IAS News

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A Brief Look at some Highlights of the IAS's Activities In 2014

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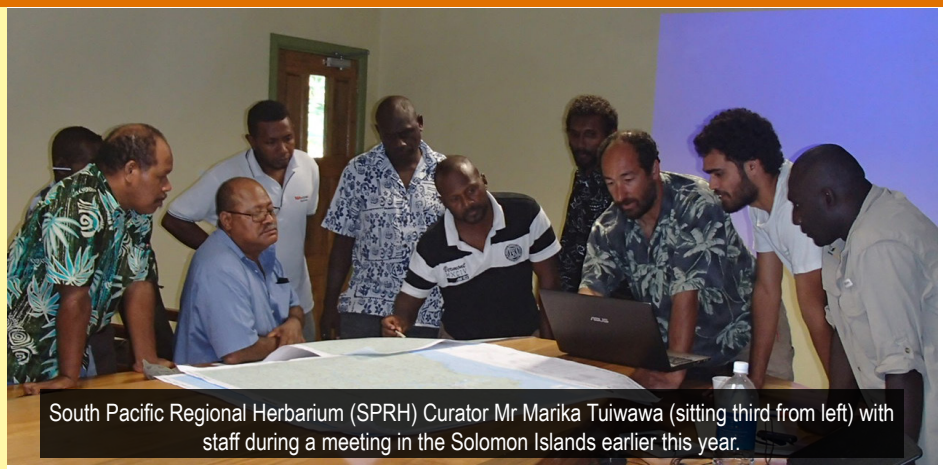


South Pacific Regional Herbarium (SPRH) Curator Mr Marika Tuiwawa (sitting third from left) with staff during a meeting in the Solomon Islands earlier this year.

Herbarium, IAS,USP to Lead Landmark Biodiversity Survey

Plans are underway to mount an expedition next year into the mountains of Guadalcanal, in what will be a landmark in the history of Pacific biodiversity research. The expedition is being coordinated by the South Pacific Regional Herbarium of USP, and will comprise taxonomic experts from the Pacific and around the world, working together to document the flora and fauna of one of the world's most biologically diverse areas.

The highest point on the island of Guadalcanal is Mt Popomanaseu. Standing at 2335m the spot marks the highest landmass between South America and Papua New Guinea. The forests that cover this peak and the surrounding uplands contain biological communities characterised by high endemism, and in which there are potentially many species that have never been recorded by scientists before.

The biological importance of the Solomon Islands is widely recognised. The rainforests of the Solomon Islands are listed on WWF's Global 200 ecoregions of conservation priority, and categorized both as 'outstanding' and as 'Vulnerable' (this vulnerability being primarily due to logging, and the negative impacts associated with invasive species). The Solomon Islands is also a recognized Centre of Plant Diversity, with an estimate of its floral biodiversity being 4500 species. The entire archipelago of the Solomon Islands is classified as an Endemic Bird Area, with a threat level of Critical, owing to its very high level of endemism.

USP is partnering with the American Museum of Natural History (AMNH) and the Solomon Islands Community Conservation Partnership (SICCP), to plan and implement the project, which is being funded primarily by the Critical Ecosystem Partnership Foundation (CEPF).

At a planning meeting in June of this year project stakeholders met in Honiara to begin preparations for this historic expedition. At this meeting staff from the three project partners (SPRH, AMNH and SICCP) met with Solomon Islands government and provincial officials, NGOs, landowner representatives and staff of the Solomon Island National University. The expedition is scheduled to take place over a period of four weeks in June 2015. International taxonomic experts will work in collaboration with Solomon Island and other Pacific-based taxonomists to identify and catalogue the biological richness of this globally unique site.

Figure 1 Team carrying out a transect in a Bruguiera gymnorrhiza zone near Nayavuira village.

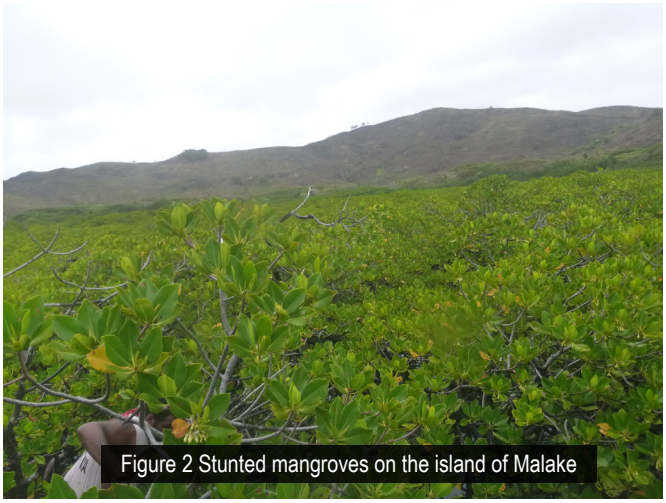


Figure 2 Stunted mangroves on the island of Malake

Mangroves an important resource for Integrated Coastal Management in the province of Ra.

By Lekima Copeland

The province of Ra located on the north-eastern coast of Viti Levu Island is one of the four important provinces that make up the Vatu-i-Ra seascape. With the help of the Fiji government, Non-Governmental Oganization's (NGO's) and the Institute of Applied Sciences (IAS), efforts are currently underway to develop a provincial-level Integrated Coastal Management (ICM) resource plan, funded by the Coral Triangle Pacific project for Ra province. Lessons learnt from past experiences of implementing ICM in Fiji will be used to ensure a better coordinated approach towards effective sustainable coastal and marine resources management in Ra. The Institute of Applied Science has been tasked to carry out the Ra-ICM baseline survey. One of the main components of the work was to carry out mangrove assessments in Navitilevu Bay.

Over a five day period (27th-31st October) a five member team consisting of staff from the IAS Herbarium and Environment Unit surveyed mangroves across five villages (Togovere, Malake, Nayavuira, Navitilevu and Naocabau village). Surveying mangroves is a unique and arduous challenge when compared to other fauna and flora surveys. Laying straight 50m transects through thickets of Rhizophora spp. covered with mangrove oysters is not an easy feat.

A representative of the Fisheries Department based in Namarai village joined us as part of a learning and capacity building exercise for him. The stands of mangroves found along the Navitilevu Bay are relatively small when compared to the Rewa Delta. According to our team leader Mr. Alifereti Naikatini "these systems are what we call lagoonal mangroves". These interesting systems of mangroves play important roles as a coastal resource for communities along Navitilevu Bay. Mangroves are known to play three important ecological roles:

- Act as a nursery for young marine organisms
- Prevent silt and pollutants from the interior from reading coral reefs
- Protection of the coast from large waves

The mangrove systems found around Togovere village are mostly stunted. The absence of rivers or streams will result in high salinity which is known to affect the growth of mangroves.

In Ra, mangroves (*Rhizophora* spp.and *Bruguiera gymnorrhiza*) are all called "Dogo" but in some other parts of the county, for instance the Rewa and Tailevu delta we classify them into two groups "Dogo" for *Bruguiera gymnorrhiza* and "Tiri" for the two native species and one hybrid in the Rhizophora genus.

Overall, we believe that the development of an ICM plan for Ra will result in an illuminated path on the sustainable management of resources found in the province. The ideology of ICM sits well with the Fijian culture and especially for the province of Ra. The Ra-ICM will have to evolve to address the diverse and complex problems facing the management and sustainable usage of coastal resources in modern day Ra. This will first require the government and all stakeholders to engage fully in the development of this plan, and, in particular resisting the hordes of resource hungry "Sirens" and their pernicious ways. It is hoped that this rapid mangrove assessment will help improve the development of the ICM plan in Ra.

Figure 1 : Workshop Participants in Sydney, Australia

IAS, USP Staff Presented at 5th Pacific Bioprospecting Access & Benefit-Sharing Workshop

By Klaus Feussner

The Centre of Drug Discovery & Conservation, Institute of Applied Sciences (IAS), USP presented on the "Melanesian Experience in Marine Drug Discovery" at Sydney, Australia held 5th Pacific Sub-regional Bioprospecting Access and Benefit-Sharing (ABS) workshop on Nov 10 – 13. IAS Assistant Project Manager Mr Klaus Feussner discussed the Bioprospecting/ biodiversity of Fijian marine algae, invertebrates and actinomycetes at the workshop organized by the Secretariat of the Pacific Regional Environment Program (SPREP). Also in attendance were high ranking government representatives from the region, bioprospectors (both academic as well as commercial e.g. Nimura Genetic Solutions) and organizations (ABS initiative, SPC, SPREP, LMMA, UNDP, UNEP, Secretariat Convention of Biological Diversity.

An outcome of the workshop was a draft version of a research collaboration agreement that will be forwarded to the participants as a possible template for bioprospecting research in the USP region. This will place USP IAS CDDC in a prime position in the region in implementing ABS policies under the Nagoya protocol by leading possible bioprospecting projects and also assisting the region in archiving samples or results. A written proposal by IAS, USP to access funding from the Nagoya Fund for ABS work in Fiji has been approved and will be administered through UNDP and the Fiji government.

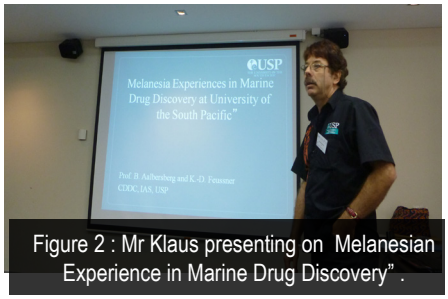


Figure 2 : Mr Klaus presenting on Melanesian Experience in Marine Drug Discovery" .

IAS Welcomes New Deputy Director

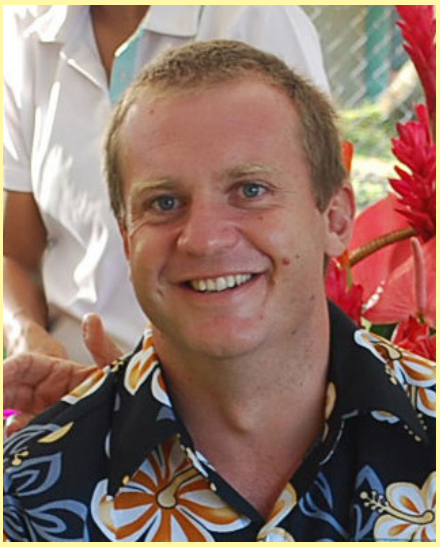
Dr Johann Poinapen, IAS Deputy Director

The Institute of Applied Sciences (IAS) is pleased to announce the appointment of Dr Johann Poinapen to the position of Deputy Director at the Institute. A former Principal/Lead Water Process Engineer at AMEC Australia and a former Water Leader and Engineering Group Manager with MWH Global, Dr Poinapen is a registered and chartered professional engineer with over 15 years' experience in the water industry. Dr Poinapen hails from Mauritius in South Africa and he obtained his PhD from the University of Cape Town in water process engineering for the co-treatment of sewage sludge and acid mine drainage.

As Deputy Director, Dr Poinapen will assist the Director in providing strategic direction, guidance, leadership and eznsure there is adequate funding to carry out IAS strategic plan initiatives. The Director, IAS Professor Bill Aalbersberg in welcoming Dr Poinapen stated that IAS will benefit greatly from the wealth of experience in water process engineering, project development and management experience that Dr Poinapen has to fulfill the core objectives of the Institute.
Dr Poinapen has already contacted local resorts to see how he can assist in water and sewage management and also regionally in the mining industry. He is joined in Fiji by his wife Natacha, a PhD microbiologist and son Nigel. Dr Poinapen's interests outside work include engaging in community building activities, such as initiating service projects, promoting children and youth empowerment programmes aimed at building the capacity of young people to serve their community. He also enjoys playing football.

The Institute of Applied Sciences is a self-funded consultancy, training and research arm of the University that is located within the Faculty of Science, Technology & Environment. Its main areas of activity are analytical services, quality management and natural resource management. It houses the Centre for Drug Discovery and Conservation and the South Pacific Regional Herbarium.

Meet A Staff Member



James Comley
Research Advisor

1. Explain your role at IAS?

My official job title is Project Manager and Research Advisor, roles that cover a very wide range of tasks. Originally when I joined IAS I worked on supporting the studies of our postgraduate students and working to assess the effectiveness of community based marine managed areas. As time has gone by and the role and priority of the Institute has changed, so too have my key roles. Whilst I continue to mentor postgraduate students, I have increasingly become involved in undertaking and managing consultancy work that we do for private sector clients. These clients include resource-based companies including mining companies and, more recently the telecommunications industry. This consultancy work revolves around the assessment and mitigation and management of environmental impacts associated with development. The role is both technical (GIS, field surveys and statistics/ data analysis) and managerial ensuring work is done to a high standard, on time and delivered to meet the expectations of our clients.

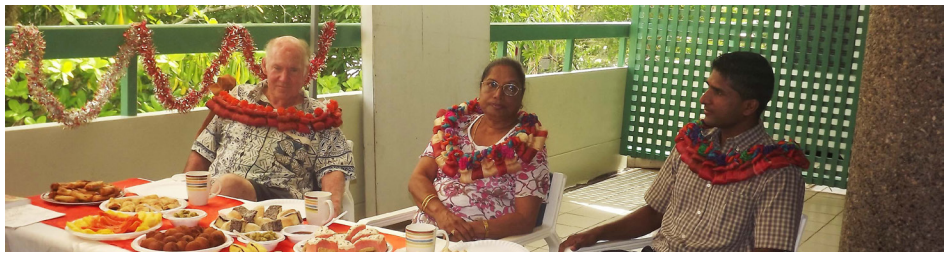
2. What do you enjoy best about your work?

There are two things that I best enjoy about my work. Firstly that no two days are same. In the past month I have visited four member countries of the USP community; undertaking marine surveys in some, meeting government stakeholders in some and attending meetings and workshops in others. My role requires me to wear so many different hats depending on the task at hand that day- and this diversity keeps the job interesting. The second think that I enjoy most about my work is seeing young, talented Pacific Islanders (many of whom I have mentored directly) go on to fresh pastures both within IAS, the wider USP community and outside. To see this next generation that I have had some part in training is extremely rewarding.

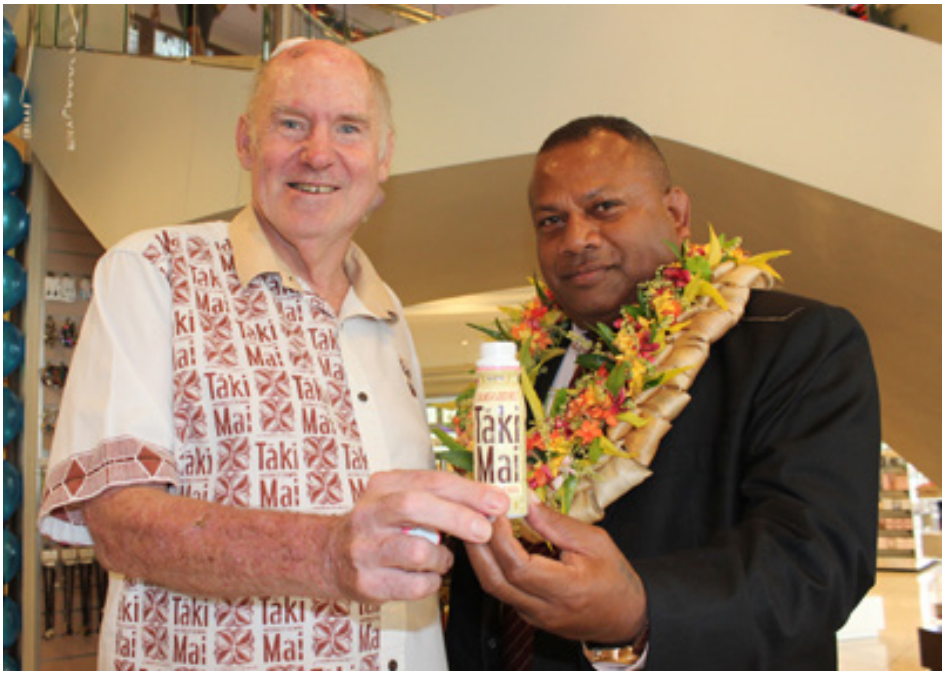
Farewell for IAS Longest Serving Staff Member

Mrs Aisha Khan

The IAS Family in December 2014 farewelled its longest serving staff member, IAS Secretary Mrs Aisha Khan. Aisha who had joined IAS a year after it was first established was the Institute's second secretary and in her 36 years of services had seen IAS grow from a 4 staff member Institute to the thriving Institute that it is now. A trustworthy, loyal and reliable lady, Aisha's contribution to the developments at IAS will be sorely missed.
The farewell party also served as a double-celebration of hers and the Director, IAS Professor Bill Aalbersberg's 65th birthday.



IAS Director William Aalbersberg (L), Mrs Khan and IAS Deputy Director, Dr Johann Poinapen



IAS Director William Aalbersberg (L) poses with Minister for Agriculture, Rural and Maritime Development and National Disaster Management Honourable Inia Seruiratu during the launch.

USP helps develop Kava product

The University of the South Pacific (USP) Institute of Applied Sciences (IAS) has contributed to the development of a new kava product known as "Taki Mai".

The product was officially launched in the country by the Minister for Agriculture, Rural and Maritime Development and National Disaster Management Honourable Inia Seruiratu on November 20, 2014.

"IAS developed the process to extract the active ingredients from green kava which is then added to flavoured drinks by a United States firm and packaged in a small opaque bottle," IAS Director William Aalbersberg said.

"After extracting active ingredients we found a process to dry the extract so that it could be added to the flavouring agents," he said.

"Typically for something like coffee this is done with a very expensive freeze drying machine to make soluble crystals."

He said IAS succeeded in this and the process has been upscaled at the factory in Ovalau.

In delivering his address, Hon Seruiratu congratulated the "Taki Mai" team for the successful launch of their product.

"We all know the potential and opportunities in Fiji's agricultural sector. A holistic approach is needed to utilize the full potential and this requires significant efforts from our stakeholders," he said.

The Minister said "Taki Mai" was involved directly from the nurturing and selection of Kava seedlings in the nursery, transplanting to the field, harvesting and carefully selecting kava plants, quality control, processing of kava in the factory in Ovalau.

"We aim to modernise Fiji's agricultural sector and contribute more to GDP (Gross Domestic Product), and create employment opportunities," he said.

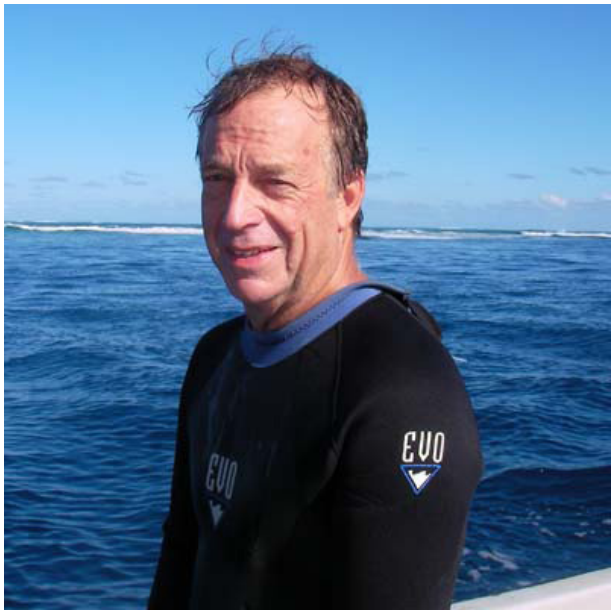
According to him the Ministry of Agriculture is committed to see more of such initiatives developed and supported for other commodities in other parts of Fiji which would benefit the whole community as part of the economic spin.

Meanwhile, the Project Manager Zane Yoshida said it was a huge effort from whole of his team to get this idea off the ground.

"We would like to thank and acknowledge the contribution made by USP on the research side of this product. I am excited about this launch of the product in the Fiji market which brings back the highest kava quality," he said.

Zane also highlighted that kava was part of the pepper family and used in the Pacific for over 300 years.

USP's Drug Center's Grant Renewed



Principal investigator Prof Mark Hay during sample collection expedition last year.

The Georgia Institute of Technology (GIT) will continue a collaborative effort with The University of the South Pacific's Center for Drug Discovery and Conservation (CDDC) to discover new drug leads.

The University's CDDC unit was established in 2001 as a research branch for the Institute of Applied Sciences involved in bioprospecting work on marine and terrestrial organisms and plants.

Director CDDC Professor William Aalbersberg said after the first term from 2005 to 2009 and an increase in collaboration and mutual interests, a second term was secured from 2010 to 2014 resulting in numerous publications.

"A second renewal was sought by the consortium and has been successfully renewed again for another term in 2014. Due to the impact and quality of research, the GEF (Global Environment Facility) has recently also awarded a grant to CDDC/Government of Fiji," Prof Aalbersberg said.

In a statement Fogarty International Center confirmed awarding three grants (one to Georgia Institute of Technology (GIT), with CDDC subcontracted) totalling about $15 million over five years for research focused on biodiversity conservation and the discovery of new therapeutic agents derived from plants, animals and microorganisms in low- and middle-income countries (LMICs).

It said funding from the International Cooperative Biodiversity Groups (ICBG) programme would support new and ongoing biodiversity efforts in Brazil, Fiji, Solomon Islands and Philippines.

"This ICBG programme seeks to discover new drug leads for the treatment of cancer, drug resistant bacterial infection, neurodegeneration, and neglected tropical parasites," the statement said.

It further stated the source material would be acquired from cultured marine microbes, algae and invertebrates collected from diverse locations throughout Fiji and the Solomon Islands".

Meanwhile Prof Aalbersberg further said as of 2014, the unit would continue the search for antibacterial, antifungal as well as anticancer activity from marine and terrestrial samples.

"We are in the process of setting up an anti-dengue test facility as well. We have recently started work on setting up libraries of pure compounds and crude extracts from marine macro and microorganisms," he said.

According to him they also maintain a library of actinomycete bacteria isolated from marine sediments and organisms.

The CDDC also has a DNA laboratory used in plant and animal/bacterial identification. The unit provides research students at a masters level with equipment and expertise for natural products chemistry.

"So far approximately 1900 strains of marine bacteria have been isolated and a total of 3350 marine invertebrate/algae extracts analysed".

The Fogarty International Center is dedicated to advancing the mission of the National Institutes of Health by supporting and facilitating global health research conducted by the United States and international investigators, building partnerships between health research institutions in the U.S. and abroad, and training the next generation of scientists to address global health needs.

The Fiji Times ONLINE

Green Fiji framework

Dr Anirudh Singh

Friday, July 25, 2014

The government made a bold move on June 13 this year when it launched its green growth framework (GGF). It was a step into the untried, untested and largely unknown in policy making. But the objectives were noble, and the intentions profound. One must wait and see what the results will be.

The idea of green growth is not new. It first emerged in the region at the fifth meeting of the Asia-Pacific Environment Ministers in May 2006. It was part of the Declaration on Environment and Climate Change of the Melanesian Spearhead Group on 30th March 2012, and was readdressed at the Pacific Islands Development Forum (PIDP) in August 2013.

What is the GGF?

So what is the GGF and why is it so important?

Put simply, it is an attempt to link the economic development of the country with environmental concerns in the hope of sustaining the environment while enjoying the trappings of economic prosperity. The proponents believe it can be done.

The focus is on economic development and the effect it invariably has on the environment. The GGF sees sustainable development as being supported by three pillars; society, environment and economy. It strives to strike a balance between the three so economic development does not happen at the expense of the environment.

Where did the idea come from?

Talk about sustainable economic development has been continuing for a long time. The.1994 Declaration of the Barbados Program of Action was the first to acknowledge the central position of people in such development. But perhaps the most significant event was the Third World Summit on Sustainable Development (popularly called Rio +20) held in Rio in June 2012. Its outcome document, titled The Future We Want:

* promotes the development of green economies in the context of sustainable development and poverty alleviation;

* believes that green economy policies and measures can offer win-win opportunities for integrating economic development with environmental sustainability for all countries; and

* encourages all countries to develop their own green economies.

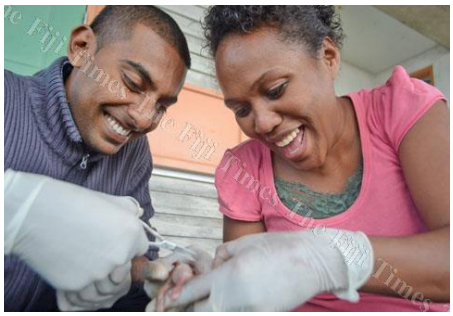
The PIDP meeting of August 2013 decided to adapt the idea to the Pacific situation by mooting a model of "green growth in blue economies".

The GGF's structure

The framework consists of 10 thematic areas (including climate change, disaster management, environmental management, energy security) which appraise the country's state of development in these areas, noting down the main challenges and suggesting time-bound actions to fix the problems.

Some of the key features of the GGF are that it is people-centred (ensures Fijians are at the centre of sustainable development) and inclusive (there will be participation from all national stakeholders, including the private sector, development partners, local government, and the communities). It will also provide an integrated and cross-cutting national enabling environment for sustainable development (no more working in silos).

What is particularly important is that it will take a "whole of development" approach to



The University of the South Pacific, Institute of Applied Science staff members Rahul Tikaram and Rosemary Dautei during an environmentally-related training session earlier this month. The author says the Pacific has adapted green growth.

sustainable development rather than the sector-wise development conventionally adopted by the civil service. This is not quite a new concept for the Pacific, as it has already been employed in a slightly different form (whole of sector approach) in the development of the Tonga Energy Roadmap.

The GGF will work by changing people's behaviour rather than the implementation of structured policies and strategies from above. Its implementation will begin with advocacy supported by a continuing communication strategy.

GFF's unique features

Several features of the GGF are unique. Firstly, it will seek the assistance of NGOs to reach the communities. The document itself will be translated into the vernacular to enable ease of dissemination.

Secondly, indications are it will have no overall (fixed) budget assigned to it but will make specific requests to Cabinet every year. To enable this, the governing body will meet before government announces its budget each year.

The GGF will herald a new technique in policy implementation for Fiji. It will be an experiment in behavioural organisation.

Strengths and challenges

As with any other innovation, the framework has both strengths and challenges it must contend with. Perhaps chief among its strengths are that it is the first serious attempt at a non-sectoral solution that places peoples' needs at the centre, and recognises the multi-disciplinary nature of the development problem.

It is also a policy framework that facilitates the long-term survival of the species (by protecting the environment) while simultaneously satisfying its short-term needs and wants. It is an experiment in behavioural organisation as opposed to the conventional logically structured solutions to human problems.

But there are several challenges that this new policy framing initiative must be prepared for.

Firstly, by choosing behavioural change as its principal tool, it throws away the range of other methodologies available to conventional policies provided by the academic disciplines. Perhaps the only two disciplines that could be meaningfully brought to bear would be sociology and behavioural psychology.

Secondly, it must be noted that the implementation of the GGF will be monitored by civil servants who only know the structured approach of procedures and processes. For them, this will be a revolutionary change in paradigm in policy framework and implementation methodology. Will civil servants be willing to share and/or relinquish power as is implied in this new way of doing things?

Perhaps most significantly, while the GGF advocates the objectives of a blue/green economy, it does not seem to embrace its philosophy and principals. For instance, although waste reuse and recycle is advocated, there is no mention of Life Cycle Thinking in production/distribution/consumption, or of cascading systems where the waste of one product becomes the input resource for the production of another, which are integral principles of blue-green economies. Perhaps this is because Fiji is following the new (PIDP) adaptation of the idea.

To summarise, the GGF introduces a transformational change in policy implementation and governance. Its intentions are noble, the methodology novel and laudable.

The question is, will it work?

My personal view is that regardless of the perceived difficulties, this is a development in policy making that took a long time coming. We must throw caution to the wind and go for it!

* The views expressed in this article are those of the author and do not reflect the views of the institutions the author is associated with nor of this newspaper. Readers may share their views by emailing anirudh_singh2005@hotmail.com.

USP Beat

IAS TO LEAD LANDMARK BIODIVERSITY SURVEY

The University of the South Pacific's (USP) Institute of Applied Science (IAS) will soon mount an expedition into the mountains of Guadalcanal, Solomon Islands in what will be a historical landmark for Pacific biodiversity research.

The expedition is being coordinated by the IAS' South Pacific Regional Herbarium (SPRH) and will comprise taxonomic experts from the Pacific and around the world.

Herbarium's Curator Marika Tuiwawa said the experts will work together to document the flora and fauna of one of the world's most biologically diverse areas.

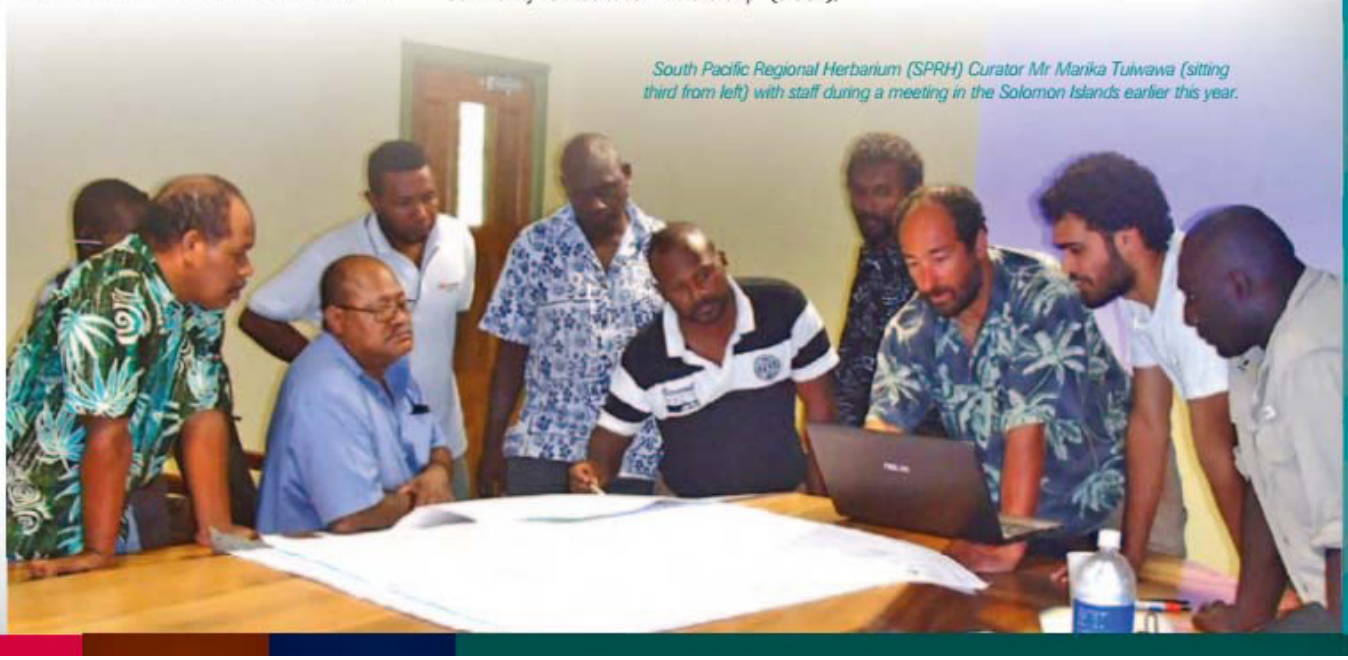
"The forests that cover Mt Popomanaseu and the surrounding uplands contain biological communities characterised by high endemism, and in which there are potentially many species that have never been recorded by scientists before," he said.

The Solomon Islands is also a recognised Centre of Plant Diversity, with an estimate of its floral biodiversity being 4500 species.

"USP is partnering with the American Museum of Natural History (AMNH) and the Solomon Islands Community Conservation Partnership (SICCP), to plan and implement the project, which is being funded primarily by the Critical Ecosystem Partnership Foundation (CEPF)," Mr Tuiwawa said.

Mr Tuiwawa confirmed that the expedition is scheduled to take place over a period of four weeks in June 2015.

"International taxonomic experts will work in collaboration with Solomon Islands and other Pacific-based taxonomists to identify and catalogue the biological richness of this globally unique site," he added.



South Pacific Regional Herbarium (SPRH) Curator Mr Marika Tuiwawa (sitting third from left) with staff during a meeting in the Solomon Islands earlier this year.