environment

The quarterly newsletter of the South Pacific Regional Environment Programme (SPREP)

NEWSLETTER
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Who profits from the Pacific's natural treasures?

Multinational companies are devoting substantially more research dollars these days to discovering how natural resources could be used to make new pharmaceuticals or crops. This bioprospecting, as it's called, can yield billion-dollar profits in beneficial new products.

The problem is that the country which owns the natural resource — and which, generally, discovered its use — may not benefit at all.

At a workshop held at the end of March in Nadi to discuss how the Convention on Biological Diversity could be used to overcome this and other problems, participants gave as an example the "calming kava pills" now on sale in the United States. For every dollar the grower receives, the middle man gets US$4, and the company which owns the patent on the product receives US$2000.

Another example was the Mamala plant, which is used by traditional healers in Samoa. Participants at the workshop said an ethnobotanist took samples of the plant out of the country and some compounds of Mamala have now been patented. Although it was the traditional knowledge of Samoan

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Regular features

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Kava grown in many Pacific countries has recently been discovered by multinational drug companies, producing "Calming kava pills" now on sale in the United States and Australia. For every US$2,000 the company receives, the grower gets US$1. A price difference so inequitable it's enough to make your eyesight dizzy.

Did You Know That ...

Persistent organic pollutants (POPS) are long-lived, highly toxic chemicals which accumulate in living things, including human body tissues.

An international effort is now under way to reduce or eliminate 12 of the most dangerous POPs.

Organisations leading this process include UNEP, FAO and WHO.

The pesticide DDT is included in the 12 most dangerous list.

DDT was banned for agricultural use in 1972 in the USA and is banned completely in many other countries.

WHO has used DDT extensively in mosquito eradication programmes in the Pacific as well as in other developing countries.

A June survey found stocks of about 12 tonnes of DDT in 13 Pacific island countries.

In one case about a tonne of DDT found inside an occupied house

WHO is now considering a programme to reduce DDT use.

Hon. Simon Upton, NZ Minister of Environment endorsing the handbook. NZODA is the major donor.

Mike Walsh of NZ High Commission in Apia with Clare Cory (compiler of the handbook) SPREP.

Damaging the environment is a crime

Some of the Pacific's top legal officials visited Apia at the end of June, discussing with other senior Government officials how they could give more teeth to national environmental protection laws and conventions.

Legal experts such as the Crown Counsel for the Cook Islands, the Solomon Islands Deputy Director of Public Prosecutions, Kiribati's Police Superintendant, Niue's Secretary for Justice and Samoa's Principal State Solicitor spent a week considering how to use criminal prosecutions when the environment is damaged or destroyed.

From left-right: Andie Fong Toy, Kosi Latu, Bernard Moutou and La'avasa Malua

The workshop was organised by the Commonwealth Secretariat, the United Nations Inter-regional Crime and Justice Research Institute (UNICRI) and SPREP. It was attended by 22 legal and environment officers from 11

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One-stop environmental law book for the Pacific

Lawyers, government officials, developers, non-governmental organisations and anyone else interested in the laws and treaties that deal with the Pacific environment now have one book which brings together all the relevant documents.

The *South Pacific Handbook of Treaties and other Legal Instruments in the Field of Environment Law* was launched during the workshop on Criminal Law and its Administration in International Environmental Conventions, held in Apia from June 22–26.

A joint SPREP/United Nations Environment Programme (UNEP) collaboration, funded by New Zealand Official Development Assistance (NZODA), the book is accompanied by the region's first compact disc of environmental law. The CD-ROM, which has been prepared by the United Nations Interregional Crime and Justice Research Institute (UNICRI), contains, like the book, the full text of international and regional conventions, treaties and legal instruments dealing with the Pacific environment. The CD-ROM also contains Internet addresses of the homepages of several UN organisations, enforcement agencies, regional and non-governmental environmental organisations.

Speaking on behalf of UNEP, SPREP Legal Officer Clare Cory said the book was witness to the fact that useful, tangible results could be achieved from collaborative efforts "particularly given UNEP's spearheading of environmental conventions over the last 25 years".

SPREP's director, Tamari'i Tutangata, said the book was essential if Pacific island countries were to participate effectively in the progressive development of environmental law and take appropriate measures to translate global accords into action within their countries.

from the Director's desk

Mr Tutangata, Director of SPREP

Pacific leaders have for a number of years been telling international conferences about the particular vulnerability of small islands to climate change and sea-level rise.

Photo by Peter Bennett

Recent analysis has confirmed earlier fears—that Pacific island countries are among the most vulnerable to climate change and sea-level rise, even though they contributed less than most to the greenhouse gas emissions that are at the root of the problem.

The risks they now face are varied. The danger is most acute for the low-lying atoll nations, but even the high islands will have major difficulties as sea levels rise, because much of their population and economic activities are concentrated in the low-lying coastal zones.

Climate science has already established some detail of the threats which the Pacific faces. Of major concern is a possible increase in the intensity and magnitude of cyclones, and of other climatic extremes. For example, climate science expects droughts and floods to increase in intensity in some parts of the world as the planet warms and the climate changes.

The Pacific environment is a particularly fragile one, and its people have learned over centuries how to grow food despite poor soils, how to collect water despite, in many cases, a complete absence of rivers and streams. Pacific peoples know when certain fish will be available in particular parts of the oceans. They know when to plant their crops to catch the sporadic rainfall. All of this knowledge is now under threat.

Rainfall patterns are already changing, as are the seasonal variations that have guided the agricultural and fishing activities of people in the Pacific through the centuries. Tourism, an important economic activity in the Pacific, could be affected through beach erosion, loss of land and degraded reef ecosystems.

The Pacific is already aware that sea levels and climate are changing. In Tuvalu last October, Tepuka Savilivili, a motu or small island, disappeared beneath the waters of Funafuti lagoon. In Kiribati, the motu Tebuatarawa used to act as a landmark for fishermen. The landmark is now an underwater mark only.

If you talk to the inhabitants of any atoll they will tell you of erosion that has forced them to shift their dwellings further and further away from the ocean and along the coastline; of changes in seasonal wind and rainfall patterns; of being forced to change the way they grow their taro because the groundwater has become too salty to plant taro in deep pits as they used to.

The specific impacts of climate change on individual countries are now being studied by two representatives of each of the 10 countries involved in SPREP's Pacific Islands Climate Change Assistance Programme (PICCAP). PICCAP is funded by the Global Environment Facility, implemented by the United Nations Development Programme and jointly executed by SPREP and the United Nations Institute for Training and Research (UNITAR).

During their six-month course of study at Waikato University and in their own countries, the PICCAP participants will prepare detailed reports of likely impacts, and options that could allow their countries to adapt to changes in climate and sea level.

These changes are of major concern to the Pacific. Through programmes such as PICCAP, Pacific people are gathering the knowledge they need to plan for an inevitably altered future.

Ship-based pollution targeted

A comprehensive new SPREP programme targets marine pollution from ships. PACPOL—Pacific Ocean Pollution Prevention Programme—has been developed using a bottom-up approach, discussing individual countries' needs and priorities and designing a programme that meets those needs.

Coastal and marine environments are particularly important in the Pacific, where village-based subsistence fishing remains the mainstay of virtually all societies in the region, and where tourism and commercial fishing are the major component of most regional economies.

PACPOL aims to preserve the ocean environment while at the same time encouraging essential economic development. It will be spread over a five-year period and will focus primarily on introduced marine species, marine spills, ships' waste and ships' port activities.

One potentially serious form of ship-based pollution in the Pacific is discharge of ballast water, which can contain invasive species from other parts of the world which could destroy delicate Pacific island coastal and marine ecosystems.

SPREP's Marine Pollution Adviser Steve Raaymakers, who is coordinating the PACPOL programme, said most shipping in the Pacific was simply passing through. New, more stringent international controls on the discharge of ballast water at large ports mean ships must discharge the water they have taken on in their original port, before they reach the waters of their destination port. The controls aim to prevent invasive species reaching the destination ports, but effectively mean that those species are discharged instead in the Pacific.

A grounded ship in the Pacific, an increasing source of pollution in the region.

Other possible problems which PACPOL will address include:

- Water and sediments in many ports in the region are polluted.
- Groundings and sinkings of vessels, especially fishing vessels. These incidents are common throughout the Pacific.
- Marine debris, especially from the foreign fishing fleet, may pose a problem in some areas.
- The accuracy of navigation charts, standards of navigation aids and standards of maritime training may not be as high in the region as in other parts of the world.
- Major oil pollution resulting from the Second World War: those environmental impacts and recovery have never been assessed properly.

Mr Raaymakers said a regionally coordinated approach was critical, as was the need to clearly identify country priorities, and to make sure the proposed activities were relevant, appropriate and likely to be effective.

"That's the only way you'll ensure long-term support for the project."

The lack of major land barriers in the Pacific, combined with a complex pattern of ocean currents, make the Pacific probably the most highly connected ocean on the planet.

"This compounds the potential seriousness of maritime pollution here, because the free-moving ocean currents can more readily carry pollution from one area to another."

The PACPOL programme has been designed to draw support and involvement from shipping, port, oil and waste management industries. Mr Raaymakers said it was vital to have broad regional involvement in the programme.

Some of the causes and effects of marine pollution. (Photos courtesy of IMO)

"Shipping is the Pacific's main lifeline, and the ongoing development of the regional shipping industry must be fostered. At the same time it's also essential to ensure that our precious coastal and marine environments are not compromised by shipping activities."

Some of the projects that will be implemented under PACPOL include:

- Mapping shipping patterns in the Pacific ocean to identify high risk areas and pollution 'hot-spots'
- Developing a comprehensive marine pollution education and awareness raising campaign
- Assisting Pacific island countries to develop and implement marine pollution laws and regulations
- Assisting Pacific island countries to develop and implement marine pollution contingency plans
- Providing training to Pacific island countries in marine pollution response
- Reviewing the provision of reception facilities for ships' waste such as garbage and waste oil
- Conducting surveys for introduced marine species in Pacific island ports

PACPOL involves a web of collaborative partnerships. The Commonwealth Secretariat has funded Mr Raaymaker's position; the Canada–South Pacific Ocean Development Program (C–SPOD II) is funding the initial stages of the project; and the International Maritime Organization (IMO) is also providing planning and funding assistance.

The lack of major land barriers in the Pacific, combined with a complex pattern of ocean currents, make the Pacific probably the most highly connected ocean on the planet.

Pacific regional agencies involved in the programme include the Secretariat of the Pacific Community (SPC), the Forum Fisheries Agency (FFA), the South Pacific Applied Geoscience Commission (SOPAC), the Marine Studies Programme of the University of the South Pacific and the South Pacific Forum Secretariat.

All SPREP/SPC member countries have reviewed the programme draft, as have the shipping, port and oil industries.

Countries directly involved in PACPOL are: Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

PACPOL will also collaborate with eight Pacific island territories which have associations with metropolitan countries. These territories are: American Samoa, Northern Mariana Islands, French Polynesia, Guam, New Caledonia, Pitcairn, Tokelau, Wallis and Futuna.

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L-r: Terry Toomata of Samoa Foreign Affairs; Joe Reti, Gerald Miles and Andrew Munro of SPREP, meeting with the Sea Launch delegates and representative of US Dept. of Transportation's Federal Aviation Administration (FAA); and other members of the Diplomatic community in Samoa.

Pacific satellite launch proposal

SPREP was asked in March to comment on the environmental assessment of a proposal to launch satellites from international waters in the Pacific.

The Sea Launch company, which has made the proposal, is a joint venture between United States/Ukrainian/Russian/Norwegian partners. The company is based in Norway and organised under the laws of the Cayman Islands. Its ships are registered in Liberia. It has a home port in Long Beach California, USA.

According to the Environmental Assessment (EA), Sea Launch proposes to launch commercial satellites from international waters 20 km outside the Exclusive Economic Zone of Kiribati's Christmas Island.

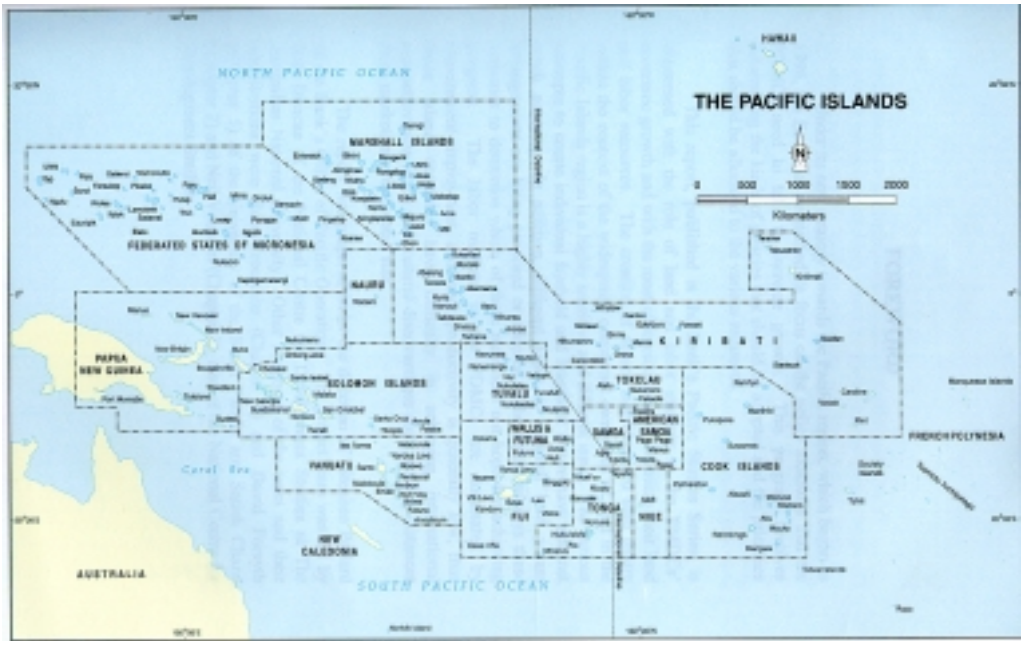
The satellites would be launched from a converted semi-submersible oil rig platform using 1980s Russian Zenit rockets. Each launch would result in 36 tonnes of carbon monoxide (CO) and 118 tonnes of carbon dioxide (CO2) being emitted in the lower troposphere.

The two rocket stages, weighing 36 tonnes and 11.5 tonnes respectively, and the streamlining fairing, weighing a total of 2 tonnes, would fall back into the ocean. The rocket stages would sink, but the fairing would float indefinitely. Unused fuel—approximately 4.5 tonnes of kerosene for each launch—would form a kerosene slick several square kilometres wide.

The rockets and the satellites would be carried to the launch site on custom-designed vessels built by the Norwegian partner in the joint venture. The company proposes to launch two satellites in 1998, and then six every year for 20 years.

The US Department of Transportation's Federal Aviation Administration Associate Administrator for Commercial Space Transportation has

The information supplied in the Sea Launch Environmental Assessment of the impacts of the Sea Launch Limited Partnership proposal on the environment is, in the opinion of SPREP, insufficient to permit a Finding of No Significant Impact (FONSI) to be issued.



Map reproduced from "Improving Growth Prospects in the Pacific". Pacific Studies Series. ADB March 1998

SPREP's comments on the Sea Launch Environmental Assessment

- **There is very little time for comment, or for consultation with SPREP's member countries. Sea Launch customers announced in 1995 (Hughes Aircraft Co; San Jose Mercury News December 19 1995) and 1996 (Space Systems/Loral July 15 1996) that the first Sea Launch liftoff was scheduled for the second half of 1998, yet the Government of Kiribati and SPREP were not informed of the proposal until April 1998. The draft EA arrived at SPREP on April 30 1998. Detailed comments are due to arrive by post in the office of the Associate Administrator for Commercial Space Transportation no later than May 26 1998. The short time-frame between delivery of the EA and the deadline for comments permits only minimal consultation between SPREP and its member countries.**
- **The Pacific view of developments within the region, as reflected by South Pacific Forum decisions, is that the region should not be used as a dumping ground for other countries' wastes. The Forum has in the past opposed the use of the Pacific environment for potentially harmful actions of other nations, such as nuclear testing and the movement of nuclear and hazardous wastes through the Pacific, and has called on other nations to respect the wishes of its people.**
- **There are potential human safety concerns. The EA notes the Kiribati practice of fishing for ocean fish stocks to provide for nutritional needs. However, while there are plans to warn shipping of launch times, there is no mention of plans to warn Kiribati fishing boats of falling debris or potential kerosene slicks.**
- **The EA fails to provide adequate detail in a number of areas, including potential impacts on rare and endangered species, marine mammals and migratory birds. It does not provide detail of the biological environment of the launch sites or the potential debris deposition areas.**
- **The EA provides no details of contingency plans in case of accidental or catastrophic release of pollutants. There is no indication that an Environmental Management System has been developed for the proposal. Neither is there an indication of whether any independent authority has a compliance role or a role in monitoring the implementation of the proposal. There is no provision for a Marine Pollution Contingency Plan or an Environmental Monitoring Programme.**
- **While the EA holds out the prospect of significant socio-economic benefits for the community of Long Beach California, which would become the project's home base, there are no socio-economic benefits for the Pacific in general and Kiribati in particular. Instead, there may be significant environmental and human safety disadvantages, which cannot be quantified because the EA does not contain adequate detail.**
- **The proposal to license a launch from an offshore facility in international waters is acknowledged to be without precedent. (Section 1.3.3) Yet despite the unusual nature of the proposal, the Precautionary Principle has not been followed. On the contrary, in the absence of data it has been concluded that environmental values at the launch site and spent rocket stage disposal sites are low and impacts are likely to be negligible.**

proposed a Finding of No Significant Impact (FONSI) for the proposal.

Conclusion

The information supplied in the Sea Launch Environmental Assessment of the impacts of the SLLP proposal on the environment is, in the opinion of SPREP, insufficient to permit a Finding of No Significant Impact (FONSI) to be issued.

SPREP would recommend that the proponents be directed to carry out a full and comprehensive Environmental Impact Statement (EIS). This should encompass an Environmental Impact Assessment using the framework of the International Standards Organisation (ISO) 14000 Series Standard Environmental Management System.

Valuing the marine environment

James Aston, Coastal Management Officer

A pristine marine environment is important for many investments and developments, including the all-important tourism industry, but when development decisions are taken, the value of the environment is not always included in the equation.

Senior officials from 14 Pacific island countries recently discussed how to change this situation, bringing the real values of the region's natural resources into their planning decisions, when they attended a SPREP meeting held in Fiji.

The meeting, funded by the World Bank, brought together officials from Environment, Fisheries, Tourism and Development Planning departments.

SPREP Coastal Management Officer James Aston said development could have a major effect on the environment. "Whether that's a negative or a positive effect, it needs to be accounted for before decisions on development are made."

He said the meeting aimed to increase understanding of the value of coastal and marine natural resources. The aim was also to improve various Government sectors' awareness of the effect their decisions could have on those resources. This improved awareness would be achieved through refining the natural resource accounting tools that can be used in the development process.

The workshop also drew on some of the initiatives recommended in the Jakarta Mandate on Marine and Coastal Biological Diversity, which was recently agreed as part of the Convention on Biological Diversity. That mandate identifies the major threats to marine and coastal biodiversity, and proposes legal and policy measures to address them.

Some of the Jakarta Mandate recommendations which the workshop discussed included the integration of all the relevant sectors when management initiatives for the coastal and marine environment are being planned, and the establishment of public sector, private sector and international partnerships.

Officials considered in detail a range of economic tools they could use, including economic incentives and regulatory approaches, alternative measures of sustainable income or wealth, data collection and natural resource accounting.

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Countries which attended the workshop included: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

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V-Files: Cleaner Pacific energy

Hydro power, wind power and more efficient production and use of energy are some of the options which two consultants have identified for Pacific island countries wanting to reduce their greenhouse gas emissions.

Photovoltaic system supplying energy to the water pump system in the background.
Source: The Australian Overseas Aid Program and the Challenge of Global Warming

As part of their commitments under the Climate Convention, Pacific island countries have to compile inventories of the quantity of greenhouse gases they emit now, and report on how they propose to reduce those emissions.

Solomone Fifita, energy adviser with the South Pacific Applied Geoscience Commission (SOPAC) and Murray Ellis, a consultant for the Pacific Islands Climate Change Assistance Programme (PICCAP) who was formerly the Forum Secretariat's Senior Energy Officer, are preparing a report on what renewable energy sources and energy practices are being used now in the Pacific, and what the best future energy options might be.

They're picking efficiency improvements and hydro electricity generation as the most important options for Pacific island countries, along with wind energy. New Caledonia has already taken the wind energy path, with a dozen wind turbines installed on an exposed ridge, supplying about 2.5 MW of power.

Mr Fifita says SOPAC has monitored the wind potential in five Pacific island countries, to see if wind could be used to generate electricity. He says the potential looks promising, although what is needed now is a technical and economic analysis to establish how wind power could fit into existing power systems. He points out that wind is a more promising source of energy for the more southern Pacific island countries; closer to the equator, the doldrums are legendary for their lack of wind, meaning those countries would probably need to consider other sources of renewable energy.

The two consultants are not putting very much of a focus on solar power, even though it is already extensively used in a number of Pacific island countries. A number of islands in the Cook Islands, for example, use solar power in one form or another: more than 90 percent of all households, according to the Cook Islands Ministry of Energy. Pukapuka and Nassau use only solar energy, and Rarotonga has a solar subsidy, under which people buying and installing a solar water heating system are reimbursed the purchase and installation costs in full.

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Who profits from the Pacific's natural treasures?

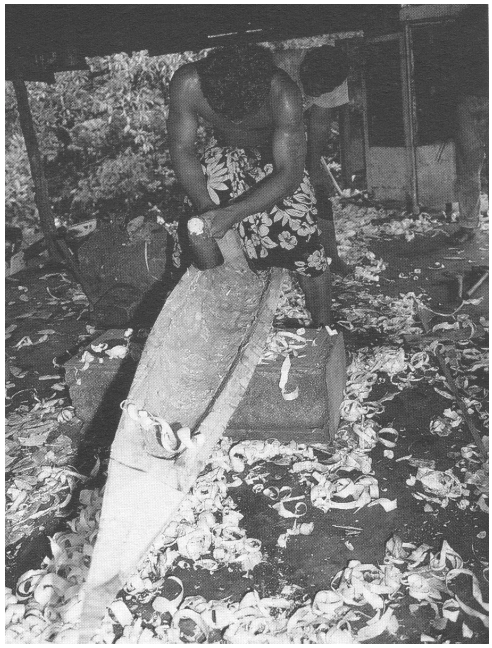
healers that allowed the plant's medicinal use to be targeted, there are no clear mechanisms for benefit sharing or technology transfer attached to the patent.

The Nadi workshop was the first Pacific islands regional meeting held to discuss the Convention on Biological Diversity . It was organised by SPREP in partnership with the Foundation for International Environmental Law and Development (FIELD) and the World Wide Fund for Nature South Pacific Programme (WWF SP). Participants from 14 Pacific island countries attended.

The Convention breaks new ground in explicitly coupling biodiversity conservation with the right to control access to genetic resources and to share benefits arising from their use. It is the first international agreement to acknowledge specifically that a country has sovereignty over its genetic resources.

It also provides some guidance on what the resulting benefits to a country might be, including the possibility of charging fees to collect genetic resources, technology transfer, or royalties from product sales. However, the parties to any bioprospecting agreement are responsible for negotiating specific terms.

The workshop noted that traditional knowledge is often just as important to bioprospectors as the resources themselves. In this area, participants said it was important to make the Convention's traditional knowledge section more useful to protect indigenous peoples' rights.



Well-known as some of the greatest mariners in history, Pacific islanders maintain their traditional knowledge in their crafts to support their daily needs from the sea. *Photo: Paddy Ryan for the Western Samoa NEMS.*

They also noted that current intellectual property rights laws do not protect the Pacific's natural resource heritage: rather, they protect the applicants for patents who come from developed countries. The workshop recommended the design of alternative intellectual property rights laws more suited to indigenous people and their knowledge.

The workshop called on SPREP and other relevant regional agencies to support Pacific island countries in providing assistance to customary resource owners, to record their traditional knowledge and customs. This information would only be released with the prior informed consent of the customary owners.

The Convention breaks new ground in explicitly coupling biodiversity conservation with the right to control access to genetic resources and to share benefits arising from their use. It is the first international agreement to acknowledge specifically that a country has sovereignty over its genetic resources.

They wanted the Convention to include recognition, protection and guidelines for the collective ownership of biological resources, folklore and knowledge. Participants said there needed to be a mechanism to control patent applications. There also needed to be a process of confirming that local communities and indigenous people had given their prior informed consent to the use of their knowledge and/or resources.

The workshop statement—the Nadi Statement, which was endorsed by workshop delegates—recommended that SPREP, the Forum Secretariat, the Secretariat of the Pacific Community (SPC) and other relevant agencies should work together to support Pacific island countries by, among other things:

- providing model bioprospecting agreements and guidelines

- helping with development and/or adaptation of national regulations for access to genetic resources, including the means of enforcing and monitoring such regulations
- encouraging national initiatives to collaborate with local communities to develop rules, information systems, technology, and to regulate access to their own resources at the village level
- helping establish national registers of biodiversity
- investigating possible regional approaches to regulate access to genetic resources
- enhancing public awareness programmes about unlawful removal of genetic resources

Participants said some of the obstacles to effective implementation of the Convention on Biological Diversity were:

- lack of effective coordination among government departments
- lack of understanding of core issues such as intellectual property rights
- lack of access to information
- insufficient sharing of information in the region

The Nadi Statement called on SPREP, the University of the South Pacific and other regional agencies to work together to help Pacific island countries, in cooperation with their local communities, to develop appropriate policies on access to genetic resources and the use of traditional knowledge.

The Nadi Statement also deals with the need for improved national coordination; issues of biotechnology and biosafety; national biodiversity strategies and action programmes; and national coordination of CBD initiatives.

Pacific works together

The Biodiversity workshop held in Nadi at the end of March, was also used to help countries prepare for the Fourth Meeting of Parties to the Convention on Biological Diversity, held in Slovakia from 4 – 19 May 1998.

Photo: Sue Miller (SPREP)

SPREP's Biodiversity Officer, Sue Miller said it was important for Pacific island countries to work together at international meetings like this. "Pacific island countries have such small delegations compared with other countries, and at meetings like this there are often several important meetings going on at once. By working together we can make sure we cover everything adequately."

The Nadi meeting highlighted traditional knowledge as being of particular importance in the Pacific. At Slovakia, the Marshall Islands took the lead on behalf of the region and presented their concerns about intellectual property rights. Discussions on this matter are to be continued by an open-ended working group.

The Pacific island delegates who attended the Slovakia meeting said they were very well prepared for it, thanks to their preparatory discussions in Nadi. However, events outside their control conspired to make it almost impossible for them to achieve all the goals they had set.

While 14 Pacific island countries had planned to attend COP4 in Slovakia, problems with travel arrangements and funding meant only Fiji, Marshall Islands, Nauru, Papua New Guinea and Samoa were able to get there.

Ms Miller said Pacific island delegates believed that under the circumstances, they had done tremendously well at the meeting. However, they were left wondering how much more successful they would have been if all the Pacific island countries had been able to attend.

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V-Files: Cleaner Pacific energy

An example of wind energy technology in Australia which could be employed in the Pacific islands.

Mr Fifita says there are more than 300 solar installations in Tuvalu, more than 500 in Tonga and about the same number in Fiji. The Marshall Islands have more than 100 solar installations, and solar power is used extensively in French Polynesia's outer islands.

However, Mr Ellis is cautious about using solar power to reduce countries' greenhouse gas emissions. "Our project isn't about supplying more energy, it's about reducing greenhouse gas emissions. So if you supply a solar photovoltaic system to an outer island so they can have lighting, it may replace a small amount of kerosene, but the reduction in greenhouse gas emissions is very small."

He says one problem with solar power is the mistaken belief that it doesn't need maintenance. "But in fact it does. The wiring corrodes, for example. You need to build in maintenance, and to make sure you have dedication to maintenance for any installation. You also need to build in funds to buy replacement equipment, like batteries."

Even so, Mr Ellis does not believe diesel will disappear from the Pacific in future. "Nobody's contemplating removing diesel, but we do need to reduce its usage."

Mr Fifita says for some Pacific countries, transport is the largest source of emissions. "Unfortunately, it's very hard to get substantial reductions from this sector. The most promising options are legislation or regulations which support driver education and improved maintenance of vehicles and roads."

Part of the SOPAC/PICCAP study involves looking at past renewable energy systems and assessing whether they were successful – and if not, why not.

Diesel generators and vehicles are the major source of greenhouse gas emissions in the Pacific. Although the Pacific's contribution to the global total of greenhouse gas emissions is miniscule, there is still ample opportunity for substantial emission reductions in the region.

Better maintained vehicles emit fewer greenhouse gases, and this principle applies more broadly than just the transport sector. While countries can reduce their emissions by finding newer, cleaner technologies, they can also achieve substantial reductions by using their available energy more efficiently. Both men say Pacific island countries should be paying more attention to energy conservation.

"Lighting is an obvious starting point: the incandescent bulbs used in many villages throughout the Pacific are highly inefficient and therefore much more expensive to run, compared with fluorescent lights," Mr Fifita says.

And apart from encouraging the use of more efficient lights, refrigerators and other appliances, and making sure people understand the need to keep these fully maintained, Mr Ellis says countries need also to look at how efficient their power supply systems are. "Often they're very inefficient, and as a result a lot of electricity is lost between the power station and the consumer," he says.

"One reason for that is that when a power system is running overloaded, you lose a lot of electricity. And in the Pacific, the wires and transformers are often inadequate. When the reticulation was first put in place, it was sufficient for the demand, but once people get electricity, they add things like refrigerators and motors, and you end up with a much higher demand

than the lines were designed for, which overloads the system.

Part of the SOPAC/PICCAP study involves looking at past renewable energy systems and assessing whether they were successful – and if not, why not. Biomass gasifiers are one system which the Pacific discovered was not suitable, Mr Ellis says.

The gasifiers use waste plant material or wood to fire gas turbines. Mr Ellis says the system works well in the middle of Europe, but in Pacific island countries, surrounded as they are by the world's largest ocean, the large amounts of salt in the air rapidly corrode the machinery. "For example, at one stage the Belgian engineer who was advising on the gasifier in Vanuatu asked half-jokingly if they'd been pouring sulphuric acid into the gasifiers, they were so badly corroded."

He says proper maintenance of complex machinery is another problem in the Pacific. "With the Vanuatu gasifier, there was an engineer who was really dedicated about keeping the plant going. But when he left, the gasifier stopped. The expertise you need on site for this sort of technology makes it unrealistic for the Pacific."

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Sailing into environmental issues

A three-masted tall ship made a splash for the environment when it visited Rarotonga earlier this year, teaming up with SPREP and the Cook Islands Environment Unit to distribute environmental education material.

The Picton Castle's arrival in Apia, Samoa. Part of the welcoming group organised by Samoa's Visitors Bureau and Department of Environment and Conservation included Ms South Pacific 97/98, Ms Mary Jane MacGibbon (foreground dancer, bottom picture).

The Picton Castle, a 180-foot square-rigged barque, is making a 500-day circumnavigation of the globe. On its way the crew are distributing educational material prepared by the United States Environmental Protection Agency and the National Oceanic and Atmospheric Administration, dealing with global environmental issues such as climate change, ozone depletion and El Niño.

In the Pacific, the ship is also distributing SPREP publications dealing with issues of particular concern to the Pacific, such as coral reefs, turtles, sustainable development, destructive fishing practices and environmental impact assessment.

The Rarotongan visit began with a welcome from the two mayors of the harbour district, leis for the crew and dancing from local schoolchildren. Cook Islands Director of Conservation Ned Howard noted that Pacific island people had a long and proud history as skilled seafarers. He said the people of the Cook Islands were happy to welcome the modern-day seafarers of the Picton Castle.

During the welcoming ceremony, the ship's captain, Dan Moreland, presented the SPREP publications to the Cook Islands Curriculum Unit. The crew held an open day to allow the public to tour the ship, and also threw the ship open to some 250 schoolchildren. The Cook Islanders took the crew to their hearts, even taking the sports-minded to the big rugby final that weekend.

Captain Moreland said the cooperative venture with SPREP was totally in keeping with the ship's overall mission as a deep-water voyaging and training ship. "Our aim is to serve in the cause of environmental preservation in this International Year of the Ocean."

He said traditional sailors knew a voyage was one long, continuous exercise in conservation. "In this we are in full harmony with our Cook Islands hosts."

continued from page 2

Damaging the environment is a crime

Pacific island countries and opened by Samoa's Minister of Lands Surveys and Environment, Hon Tuala Sale Tagaloa.

SPREP Legal Officer Bernard Moutou said numerous international conventions provided a framework for protecting the environment, but countries frequently lacked the resources to enforce convention provisions.

"It is often difficult for Pacific island countries to monitor and enforce environmental laws. This workshop is organised to enable government officials to explore different approaches to using criminal law, with emphasis on prosecution of environmentally harmful acts and developments," he said.

SPREP's director, Tamari'i Tutangata, told the workshop it was essential that legislation and enforcement were tailored to meet the special needs of Pacific island countries. He noted the cooperation and collaboration that already went on between countries and agencies to implement environmental conventions, making sure the region's available expertise is put to the best use.

"Private companies complying with environmental laws should also have a role to play in notifying authorities of competing companies that fail to comply with such laws." Mr Tutangata said it was important to take into account customary law when penalties for environmental crimes were considered.

"In the Pacific, sometimes the small community-level enforcement is the most effective. For example, in the 44 Marine Conservation Areas which Samoa's Fisheries Department has helped set up, villages manage their conservation area, set appropriate penalties for illegal activities and enforce violations by payment of pigs or, in extreme cases, banishment from the village."

Lack of awareness and appropriate legislation causes pollution to our environment eventually damaging it's capacity to provide us with the basic neccessities for our daily living.

During their discussions, participants developed strategies for international and regional cooperation when prosecution is required. One of the workshop highlights was the two mock trials, with participants throwing themselves with relish into the various roles of judge, prosecutor, defence attorneys, witnesses, the accused, the bailiff and the court clerk.

The first case involved illegal importation of hazardous waste, while the second concerned illegal hunting and killing of protected wildlife—a contravention of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). Workshop organisers provided the participants with a description of the offences, the relevant statutory provisions and a few evidentiary documents.

Despite creative cross-examination, it was clear there were difficulties with inadequacies in evidence caused by lack of technical facilities to analyse samples and to identify specimens locally, as well as unclear and ambiguous legal provisions.

Some of the 17 recommendations made by the workshop, including establishment of a network of environmental law enforcement officials and the reproduction of a CD-ROM containing the full text of international and regional conventions, treaties and legal instruments and other information, are already being followed up by Environment Australia in terms of funding.

Copies of the workshop report including the 17 recommendations and handbook will be available on the SPREP website (www.sprep.org.ws).

Copies can be obtained by writing to Andreas Volentras, Legal Officer, SPREP, PO Box 240, Apia, Samoa.

SPREP Staff Update

As we head towards the new millenium, new programmes and staff arrive at the Secretariat while long serving staff and others depart. This page includes some of these movements.

SPREP farewells

Merimeto Keil: Occupied the first post of Library Assistant in the organisation. Merimeto is currently undertaking undergraduate studies in Australia .

Michael McGrath: Project Officer (Socio-economics) formerly under the South Pacific Biodiverstiy Conservation Programme (SPBCP). Michael is currently working for WWF at the Gaza Strip, in Palestine.

Mafuli Matalavea: Accounts Clerk. Mafuli leaves SPREP to take up a finance position with the Samoa Public Trust office.

Bismarck Crawley: Environmental Information Data Analyst Officer. At the completion of his contract, Bismarck has decided to move on and is now working in American Samoa's Department of Lands and Environment.

Tumema Fuimaono: Divisional Assistant. Tumema now resides in Australia with her family.

Mapusone Peseta: Cleaner. Mapusone has moved on due to personal reasons.

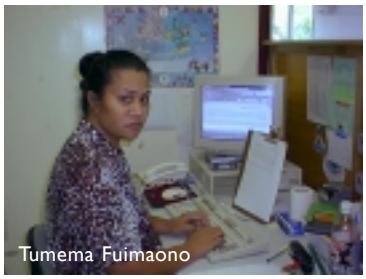
Esera Rusia: Groundsman. Esera departs his SPREP family due to his untimely death. Loved and is missed by his colleagues.


Bismarck Crawley

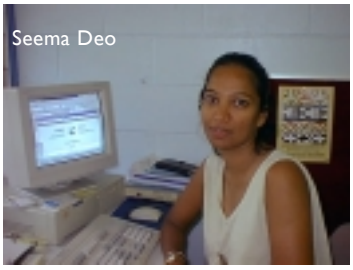

Gisa Salesa-Uesele


Merimeto Keil


Michael McGrath


Tumema Fuimaono


Sandy Young


Seema Deo


Tologau Uatisone


Esera Rusia


Mapusone Peseta

SPREP newcomers

Steve Raaymakers: Marine Pollution Adviser. Steve is in charge of the new Pacific Marine Pollution Prevention Programme (PACPOL). He is seconded to SPREP from the Commonwealth Secretariat for 2 years.

Sandy Taei Young: Sandy replaces Mafuli Matalavea as Accounts Clerk.

Seema Deo: Seema replaces Gisa Salesa Uelese as Environmental Education Officer. She is recruited from Fiji.

Tologau Uatisone: Library Assistant. Tologau is recruited from the National University of Samoa and takes over from Merimeto Keil.

Sina To'a: Sina is recruited from the Samoa Visitors Bureau. She is the new Divisional Assistant for Environment Management Planning (EMP) Division.

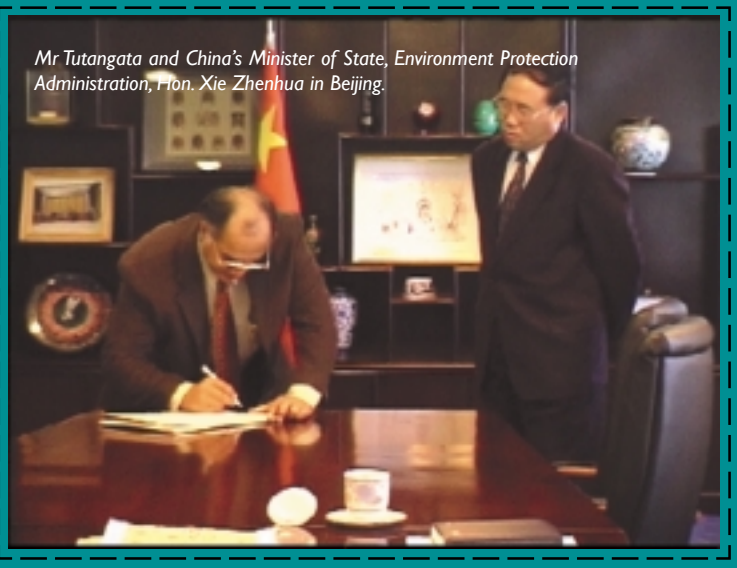
Tiana Tuipoloa: Registry Assistant, recruited from Foreign Affairs in Samoa.

SPREP in focus

For the first time, the Director of SPREP was officially invited to the People's Republic of China by Hon. Xie Zhenhua, Minister of State, Environment Protection and Administration.

The trip was undertaken in May 1998 and some of the images are included in this section of the newsletter, covering mainland China, a "Greenbag" session at ADB in Manila, a meeting with Japanese Foreign Affairs in Tokyo and a first time meeting with newly appointed Japanese Ambassador, H.E. Jun Kawashima in Wellington New Zealand.

Deepest gratitude to Mr Zhenhua and all we came to meet during this trip. A special acknowledgement to H.E. Wang Xinyuan, Chinese Ambassador to Samoa, for all the arrangements.



Mr Tutangata and China's Minister of State, Environment Protection Administration, Hon. Xie Zhenhua in Beijing.

Mr Tutangata presenting China's Vice-Minister of Foreign Affairs, Hon. Jang Jieshi with a gift from the Pacific at China's Ministry of Foreign Affairs in Beijing.

First official meeting with Japanese Ambassador, H.E. Jun Kawashima, at the Japanese Embassy in Wellington, New Zealand.

Meeting with Municipal leaders of Zhangjiagang City.

With Prof. Xiang, President of Suzhou Institute of Urban Construction and Environment Protection (SIUCEP).

Photo: Courtesy of SIUCEP

Briefing on the history and environmental focus of Souzhou City.

Guided tour of the "Humble Administrator's" garden. One of the many breathtaking examples of environment protection in Souzhou.

Left: Rekindling ADB and SPREP relations with Mr Bindu Lohani, Manager of Environment Division before the Greenbag Session (top), held at ADB headquarters in Manila, Philippines.

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