



Second Meeting of the SOPAC Division Noumea, New Caledonia, 3-9 November 2012 (SOPAC-2)

AGENDA ITEM	TITLE
3	SOPAC HIGHLIGHTS AND EMERGING ISSUES
3.4	Technical Support Services 2011/2012 report
3.4.1	Technical Support Services Summary Report

RESOURCE ECONOMICS

In addition to a number of economic analyses and papers released or developed during the year on behalf of SOPAC Division technical programmes, the Natural Resource Economics (NRE) Programme completed work in 2011 for IUCN on the economic dimensions of climate change adaptation in **Tuvalu**. Work also commenced on economic analysis of improved meteorological services for the World Meteorological Organization (WMO). This work will complement the work of the Ocean and Islands and Disaster Reduction programmes by informing the value of increased investment in these services through disaster preparation.

In addition to support to Division technical programmes, the NRE team continues to promote the development of effective policy using economics through:

- work as coordinator of the Pacific Resource and Environmental Economics Network (PREEN) which it co-founded in 2009 with IUCN and the then separate SPC. The team promotes the use resource economics for sustainable development and the sharing of experiences/ dissemination of information via the development of the PREEN newsletter and the SOPAC NRE web site (<http://www.sopac.org/index.php/natural-resource-economics-overview>). Two PREEN newsletters were released in 2011 and so far one has been released for 2012.
- Collaborative work with SPREP and GIZ on resource economic analysis initiatives. To this effect, NRE team is presently working with SPREP and GIZ and potentially other partners on the development of a reference guide for the conduct of cost benefit analysis of Pacific projects.

The NRE Programme has provided unscheduled but ongoing support in the region in the form of the review of documents, input to regional project design, and input to the work of other resource economics programmes in areas of mutual interest. This includes work with SPREP, GIZ and other Division training workshops in the conduct of cost benefit analysis, review of working papers, support to other economics units and the design of future work. Unfortunately, the limited size of the NRE Programme – particularly in the face of recent cuts to operational funding for 2013 (of over a third) – means that the ability of the NRE Programme to continue to provide ongoing response to unscheduled requests is likely to be constrained in 2013.

Climate change continues to feature strongly in the future work for the SOPAC Division NRE Programme. This includes present work on coastal management in **French Polynesia** and **Tonga** (see report of the Oceans and Islands Programme) as well as work being planned in food security related to climate change adaptation in Kiribati and the **Solomon Islands**.

Emerging Issue

The NRE Programme represents the smallest of the SOPAC programmes of work. In recent years, there has been an increasing recognition of the value of NRE to support natural resource policy development, project design and proposal development. As a result, there has been an increased number of requests for advice and support from the NRE Programme internally as well as from outside agencies. However, the operational funding for the NRE Programme has been reduced by over a third in 2013 and this jeopardises the ability the unit to provide ongoing assistance to unscheduled requests. Given the value of NRE in 'selling the science' of the SOPAC work, sustainable funding for this unit will need to be revisited.

GEOGRAPHIC INFORMATION SYSTEMS (GIS) AND REMOTE SENSING (RS)

Summary

The working areas of GIS and RS support are (i) image data service with the sub-areas image data purchase and image data pre-processing, (ii) vegetation or land cover mapping, (iii) training, (iv) system installation and maintenance, (v) method development and (vi) information dissemination. Over the last year the main activities and time spent shifted from training to vegetation or land cover mapping. Activities carried out in the area of system installation and maintenance decreased, however, this was caused by staff movement. It is expected that the field "system installation and maintenance" will increase activities again as soon as a new person is recruited in charge of this area. The area "vegetation or land cover mapping" was handled under "data service" in the past. The amount of tasks have steadily increased during the last few years so that "vegetation or land cover mapping" is now handled as a separate working area within the GIS&RS section. The reduction of training tasks can be explained with the way training is delivered now. Selected officers from the Member countries are trained on-the-job where the training time cannot be fully separated from the actual working time. The more important focus in the past was to introduce the (at that time) new VHR image data and (at that time) new mapping methods, where two weeks training courses within the countries were appropriate.

The SOPAC Division GIS&RS unit supports the implementation and utilisation of GIS&RS tools in other SPC divisions. The unit carries out all GIS&RS applications which economically cannot be implemented in the other divisions and establishes those that can run sustainably outside the central unit and supports these through maintenance and training. For example space hungry databases required for satellite images have to be in close proximity to the ICT service that can support it rather than duplicated in other divisions.

Image Data Service

The data service includes activities where a GIS&RS service unit purchases, creates, stores or enhances spatial data.

Image Data Purchase

Image data orders in the reporting period (15 in total) included the following:

- GeoEye data 4 band bundle covering Vanua Levu in **Fiji** (not all data received yet)
- WorldView-2 coverage 8 band bundle part of western Viti Levu Fiji (provided by DigitalGlobe free of charge)
- WorldView-2 coverage 8 band bundle of Ba water catchment Viti Levu **Fiji** (all received and processed)
- WorldView-2 coverage of left parts of Viti Levu **Fiji** (ordered but not received yet)
- THEOS multi-spectral coverage of complete **Solomon Islands** (not all data received yet)
- THEOS multi-spectral coverage of Rangiroa **French Polynesia**
- WorldView-2 4 band bundle coverage of Lifuka **Tonga**
- WorldView-2 coverage 8 band bundle of Santo **Vanuatu** (all data received)
- WorldView-2 coverage 8 band bundle of **Pitcairn** (all data)
- WorldView-2 coverage 8 band bundle of **Tokelau** (all data received)
- WorldView-2 coverage 8 band bundle of Mangaia **Cook Islands** (all data received and processed)
- WorldView-2 coverage 8 band bundle of Mauke **Cook Islands** (all data received)
- WorldView-2 coverage 8 band bundle of Mitiara **Cook Islands** (all data received and processed)
- WorldView-2 coverage 8 band bundle of Choiseul **Solomon Islands** (data ordered but not received yet)
- WorldView-2 coverage 8 band bundle of Choiseul **Solomon Islands** (data ordered but not received yet)

Relations with Image Data Suppliers

Current image data suppliers include the following,

- DigitalGlobe
- GeoEye
- Pacific Geomatics
- Astrium
- MDA (MacDonald, Dettwiler and Associates Ltd. Geospatial Services Inc)
- GISTDA (Geoinformation and Space Technology Development Agency)
- SASMAC (Satellite Surveying and Mapping Application Center)
- KARI (Korean Aerospace Research Institute), and
- GAF AG a satellite data re-seller for the Indian satellites

New Developments

At the end of 2011 image data of high geo-accuracy (WorldView-2) suddenly showed a shift of 90 metres. The problem was identified as a missing activation of the high geo-accuracy of the data. All three satellites WorldView-1, WorldView-2 and GeoEye are equipped with advanced GPS systems and an advanced star tracker. Both instruments record the position of the satellite during the data capture at high accuracy and store the information in a special file. This file can only be activated if an **ortho-correction** is applied setting the data in relation with a DTM, where the DTM can be at 1:50,000 scale. After the process, the data is about 5 metre accurate without additional reference image point. The ortho-correction is now a standard procedure of the GIS&RS unit.

The GIS&RS also started at the end of 2011 to carry out the **pan-sharpening process in house** as this has two advantages: (A) Image data purchased of pan-sharpened images as readymade products does not allow any atmospheric correction. However, it is possible to do the atmospheric correction first and afterwards the pan-sharpening process if this is carried out in-house. (B) Purchasing bundle data is cheaper than purchasing readymade pan-sharpened data and it provides an additional advantage that several products can be made out of the same dataset: (i) pan-sharpened image combination in visible combination red, green, blue; plus (ii)

combination green, red, near infrared called false colour combination; plus (iii) normalised vegetation index which is near infrared plus red divided by near infrared minus red.

WorldView-2 image data is now provided as **8 band bundle** product four more spectral bands compared with VHR satellite data of QuickBird or GeoEye. This enables additional products to the combinations explained above during pan-sharpened and vegetation index calculation process.

The **atmospheric correction** was not available for THEOS image data as the sensor parameter file was missing within ERDAS. The software dealer and developer in Germany added this to the software.

Results, Image Data Pre-Processed

For the following areas in **Fiji** ortho-correction, mosaicing, atmospheric correction, pan-sharpening and data recalling was performed: for the Ba watershed, Vanua Levu 1/3, and the Rewa Delta.

For **Solomon Islands** (1/3 of the country so far) geometric correction, atmospheric correction, subset production and image enhancement was performed.

For Rangiroa in **French Polynesia** geometric correction, atmospheric correction and data rescaling was carried out.

For Mauke and Mitiaro in **Cook Islands** ortho-correction, atmospheric correction and pan-sharpening was performed.

For Lifuka in **Tonga** geometric ortho-correction and atmospheric correction was carried out.

During the process software had to be updated several times as satellite calibration files were missing. In addition a new version of the atmospheric correction software was supplied. This was enabled through the software provider free of charge; nevertheless, this was a time consuming process.

The person normally performing the image data pre-processing was on maternity leave and was replaced by an intern attachment requiring on-the-job training.

ii) Vegetation Mapping

Image pre-processing and analysis is different between a) larger volcanic islands with mountains and relief related atmospheric disturbance and sun shadow effects; and b) flat atoll islands without major elevation but high contrast between land and water.

Land Cover Mapping of Volcanic Islands

Fiji (1:50,000)

Viti Levu and Vanua Levu are mapped where 10 agricultural classes are delineated (much more than expected) and the boundary between forest cover and agricultural land is agreed between Forestry and Agriculture. The forest so far is stratified into natural rain forest, pine plantation, hardwood plantation and mangrove.

This is the first time in Fiji that a map shows the agriculture classes for all of Viti Levu and Vanua Levu. After the flooding it was possible to map all areas below ~ 15 metres elevation and calculate the hectare of possible loss per agriculture class; figures required by the SPC Land Resources Division.

Land Cover Mapping of Fiji (1:10,000)

Currently 13 different agricultural classes are delineated besides rainforest, mangroves, pine plantation and mahogany plantation. The forest cover will be stratified at a later stage into dry forest, wet forest, high forest and low lying forest. Possibly different densities will be separated as well.

One map sheet of the topographic map sheet series at 1:50,000 in Vanua Levu is covered with interpretation at 1:10,000 scale and five map sheets out of 16 in Viti Levu.

The data received in the west of Viti Levu were recorded shortly after the flooding. For the corresponding map sheets visible flood damage on vegetation was mapped as well.

Land Cover Mapping Solomon Islands (1:50,000)

In the absence of any current land cover map it was decided to completely map Solomon Islands at 1:50,000 scale first before mapping selected areas at 1:10,000 scale. After this decision in Honiara multi-spectral THEOS satellite image data was ordered. A cost effective Thailand owned satellite which records in four bands, including the near infrared spectrum with 15 m resolution. So far only one third of the area has been received from the GISTDA, the data distributing agency.

The mapping so far was performed by a forester (Stanley Lesinenea, Forestry Department Solomon Islands) financed by GIZ project "Climate Protection through Forest Conservation in the Pacific Island Countries". He created the forest layer for: (i) Guadalcanal, (ii) Choiseul, (iii) Malaita and (iv) Isobel. He separated (a) forest, (b) mangrove and (c) non-forest areas. Whenever there were some little clouds he displayed the area in Google Earth interpreted accordingly from the THEOS image data. For these four islands the agricultural mapping can start now. The vector layers are available on the SOPAC server.

Land Cover Mapping Solomon Islands (1:10,000)

The land cover mapping in Solomon Islands at 1:10,000 scale will concentrate on Choiseul and Rennell. So far, only image data has been ordered. For these areas 8 band bundle data will be captured allowing optimal vegetation stratification.

Land Cover Vanuatu (1:10,000)

For the island Espiritu Santo WorldView-2 eight band bundle image data was ordered and partly pre-processed. The visual interpretation of the image data has not started yet.

Land Cover Mapping of Low Lying Islands***Land Cover Mapping Kiribati***

All islands of Kiribati are mapped with very high resolution image data. For all island of Kiribati the number of coconut palms is counted from image data. The corresponding reports are available in the SPC virtual library.

Land Cover Mapping Tuvalu

So far the islands of Nanumea, Niutao and Vaitupu are mapped and reports of vegetation cover are compiled. The GIZ support is on-going and the land cover of further islands will be mapped.

Land Cover Mapping Cook Islands

In the islands Mauke and Mitiara of the Cook Islands group, invasive species in the form of climbers grew over existing vegetation. Through GEF funding Cook Islands asked the SOPAC Division to purchase VHR image data, which were pre-processed with resulting pan-sharpened image output in natural and false colour infrared. Cook Islands also financed through the same source two GIS officers who performed a visual image interpretation. It was not possible to map the amount of vegetation covered by invasive species as field sampling was not undertaken. Nevertheless, the team mapped the up-to-date vegetation and continued the mapping in Cook Islands with supporting field work.

Forest Cover Change Mapping of Volcanic Islands

Forest Area Change Mapping in Fiji

Satellite image data from 1991, 2001 and 2007 was analysed during the years 2010 and 2011 where most of the work was completed in 2011. Final report compilation was completed in December 2011. The results are currently being prepared for a web display.

Land Cover Change Mapping of Low Lying Islands

Land Cover Change Mapping in Kiribati

The land cover change was mapped in the following islands: Makin, Butaraitari, Marakei, Tarawa, Maiana, Aranuka, Onotoa, Tamana and Arorae.

In eight of nine investigated islands the vegetation including mangrove cover seems to have increased; and only in Makin a slight decrease was noted.

Land Cover Change Mapping in Tuvalu

Land cover change mapping was completed for the two islands: Nanumea and Vaitupu.

Forest Change Detection in Eua, Tonga

One GIS officer at the GIS&RS section is financed by GIZ project "Coping with Climate Change in the Pacific Island Region". He produced together with a forester from Tonga Forestry Department a forest cover map from aerial photographs recorded in 1991. Then he interpreted the 2005 QuickBird image layer and produced a forest cover map 2005. Both maps were then rasterised and compared through an overlay process.

iii) Training

Today training is mainly provided as training on the job at SOPAC Division where GIS officers do satellite image enhancement and interpretation under guidance and continue in the offices at home with remote assistance from Suva.

A one two-week training course was delivered in August to 25 participants of SPC-LRD and 25 participants of the Fiji Ministry of Primary Industry (MPI). This course was funded by GIZ which also paid a consultant from USP to conduct the training with one staff of the GIS&RS unit as the GIS&RS unit did not have the funds and the full work capacity to do it. The target of the training was to improve the access to and capacities of national and regional decision makers in SPC-LRD and Fiji MPI to use GIS and spatial information on agriculture, forestry and land use planning for their day-to-day work. As LRD and the ministry cannot afford standard software, open source software was introduced

By the end of the training all 50 participants, which divided into small groups, had the understanding of the potential of the tool GIS and were able to operate the basic functions of QGIS as the open source GIS software.

iv) System Installation and Maintenance

An important task of the SOPAC Division GIS&RS service is system installation and maintenance of model units and which then can be linked to other users in the countries.

*RS/GIS Technical Support to **Solomon Islands Electricity Authority (SIEA)**.*

Enhancement of Solomon Islands Electricity Authority (SIEA) GIS and the revival of the GIS technical users group. The SIEA GIS became non functional after its main GIS operator and GIS assistant left within 6 months of each other. There was a request to save as much data as possible and to reactivate the GIS functionality.

SIEA GIS Server is now back in operation with centralised data shared on corporate network, backed up with a working copy at SOPAC Division GIS archive. (ii) Revival of the Solomon Islands Technical GIS users group which has been dormant for some time. (iii) Awareness of Solomon Islands GIS users about the FOSS tools and technology being used and currently under development here at SOPAC Division RS/GIS and Technical Support services.

v) Method Development

*Establishing Water Catchment Monitoring System in **Solomon Islands***

The GIS&RS section is developing a water catchment monitoring system for a catchment in Solomon Islands on Guadalcanal. The project is supposed to be a demonstration project and the methods developed will be scalable and transferable to other catchments in the Pacific. The project is funded through Taiwan. Land cover was digitised and several layers were installed. The work on the project was interrupted several times; but is still on-going.

Establishing a Coconut Resource Inventory Design

FAO will support the GIS&RS section with funds to establish and test the design of a coconut resource inventory. Three islands of **Kiribati** are selected to conduct field work 1) Abemama, 2) Abaiang and 3) Christmas Island. FAO needs an inventory design for other Pacific Island Countries to monitor the coconut resource and to enhance the resource by eliminating senile coconut palms through mobile sawmills which will create funds for coconut palm regeneration.

The areas of the islands were mapped using multi-spectral IKONOS image data. They have been re-mapped during 2012 using pan-sharpened GeoEye image data. For all islands in Kiribati the coconut palm counting has been conducted and corresponding reports are available in the SOPAC Division virtual library.

An instruction book has been developed to measure and estimate the palm: (i) age, (ii) height, (iii) diameter, (iv) volume, (v) yearly coconut production, (vi) insect infestation by stick insect (*Graeffea crouanii*) and rhinoceros beetle (*Oryctes rhinoceros*), (viii) Pacific tall or hybrid.

The database including the code to calculate volume/hectare, yearly production per hectare, etc. is established and tested through a test plot.

Customising QGIS Software

Currently there are no funds available to purchase software for the different sections of SPC-LRD. The Forest and Trees section is an exception through JICA funding. GIS open source software is one solution to establish GIS units with limited funding.

Quantum GIS open source GIS software is available and now permits the important function of linking external databases to spatial data of the GIS. The missing point is the possibility to customise the GIS which is essential to enable a GIS untrained person to utilise the system. Python is another open source software which can be used for the customisation.

The customisation is developed, implemented and the application is tested.

Establish Link between Raster and Vector Data

Image delineation at the GIS&RS section is normally carried out in vector GIS environment MapInfo, ArcGIS, QGIS where image backdrops are utilised for on screen digitising. The area analysis and overlay analysis is performed in raster GIS environment as raster data allow a much faster processing; however, the conversion of vector data to raster data was complicated and time consuming. The result of raster data analysis has to be exported to a relational semi-manual database and therefore also time consuming.

vi) Information Dissemination and Networking

Planning and Organisation of the GIS&RS User Conference 2011

More than 150 actually appeared at the conference. Presentations were made by representatives from **Kiribati, New Caledonia, Papua New Guinea, Samoa, Tonga, Vanuatu** and also from Australia, New Zealand, Hawai'i, Canada, USA. A number of other national representatives were attending the Conference as participants.

The following seven topics were discussed during the discussion session:

- What USP should teach regarding GIS&RS and Data sharing
- Vegetation Mapping Pacific Island Countries
- Disaster Application of GIS and RS
- Utility GIS Application
- Open Source GIS, RS and Database Software and GIS Web Applications
- DTM Creation and Editing
- What GIS can do for climate change debate

Other activities during the year have included the following

- Maintain the e-mail List GIS-PacNet
- Maintain and Develop GIS and RS Related Websites
- Support GIS&RS User Group Meetings
- Produce Pacific Islands GIS&RS Newsletter

DATA MANAGEMENT

Compendium

The second half of 2012 began the assembly of the Country Compendiums of the Project. A huge factor in this enablement is completion of all desktop research on metadata for each of SOPAC's member countries including Associate Members and Donor Members of Australia and New Zealand; the provision of proper storage space for the large maps and charts and proper work stations for data entry. In addition the photo database was also built which facilitated the bringing together of the final dataset of the division into a formal repository.

An intern was recruited to work dedicatedly in reviewing the huge collection of photos of the division and recording metadata entries on these individual photos. Metadata entry is fully underway.

Two additional interns, both nationals from Kiribati was also recruited – one specifically to work on the Kiribati Country Compendium and the other for GeoNetwork metadata entries of large format maps and charts and also to assist with the photo registration. The training database was completed in the first half of the year.

In terms of the digitisation of the large format maps and charts, scanning completed to date are the datasets of the following countries: **Federated States of Micronesia, Nauru, Palau, Guam, Kiribati, Papua New Guinea, Marshall Islands, and Niue**. The second half of the year will be spent on metadata entries of these datasets as well as that which will be scanned in the second half of the year.

Simultaneous with the above exercise is the ongoing review of the file shares of the division, particularly for documents and data products that should be captured in the Compendium. All the different datasets are converted into portable document format and stored in the Compendium server for its assembly on the Compendium Console and for final packaging for each member country.

Continual Systems Development Support for Programmes

Data Management Section of Technical Support Services provides systems development and software support services to all divisional technical programmes including:

- SOPAC Corporate System
- Software Training
- Consolidated Virtual Library
- Consolidated Search
- Virtualised Environment Adoption
- Geospatial Data Sharing
- SOPAC Geospatial Operating System Distribution
- PCRAFI Support
- Compendium Project Support
- Website and Intranet Portal Prototype
- Open Source Engagement
- Support to Pacific GIS/RS User Conference

Network and Communications

Major work was done in this area to allow our the SOPAC Division's network to align itself with that of the main SPC network communications infrastructure including:

- Helpdesk Change
- Email & Web Filtering
- PABX Upgrade
- Cabling Upgrade & Fibre Upgrade
- Server Room Renovation
- Domain Migration

PUBLICATIONS AND LIBRARY

Library Services

The following were undertaken during the period Sept 2011- Aug 2012 by the SPC Geoscience Library (SOPAC Library). These include the regular library work as well as special projects that were completed or are still underway.

- Cataloguing backlog and new items; barcoding new items processed. Statistics given below.
- Under the AusAID funding for the Pacific Marine Libraries Twinning Project; Training was provided which included internship mostly detailing library work of Interlibrary loans, Cataloguing, Research, WEB2.0 training. Building a Blog to showcase and promote the resources of a library in a more interactive way, Networking with Libraries in Australia - Libraries in this programme included Great Barrier Reef Marine Park, James Cook University and Geoscience Australia Doc. Fisher Library
- Taking part in discussions with CROP agency libraries for Koha in the region (USP, PDN, SPC)
- Networking included attending the USP Electronic repository opening at USP, attending a lecture for Information Literacy promotion in libraries at the American Resource Center
- Attending the EDRMS presentation by Robert Appel
- Photo repository brainstorming discussions
- Appointed to the Membership Committee as PIRG (IAMSLIC Pacific Islands Regional Group) - duties include looking after the membership of this group

Special Projects:

- SOPAC Compendium – preparing documentation for storage unit for archives, follow up on data transfer to current media formats, meeting and procedure contributions, checking floating databases/archives, overlooking library component of compendium, compiling bibliographic lists for country collections from the library. Overseeing the building of the Archives storage space. Working on labelling procedures for Archival maps and charts
- SOPAC Division Virtual Library - Assisting on the testing of functionalities of the virtual library
- SOPAC Closed collection catalogues and listings have been completed; awaiting Publications backlog of reports to be processed and then cataloguing of these items into the Closed collection will be brought to a close.
- SOPAC active catalogue migration to SPC Koha – 3rd phase has been completed.

Publications Service

Annex 1 lists most of the report products cleared through the SOPAC Division publications service undergoing either editorial or graphic arts processing or both.

New SOPAC Division Virtual Library

Last year (the first year of operation of the SOPAC Division within the SPC), saw the design and operation of a new Division virtual library following the example of what had been generally viewed by all that access SOPAC-produced reports as 'best practice'. The operational refinement for a simple system to provide access to reports produced by the Division as they emerge has been completed. There remains the small aspect of improving the design of the icons. While the portal is not fully in the public domain (<http://ict.sopac.org/library/>) it is already picked up by any web-based search engine. It is used at this stage as an administrative tool to assist the publications section in keeping track of published reports centrally; as well as to provide staff access to report products of their work. SPC ICT and Publications are in the throes of planning the revamp of the SPC-wide web site and the final mode of deployment of the

Division virtual library will depend on the outcome of that organisation-wide exercise. The Division virtual library may also be used by other divisions of SPC as a model for providing access to their products, within the framework of the SPC website access protocols.

Support for SOPAC Divisional Meetings

The Publications and Library services has had a traditional secretarial role during Commission days in assisting the Directorate of SOPAC with servicing an annual meeting for reporting to Members on work programme implementation and planning and budgeting for the next year's plan of work. This role has been in the areas of meeting papers preparation and publication and rapporteuring at the meeting proper. Meeting papers preparation and publication includes collating of inputs from technical programme directors into the Director's reporting papers to Members; editing and formatting of papers; and publication of meeting records in hard and/or soft copy and online. Implicit in 'publication' is the distribution and access to these records in answer to inquiries from within and without the Division.

In closely monitoring the various roles played by the Publications and Library Team since the merger, particularly in the lead up to, during and after the first Division meeting it is apparent that many of the corporate Commission roles played by for example the Adviser will further change when there is a new Director of Division and/or a new P&L Adviser (Technical Editor). .

Special Project: The SOPAC Compendium

The SOPAC Compendium Project is being implemented in the conjunction with the Division's data management section given the critical digitisation aspect of securing what was largely a hardcopy collection. Therefore this section should be read in conjunction with the report from the Data Management service.

The grant from Australia (AUD150.000) received in June 2011 greatly facilitated the engagement of student research assistants, the full complement numbered six students; largely taken from the USP pool of graduates out of its GIS and remote sensing programme. In addition a Project Officer closely supervised the interns with respect to daily operations and a graphic artist was assigned to the Project from the Publications and Library Services team dedicated to the large-format scanning (a total of 8 team members).

The greatest challenge for the Project has been motivating the team of researchers to stay focussed and inspired by an exercise that is particularly monotonous; not to mention the volume of material to process and the constraints in physical as well as virtual space that the team was expected to work with at the beginning; and even in 2011 when dedicated hardware was purchased to facilitate the digital collation, the Project struggled to get unfettered access to it due to teething issues with respect to the merger of SOPAC into SPC.

That said, the team is pleased to confirm the completion of all the country-specific research. What this means is that according to the records of Commission annual board meetings; references to existing technical material generated for each Member country have been captured. This would be the basis for identifying those referenced products in all the material being digitally captured and described; be it a report, image (airphoto or map), even a dataset. The collection has been organised under categories formulated according to how Member country users of the information have requested the material from the old and new SOPAC.

In mid-August construction of a climate controlled and more spacious office/archive facility to eventually house the closed SOPAC Commission collection (including the SOPAC petroleum data currently occupying rented space in Canberra) was completed. This has provided some relief from the drudgery imposed on the team of researchers; and the work of revising and cleaning of the datasets is continuing from a space more conducive to productivity. While research has been completed, the scanning of all large-format hardcopy material (being the slowest part in the process) is yet to be completed. Cleaning and refining of the metadata entries that describe the digital products so that search engines pick them up is a major undertaking that will most likely continue beyond the life of the Project. The team is also

assisting the Geonetwork team (OIP data management portal) reconcile the live (Geonetwork) and archival (Compendium) digital collections. Into the future, it is envisaged that Geonetwork will be the main portal through which the SOPAC Compendium closed collection may be accessed through various access protocols that will be defined later.

It should be noted that text (metadata) descriptions of the material being organised digitally are authored by the student researchers themselves; and requires some technical understanding and appreciation of the information contained in the material. The accuracy of these descriptions is critical to an efficient retrieval system; which we observe as already operational judging by the frequency of requests received for access. On average, the number of requests has settled to about 5 per week asking for a password to view the collection – this is from a peak earlier in 2012 of 10 requests in a day. Requests for use of the original data in any way shape or form is currently assessed on a case-by-case basis and includes permitting by Members before release.

During the reporting period, Kata Duaibe, Project Officer, left for a position at UN Women. The following student interns departed the Project – Loraini Baleilomaloma for further studies (Belgium), Eferemo Kubunavanua for longer-term position at the Forum Secretariat; Sanivalati Tubuna for a longer-term position at SPC's own SEPPF unit; and Manish Singh, also for further studies (Australia). Graduate researchers currently engaged in the Project are: Sally Rimon, Lodovika Tofinga, Thomas Toba, Emma King, Amali Shaw and Rave Tuihea; the latter two sharing the supervisory role that was carried out by Kata Duaibe until mid August 2012.

The Data Management (DM) and Publications and Library (PL) services are targeting June 2013 for when the bulk of the digitising and collation processes should be concluded. Dedicated cleaning and quality assurance is underway and expected to continue until the end of 2013; at which point the SOPAC Division DM & PL services can take up those aspects in the routine monitoring and maintenance of these information systems.

The SOPAC Compendium Project has given the SOPAC Division a “best shot” chance at putting the Commission records in order for the new custodians at the greater SPC; and we wish to place on record our sincere appreciation to the Australian Government; and its many *fair dinkum* officials here in Suva, Fiji (the location of the SOPAC Division); as well as those in Australia and elsewhere, who have been unstinting in assisting the team at the Division in carrying out this exercise. Also, the Fiji Government continually facilitates the process by providing accommodation for the Division within its Mineral Resources Department premises; with the current Director, Malakai Finau, expressing particular interest in the processes and eventual product of the digital collation.

At the Second SOPAC Division meeting, to be held in Noumea in November (2012), a demonstration Compendium Collection for a Member Country will be available for viewing; as well as an informal video of the progress of implementation. The team is in consultation with the Regional Media Centre for an official video to launch the country collections; timed for the end of the project; or the latter part of 2013.
