Item 2.2 shows that as many as 19 percent of the responses

from participants require more information in future on the topics in *Session 5 [Fiscal Regime Options relating to Mining]*. The analysis further reveals that 14 percent of the participants opted for *Session 3 [Country Perspective and Legislative Framework]*, and about 9 percent and less is distributed among the other scheduled sessions. As shown below, Session 2 presentations made by Professor James Hein from the United States Geological Survey was highlighted to be topics of particular interest. There are also specific topics stated in the feedback forms that was either not discussed in detail from the sessions or needed to be newly included and considered for future workshops. These topics are further discussed below.



Note: * 7 no response

Topics that surfaced include the following:

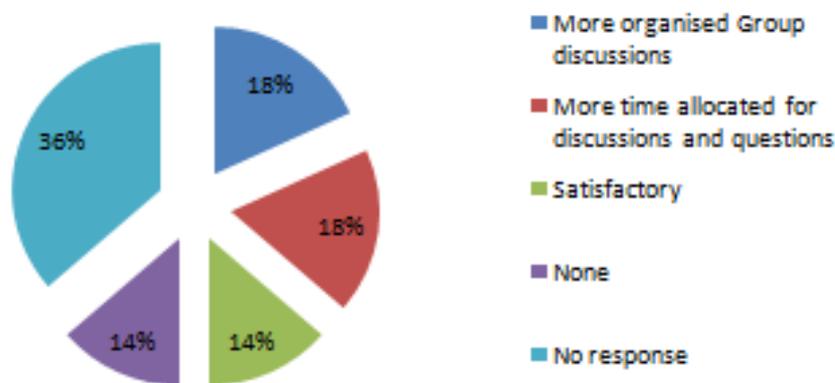
- More discussions and talks on technology that is needed to mine sea floor and its impacts on the ecosystem
- Risk and estimated evolution of DSM in the Pacific
- Green Economy
- Environment Impact Assessments - Effects on the deep sea environment including resilience and recovery from the effects of mining/harvesting

- An individual country perspective should have developed more as a context for what might be done realistically
- Include sessions on the feedback from local communities on the progress of DSM

Item 2.3 What can be done to Improve Stakeholder Participation

As compared to items 2.1 and 2.2, Items 2.3 and 2.4 withheld reference to the sessions therefore the responses are solely direct from the participants alone. Analysis of these Items will be divided into two parts hence the figure will hold repeated responses, followed by a point form discussion of the individual responses. As indicated by the chart below, while 18 percent of the responses opted to have more organised group discussions as a form of improving stakeholder participation, the other 18 percent decided instead to allocate more time for discussions and questions after each presentation. Further analysis showed that 14 percent viewed the current practice satisfactory, the other 14 percent had no comments to add on and the rest of the 36 percent failed to respond at all.

Figure 4: What else to be done to improve Stakeholder Participation - Repeated Responses



The individual responses to Item 2.3 include the following:

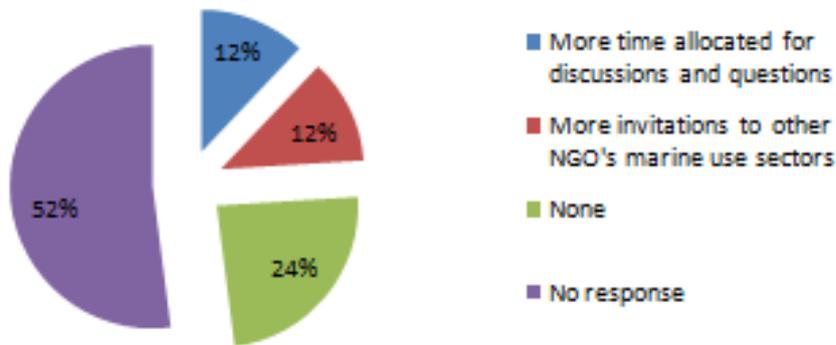
- Hold more consultation workshops and meetings at national level and maintain transparency
- Input from stakeholders in developing the agenda
- More specific but short presentations with their aspirations and expectations
- Include other stakeholders from different sectors and NGO's such as fishery, tourism etc.
- Incorporate French Pacific territories as members of SPC
- Provide more opportunity for P-ACPs to share their views and concerns
- Endorse and encourage information sharing between stakeholders
- A few more interactive sessions and ice-breaker, a bit less 'sit-down' time
- Community participation
- More discussions on some of the challenges faced by mining operations by P-ACPs that are already involved
- More discussion and talks on Case studies and experiences from country reps
- Funding of reasearch and development to participating countries, and a system to collate all data for mutual use

Item 2.4 Suggestions for Improvement

Item 2.4 on the feedback form sought to encourage suggestions and comments from the participants on how they think could be improved on the overall activities of the workshop. Figure 5 shows a number of responses that has been recurring in the feedback; 12 percent of the responses requested more time be allocated for discussions and questions, another 12 percent think that there is a need to involve more

stakeholders in particular, marine user sectors to broaden discussions and cover all aspects of DSM. About 24 percent did not have any suggestions for improvement while an unfortunate 52 percent failed to respond to the question.

Figure 5: Suggestions for Improvement - Repeated Responses



Important suggestions and comments that surfaced include the following:

- Capture what has been gained from this workshop and shape the next one to the most identified important areas
- Provide time for P-ACP's reps to meet and jointly develop their talks based on pressing issues in their respective countries
- Sessions to be organised so that topics that are similar are discussed jointly - this might be achieved by asking presenters to speak together
- As a single workshop, it was excellent but need follow-up with smaller groups or countries at the same time maintain the momentum
- Provide more information on the science and biology of things
- Arrange for the workshops to be held in various P-ACPs and not only in Fiji
- Disseminate reports to all SPC member countries
- Venue too congested given the large number of participants
- Strengthening communication within the Pacific Island Countries
- Include community participation at separate meetings or sessions. Even though there were talks about "local communities", hardly any was present. Also the absence of FFA and/or fisheries officials are noticeable, similar for tourism and other marine use sectors.
- SOPAC funded participants to choose own accommodation and given full DSA's (daily subsistence allowance)
- New research and development information should be timely and disseminated to stakeholders at all levels (full participation)

ANNEX 6 – CD of Documents, Background Material, Presentations, and News Coverage

Versions of the presentations on the CD are PDF documents only. See the CD (in the back pocket) for a listing of its contents.

Original presentations and short movies shown were all provided to participants at the June 2011 workshop on flash drives (a list of the workshop-generated documents provided on the flash drives is provided below). For the original presentations contact a participant near you directly at the addresses provided in the Participants List in Annex 4. Requests for the original presentations to the SPC Division from other than SPC Member Countries will incur costs of production plus mailing charges. Please ask for a quotation.

Contents of the Flash Drive of Documents provided to Participants at the end of the June 2011 Workshop:

Documents:

SPC SOPAC Division Workshop

- Chair's Outcome
- DSM Inaugural Workshop List of Participants (as at 8 June 2011)
- DSM Inaugural Workshop Programme
- The Madang Guidelines – Principles for the Development of National Offshore Mineral Policies (SOPAC Miscellaneous Report 362)
- SOPAC Director Opening Speech

IUCN (Documents Provided by the IUCN for Information to delegates)

- Global Ocean Biodiversity Initiative – Working towards high seas conservation
- Azores Scientific Criteria and Guidance – for identifying ecologically or biologically significant marine areas and designing representative networks of marine protected areas in open ocean waters and deep sea habitats
- Ecosystems and Biodiversity in Deep Waters and High Seas – UNEP Regional Seas Report and Studies No. 178
- The status of natural resources on the high-seas, Part 1: An environmental perspective, Part 2: Legal and political considerations – An independent study conducted by The Southampton Oceanography Centre and Dr A. Charlotte de Fontaubert
- Global Ocean Protection – Present Status and Future Possibilities
- International Ocean Governance – Using International Law and Organisations to Manage Marine Resources Sustainably by Lee A. Kimball
- Global Open OCEANS and Deep Seabed (GOODS) BIOGEOGRAPHIC CLASSIFICATION (UNESCO 2009)

Original Presentations – most were presented as listed in the Programme, see Annex 3

DAY 1 PRESENTATIONS

Akuila Tawake (SPC)

- Workshop Outline – Objectives, Arrangement and Expected Outcomes
- Overview of the SOPAC-EU EDF10 Deep Sea Minerals Project
- Deep Sea Minerals in the Pacific Islands Region: Occurrence, Potential and Case Studies

Arthur Webb (SPC)

- Deep Sea Minerals workshop – Maritime Boundaries Brief

Hannah Lily (SPC)

- DSM Project: Law and Policy

James Hein (USGS)

- Ferromanganese crusts and nodules: a Global Perspective
- Deep-Ocean Minerals: Crusts, Nodules, Sulfides, Phosphorite

Malakai Finau (Fiji Islands)

- Fiji – status of policy and legislation development

Paul Lynch (Cook Islands)

- Cook Islands presentation

Rennie Vaiomounga (Tonga)

- Sea bed exploration in Tonga (Ministry of Lands, Survey and Natural Resources, Kingdom of Tonga)

Robert Makgill (North-South Environmental Law)

- Legislative and Administrative Frameworks for Deep Sea Minerals

Yannick Beaudoin (UNEP/GRID-Arendal)

- Pacific Marine Minerals and Deep Sea Mining Assessment

DAY 2 PRESENTATIONS**Anne Solgaard (UNEP/GRID-Arendal)**

- Mining the Deep: New Economics for a Blue World – Alternative fiscal regime, Example from Norway

Chuck Fisher (Pennsylvania State University)

- Hydrothermal Vent Ecosystems: Discovery, species variability on temporal and spatial scales, importance and uses, conservation issues and vent protected areas [Plus folder of 7 movie clips on the exotic creatures of the active vents]

George Niumataiwalu (Kontiki Capital)

- Taxation Regime Applicable to Deep Sea Mining – comparative analysis and case study

Graeme Hancock (Consultant, formerly of the World Bank)

- The Importance of Transparency and Macroeconomic Management in Extractive Industries Economies

Jan Steffen (IUCN)

- The Challenge Of Environmental Sustainability

Jonguk Kim (KORDI)

- Exploration activities of KORDI for deep sea minerals development in the Pacific region

Ju-Won Son (KORDI)

- The Current Activities of KORDI's Environmental Study for Deep-Sea Mining

Malcolm Clark (NIWA)

- Deep-sea nodule and crust ecosystems: benthic assemblages of manganese nodules and cobalt-rich crusts

Papua New Guinea Government Officials

- Overview of the Review of PNG Mineral Policy and Legislation – Harry Kore
- Overview of the draft Offshore Mining Policy (see Steve Raaymakers below)
- Overview of PNG's eCS Claims – Gregory Roaveneo

- A Developing Country's Challenges in Permitting/Regulation Underwater Mining – PNG Experience – Jerry Naime and Lyndah Brown-Kola
- State Equity Participation in the Solwara 1 Project – Shadrach Himata
- An overview of Geohazards Management Division – John Arumba

Robert Heydon (NORI)

- Nauru Ocean Resources Inc. – World's most experienced ultra deep sea mining team

Samantha Smith (Nautilus)

- Solwara 1 Project Update
- Deep Ocean Seafloor Mineral Extraction – Environmental and Social Responsibility for a New Industry

Steve Raaymakers (Consultant to PNG Government)

- Papua New Guinea Offshore Mining Policy – “serving the interests and aspirations of the people of PNG”

DAY 3 PRESENTATIONS

Clark Peteru (SPREP)

- Challenges of Policy and Legislation development in P-ACPs and suggestions for improvement

Linwood Pendleton (Duke University)

- Economic Considerations for Deep Sea Mining

Michael Lodge (ISA)

- The International Seabed Authority and the Regulatory Regime for Deep Sea bed Mining

Sven Petersen (IFM-GEOMAR)

- Seafloor Massive Sulfides (SMS) – global characteristics, distribution, and regional Pacific potential

Audio-Visuals:

- DSM June 2011 Workshop Group Photo
- 7 Movie clips accompanying presentation on Day 2 by Chuck Fisher
- Movie version of UNEP/GRID-Arendal presentation
- UNEP/GRID-Arendal E-book – Sick water? The central role of wastewater management in sustainable development

ANNEX 7 – List of Acronyms

ACP	African Caribbean Pacific
AusAID	Australian Agency for International Development
BCL	Bougainville Copper Limited
CRC	cobalt-rich crusts
CTD	conductivity temperature depth
DEC	Department of Environment and Conservation (of Papua New Guinea)
DMPGM	Department of Mineral Policy and Geohazards Management (of Papua New Guinea)
DSM	deep sea minerals/mining
EBM	ecosystem based management
eCS	extended continental shelf
EDF	European Development Fund
EEZ	exclusive economic zone
EIA	environment impact assessment
EIS	environmental impact statement
EITI	Extractive Industry Transparency Initiative
ESHIA	Environmental, Social (including cultural) and Health Impact Assessments
ETR	effective tax rate
EU	European Union
FFA	Forum Fisheries Agency
FSM	Federated States of Micronesia
GDP	gross domestic product
IFM-GEOMAR	Leibniz Institute of Marine Sciences at the University of Kiel
IMO	International Maritime Organisation
IRR	internal rate of return
ISA	International Seabed Authority
IT	information technology
ITLOS	International Tribunal on the Law of Sea
IUCN	International Union for Conservation of Nature and Natural Resources
KORDI	Korea Ocean Research and Development Institute
LNG	liquid natural gas
LTC	Legal and Technical Commission (of ISA)
MDG	Millennium Development Goals (of the United Nations)
MFAI	Ministry of Foreign Affairs and Immigration (of Cook Islands)
MPA	marine protected area
MRA	Mineral Resources Authority (of Papua New Guinea)
MRD	Mineral Resources Department (of Fiji Islands)
MSR	marine scientific research
NGO	non-government organisation
NIWA	National Institute for Water and Atmospheric Research (of New Zealand)

NOAA	National Oceanographic and Atmospheric Administration (of United States)
NORI	Nauru Ocean Resources Inc.
NSEL	North-South Environmental Law
NZ	New Zealand
OIP	Ocean and Islands Programme (of SOPAC)
P-ACP	refers to the 'Pacific' group of countries within the 'Asia-Caribbean-Pacific' grouping used by the European Union
PIC	Pacific island country
PIFS	Pacific Islands Forum Secretariat
PIROP	Pacific Islands Regional Ocean Policy
PNG	Papua New Guinea
PRISM	Pacific Regional Information System
RAO	Regional Authorising Office (of EU)
RLRF	Regional Legal and Regulatory Framework for offshore mineral exploitation and exploration (being developed by the SPC DSM Project)
ROV	remotely-operated underwater vehicle
SBM	sea bed minerals/mining
SMS	seafloor massive sulphide
SOPAC	SPC Applied Geoscience and Technology Division
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SPTO	South Pacific Tourism Organisation
SWOT	Strengths, Weaknesses, Opportunities, Threats
TOML	Tonga Offshore Mining Limited
UNCLOS	United Nations Convention on the Law of the Sea (also used as UNCLOS)
UNEP	United Nations Environment Programme
UNEP/GRID-Arendal	GRID-Arendal is a collaborating centre of UNEP established in 1989 by the Government of Norway as a Norwegian Foundation
UPNG	University of Papua New Guinea
USGS	United States Geological Survey
VMS	vessel monitoring system (of FFA)





Applied Geoscience and Technology Division (SOPAC)

