

**Terminal Report
1994-1995**



SOUTH PACIFIC REGIONAL ENVIRONMENT PROGRAMME

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1994-1995**



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**Pacific Environment and Natural Resource Information Center
PENRIC**

- A) **Implementing Organisation:** South Pacific Regional Environment Programme (SPREP)
- B) **Project:**
- C) **Project Title:** Pacific Environment and Natural Resource Information Center (PENRIC)
- D) **Project Objectives:**
- a) To continue to strengthen SPREP's Geographical Information System (GIS) Unit-PENRJC to assist in the development of appropriate information systems in the region.
 - b) To improve environmental reporting and assessment in the Pacific through the development frameworks and processes that is appropriate in the Pacific as a first step towards compiling State of the Environment Report for national and subregional.
 - c) To assist in building capacities within the countries for data collection, standardisation and exchange through the setup of a SoE database to monitor and facilitate reporting on the State of the Environment
- E) **Project Activities**
- 1.0 **Capacity Building**
 - 1.1 **Network**

Improved awareness on the use of GIS/RS tools for sound decision making towards sustainable development

Decentralised national network of cooperating and collaborating institutions.
 - 1.2 **Training**

Training at three levels: policy, professional, technical

Two case study application
 - 2.0 **Data Management**
 - 2.1 *Completion of a macro data base at an appropriate scale for the South Pacific Region consisting of the following minimum core data needs; geology, hydrology, soils, topography, administrative boundaries, demography, land use and infrastructure;*
 - 2.2 *Pacific Spatial Information Directory/catalogue, updated on a quarterly basis; and*
 - 2.3 *Agreement on formats and access to data held by various regional organisations and institutions.*

3.0 Environment Assessment

- 3.1 *Consultation with Government in the South Pacific Region on SoE Reporting;*
- 3.2 *Proceedings of the consultation meeting*
- 3.3 *Identification and assessment of needs for SoE Reporting;*
- 3.4 *Agreement to utilize common environment standards and framework for SoE reporting;*
- 3.5 *Sub-regional SoE reports for South Pacific; and*
- 3.6 *Database build-up for SoE Reporting*

F) Project Outputs:

1.0 Capacity Building:

- 1.1 *Needs Assessment for GIS was carried out for the Kingdom of Tonga as per request. The initiative was taken as of the requests laid by the Tonga NEMS Document which frequently refers to the need for a GIS Capability to be implemented in the Kingdom*
- 1.2 *Setup up GIS Facility with the Fiji Department of Environment. To assess the GIS facility that was setup by UNEP Through AMSAT. (Appendix 2)*
- 1.3 *Workshop on "GIS for Population and Environment Integration for the Polynesian Subregion", September 3-8, USP, Suva, Fiji. (Appendix 3)*
- 1.4 *Case Study: Land Use Assessment for Atiu, Cook Island. (Appendix 4)*
- 1.5 *Environment Impact Assessment for Nauru*
- 1.6 *Mapping the conservation site for the Solomon Islands*
- 1.7 *Environment Impact Assessment for Vanuatu*

2.0 Data Management

- 2.1 *Consultant Database for the South Pacific. We have compiled a draft which consist of 277 records.*
- 2.2 *Barbados Program of Action Database for the South Pacific. which consists of 71 records.*
- 2.3 *Turtle Database for the South Pacific Biodiversity Conservation Program. Mr Udaï was requested as per MoU between UNEP EAP and AMSAT, to assist in linking the turtle database to the GIS system. Report is attached. (Appendix 5)*
- 2.4 *Continuation of the collection of Data for the Spatial Directory*
- 2.4 *Build up of the South Pacific Spatial Macro Database (Appendix 6). As for the current MoU, Nauru, Solomon Islands and Vanuatu have been added to the database.*

- 2.5 *MoU for the purchase of satellite images with other regional organisation as a step to an agreement on data formats and exchange. (Appendix 7)*
- 2.6 *An inventory was carried out for the PENRIC Unit on their computer resources. Report is attached for information. (Appendix 8)*

Environment Assessment;

3.1 *State of the Environment Consultation with Governments on the State of the Environment.*

Initial Consultation was carried out in Febuary where 6 countries participated. Discussion record is attached for information. (Appendix 9)

As per the findings on this consultation, a much bigger sesion was convened in March, 18th, 1996 where a report by the consultant on the State of the Environment Reporting and Database was put forward to countries for review and endorsement. As per the Discussion. Record, the report is currently undergoing further in-country consultation as well as for UNEP's Advice before any publication is done by SPREP. (Appendix 10)

3.2 *The Environment Information Database was reviewed by the SPREP Secretariat and was further discussed by the country participants as to investigate its appropriateness to the pacific situation.*

a) Meetings/Training

(i) **Coverage/Status:** *Polynesian Subregional & Workshop*

Title: *Workshop on "GIS for Population and Environment Integration"*

Venue/Date: *September 4-8, 1995 at USP, Suva, Fiji*

Convened by: *SPREP/USP* **Organised by:** *SPREP/UNFPA/USP*

(ii) **Coverage / Status:** *Regional & Training/Seminar*

Title: *SoE/Action Plan Meeting/Training*

Venue/Date: *March 18, Meeting, Forum Secretariat, Suva, Fiji*
March 19-23, Training, Department of Environment, Suva, Fiji

Convened by: *SPREP* **Organised by:** *SPREP and UNEP EAP-AP*

(See Appendix 10 for participants list)

Printed Materials

(i) *Report: State of the Environment Reporting*

Author: Mr. Bob Thistlethwaite(Consultant)
(Appendix 11-Term of Reference)

Publisher: South Pacific Regional Environment Programme

Symbol: SPREP and UNEP

Date of Publication: PENDING, REPORT IS UNDER REVIEW

(ii) *Report: Landuse Assessment for Atiu, Cook Islands*

Author: James R.F. Barringer & Peter R. Stephens. Landcare Research New Zealand
(Appendix 5: Terms of Reference)

Publisher: SPREP

Symbol: SPREP & UNEP

Date of Publication: PENDING, REPORT IS UNDER REVIEW

G) Use of Outputs

1.0 Capacity Building;

1.1. As of the focus, which is to make countries aware of the technology and the assistance it can offer in catalysing decision making, the needs assessments were found useful on the part that it helps to identify what is available in the countries in terms of facilities and personnel and also it sets the basis of a cooperation approach from all departments who will be either users or contributors of the information that will be made available by the system. The needs assessment that was carried out for the Kingdom of Tonga, was a response to a requests that was relayed to SPREP for the setup of a GIS capability within the Kingdom. The follow-up step will be looking at putting together a proposal for support from the donor community. Western Samoa will be the other country we will look at for a system for the 1996-1997 MoU with UNEP EAP-AP.

1.2. The trend of GIS application in Fiji is somewhat in the forefront compared to other SPREP member countries. This push in the use of it has promoted the update of data in most sectors thus the availability of very compatible information that can be exchanged between the different departments involve. Given this existing infrastructure, SPREP/UNEP EAP responded to a request from the Department of Environment to set a GIS capability with the Department to answer to the many request .

Given the coverage of the Environment Act that the department is currently working on, will no doubt targeted this system as a centralize point given its interest to all biophysical and socio-economic information.

1.3. The PENRIC program have received a lot of support from other SPREP Project. PENRIC through SPREP jointly host with UNFPA a Sub-regional GIS Workshop on the "Use of GIS for Population and Environment Integration". The workshop was attended by Cook Islands, Fiji, Tuvalu, Tonga, Niue, American Samoa and Western Samoa i.e. Polynesian Sub-region. This was held at USP, Suva, Fiji, September 3-8, 1995. The initiative was more an introductory step to give the member countries a feel on the approach of integrating socio-economic aspects and bio-physical information in terms of data and personnel. Participants were from Environment Departments and Statistics/Planning Departments and the incountry collaboration that came out of the workshop was an implication of an established working partnership between these departments. As for the 1996-1997 Work Plan, this joint venture is plan to extend to the Melanesian and Micronesian Sub-regions.

1.4. The GIS training facility at the University of the South Pacific has build and attracted the focus of the many disciplines and courses offered at the university. This year, it will offer a Diploma Pass. To help the Unit with training material, a case study was subcontracted out to the Landcare Research to conduct a Land Use Assessment for Atiu, Cook Islands. The case study will serve as a pilot study on the use of GIS for land and resource management. SPREP and other regional organisations with GIS related programs been using the facilities for their regional trainings.

2.0. Data Management:

2.1 PENRIC in collaboration with the Environment Impact Assessment Program have put together a consultant database. This database records individuals across the region with expertise on environment and its related applications. The first volume has been prepared for publication with an update to be compiled in the end of the year. This will be utilise when identifying regional consultants for consultancy work.

2.2 As of the recommendation of the Barbados Program of Action, SPREP through PENRIC have put together a database on its implementation. This initiative will assist the responsible organisations to monitor the different chapters and activities of the program being implemented in the South Pacific Countries

2.3 Turtle Database has been a target for the South Pacific Biodiversity Conservation Program especially when enhanced awareness and policy formulation have been setup for sustainable measures of conserving the marine creature. In a process to keep track of the species, their distribution and migration pattern, countries were given tags and forms to feel in upon capture. These forms were then sent to SPREP to be registered. As of the location where they were caught, countries were asked for specific geographical location of sites and such spatial information have been used for a spartial dislay. Given the regional status of the project, the GIS analysis have help in simplifying the process.

2.4 SPREP had signed an MoU with other sub-regional bodies; South Pacific Forum Fisheries Agency (FFA), South Pacific Commission (SPC), South Pacific Applied Geoscience Commission (SOPAC) and University of the South Pacific (USP), to exchange and share purchase of satellite images for their remote sensing programs. This has strengthen potential agreements on data format and exchange.

3.0 Assessment and Reporting

At the last RENRIN meeting in Katmandu, the potential shift of the program was discussed. This is the change of emphasis from the more concentration on GIS/RS setup, to a more simpler approach which is

through databases and spreadsheets as a buildup to a user friendly, more quantitative State of the Environment Report

3.1 A consultation meeting was held in Fiji, March 1996 as a follow-up to a smaller scale session in February, 1995, to present a report on the State of the Environment Reporting for the South Pacific. The meeting was represented by 11 forum countries; Cook Islands, Fiji, Federated States of Micronesia, Republic of Kiribati, Republic of the Marshall Islands, Niue, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa. To enhance national collaboration, the meeting seeks 2 representatives. One from the Environment Ministry and the other from Planning/Statistics Departments.

3.2 The report was discussed intensively as to see the best process and mechanism that is appropriate for the South Pacific countries. Environment issues were discussed as to identify the most pressing environmental concerns in the South Pacific Region. As of one major part of the reporting exercise which is the SoE Database, discussion were centered as to a best format that reports on what type of data and indicator best suitable for the pacific situation. To assist countries in building up their national SoE database, a computer was given to each country with a software to initialise data capture. The formulated format is undergoing changes as per the recommendations of the consultation/training which a final format will be distributed.

H) Degree of Achievement of the short-term objectives:

All the 3 components of the project have been centered on the following goals;

- a) Build capacity and awareness of the countries on identification of Biophysical and Socioeconomic data and Information that are important for environment assessment;
- b) Build capacity and awareness of the countries on the technology. ie. GIS, Remote Sensing, Database and its purpose of producing environmental issues, indicators and indexes to catalyse decision making for State of Environment Reporting and Assessment;
- c) Build capacity of the countries towards a more quantitative State of the Environment Reporting and Assessment for Action Plan, Policy Formulation and Decision Making

In reviewing the above, the 3 components are all linked. This is further emphasise in the Model M proposed by UNEP EAP AP. Given the priority goal, which is the State of the Environment for national and subregional, the activities undertaken are of procedural significant. The implementation of the activities is in conjunction with the objective of producing national SoE every 2 years with subregional SoE every 4 to 5 years.

I) Degree of achievement of the long term objective:

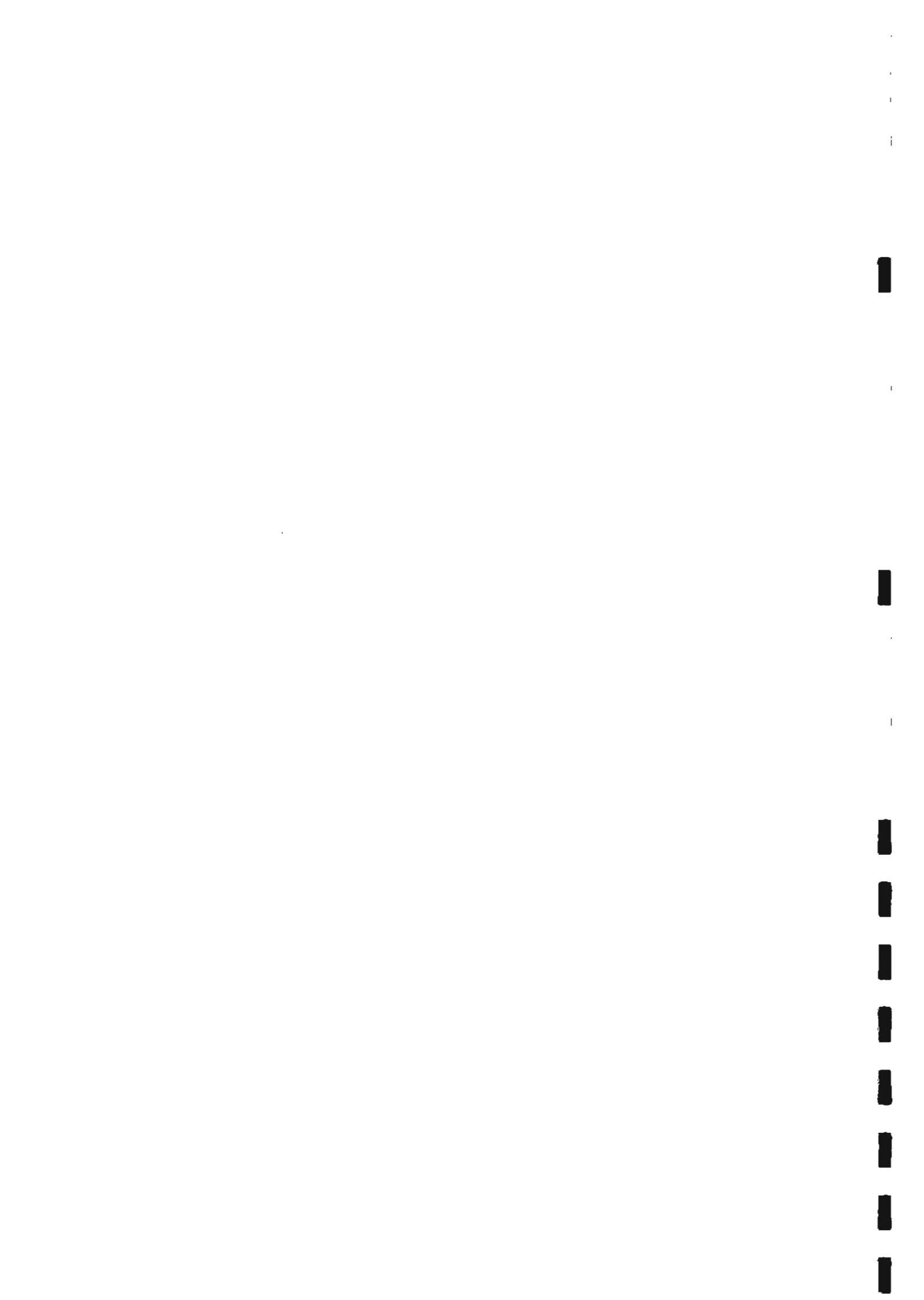
The degree of achievement of the short term objectives will determine the long term goal of producing a Global State of the Environment at the year 2002 to be presented at the next Earth Summit.

J) Conclusions:

In considering SPREP and its mandate across the region, the objectives of PENRIC cuts right across all in-house projects. Goals of these inhouse projects compliments that of PENRIC and thus looks more a joint venture. This has facilitates its implementation since much of its performance and validity can also be measured through other projects. Current projects with SPREP; Climate Change and Sea-level Rise, South Pacific Biodiversity Conservation Program, Pollution, Population and Environment, Environment Legislation, Environment Legislation, Capacity 21 Follow-up and Publications. The workplan of SPREP sees PENRIC playing a central role through information dissemination, exchange and reporting.

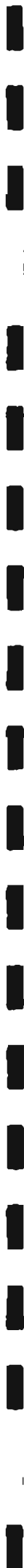
K) Recommendation:

1. The Network Strategy. i.e. PENRIC needs to be strengthen through integration and collaboration with other ENRIGs in Asia Pacific Region as well as with other regional organisation.
2. There is need for provision to enhance collaboration with the national agencies and NGO's on the grass root level.
3. Strengthen relationship with Statisticians and Planners through having incountry meetings and training.
4. Provision for support to the Training Center at the University of the South Pacific.
5. Incountry consultation and training for national SoE production.



Appendices

1. 1994-1995 Memorandum of Understanding between UNEP EAP-AP and SPREP for PENRIC Phase 3
2. Assessment of Fiji GIS Facility at the Department of Environment
3. Circular for "GIS for Population and Environment Integration"
4. Land Use Assessment for Atiu, Cook Islands.
5. Turtle Database Consultancy
6. South Pacific Macro Database
7. MoU for data formats and exchange.
8. Equipment Inventory for PENRIC
9. Record of Discussion for SoE Consultation
10. Record of Discussion on SoE/Action Plan Meeting
11. SoE Consultant, Terms of Reference



MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is concluded between the South Pacific Regional Environment Programme, hereinafter referred to as SPREP, on the one part; and UNEP Environment Assessment Programme for Asia Pacific based at the Asian Institute of Technology, Bangkok, Thailand, hereinafter referred to as UNEP/EAP-AP, on the other.

Background

The UNEP Environment Assessment Programme has been extensively reshaped in response to the UN General Assembly, the recommendations of UNCED's Agenda 21 and the decisions of the Governing Council of UNEP. In line with UNEP's new "management by results" programming approach, the Programme has been focused more specifically on the needs and capabilities of its users.

The Programme's new mission is to: *provide the world community with improved access to meaningful environmental data and information, and to help increase the capacity of governments to use environmental information for decision making and action planning for sustainable human development.*

It has three main components: (a) institutional capacity building and servicing; (b) information management, data harmonization and dissemination; and (c) assessment at global, regional and sectoral levels.

Implementation of the Programme in Asia Pacific Region requires coordination and cooperation with existing sub-regional institutions in the Region. The South Pacific Regional Environment Programme (SPREP) coordinates national and regional efforts among its member islands/countries in South Pacific to protect the environment, encourages research and non-government organisations to help in these efforts and is a regional "clearinghouse" for information used and people engaged in these efforts. As an environmental information clearinghouse, SPREP's role includes improving awareness of emerging local and regional environmental issues, improving environmental education in formal and non-formal sectors, and improving the dissemination of scientific and technical information in a form that can influence development policy and projects.

Under this MoU, UNEP/EAP for Asia Pacific (UNEP/EAP-AP) and SPREP will work closely together for the implementation of the Programme in South Pacific.

Responsibilities

1.0 On behalf of SPREP

- 1.1 SPREP will be directly responsible in coordinating the implementation of the Environment Assessment Programme in South Pacific, particularly, the SPREP member countries and islands.
- 1.2 SPREP will carry out the activities listed in the workplan which is attached to this MoU as Annex-1. The outputs expected to be accomplished are enumerated in Annex-2.

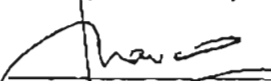
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- 1.3 Details of project expenditures will be reported every quarter according to the project budget codes and line items as presented in Annex-3.
- 1.4 SPREP will submit a progress report to UNEP/EAP-AP at AIT every quarter on the progress of the implementation of this MoU, following the format attached as Annex-4.
- 1.5 Within 30 days of the completion of the project, SPREP will submit a terminal report to UNEP/EAP-AP at AIT in line with the format attached as Annex-5.
- 2.0 On behalf of UNEP/EAP-AP at AIT
- 2.1 UNEP/EAP-AP will make available the amount of US\$ 62,485.-- (as detailed in Annex-3), for the implementation of the activities listed in Annex-1 of this MoU. An initial cash advance equivalent to fifty percent of the total project cost will be made upon signature by all parties involved. The remaining balance of fifty percent will be paid in the second quarter of 1995 after submission of a financial statement as at 31 March 1995.
- 2.2 UNEP/EAP-AP will provide overall guidance and direction with regard to the strengthening of the network in the Region and harmonization of environment information which is consistent with other regions.
- 2.3 UNEP/EAP-AP will provide access to ongoing environment information related activities in the Region. This coordination task includes other programmes within UNEP as a whole

General Clauses

- 3.0 This MoU will be in effect from the date of the last signature and terminate not later than December 1995.
- 4.0 This MoU may be amended and/or extended by an exchange of letters between the signatories detailing agreed upon amendments and/or extensions.
- 5.0 Settlement of Dispute: If any dispute arises in the future during the execution of the present MoU for reasons whatsoever, the dispute will be settled by mutual discussion between both parties without involving any other person(s) and/or alien to the present MoU.


On behalf of SPREP



Vili Fuavao
Director

Date: 17/1/95

On behalf of UNEP/EAP-AP



Surendera Shrestha
Regional Coordinator

Date: 20.12.94

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EXPECTED OUTPUTS
South Pacific Regional Environment Programme (SPREP)
1994 - 1995

1.0 Capacity Building

1.1 *Network*

- Improved awareness on the use of GIS/RS tools for sound decision-making towards sustainable development
- MoU regarding development of ENRIC in a selected Pacific island/country (Western Samoa);
- One established national Environment and Natural Resources Information Centre (ENRIC) in a selected Pacific island/country (Western Samoa);
- Provision of appropriate and compatible hardware/software for the national ENRIC;
- Decentralised national network of cooperating and collaborating institutions.

1.2 *Training*


- Training at three levels: policy, professional, technical
- Two case study applications

2.0 Data Management

- 2.1 Completion of a macro data base at an appropriate scale for the South Pacific Region consisting of the following minimum core data needs: geology, hydrology, soils, topography, administrative boundaries, demography, land use and infrastructure;
- 2.2 Pacific Spatial Information Directory/Catalogue, updated on a quarterly basis; and
- 2.3 Agreement on formats and access to data held by various regional organisations and institutions.

3.0 Environment Assessment

- X 3.1 Consultation with governments in the South Pacific Region on SoE reporting;
- X 3.2 Proceedings of the consultation meeting;
- X 3.3 Identification and assessment of needs for SoE reporting;
- X 3.4 Agreement to utilize common environment standards and framework for SoE reporting;
- X 3.5 Sub-regional SoE reports for South Pacific; and
- 3.6 Database build-up for SoE reporting.

 17/1/95



BUDGET (1994-1995)
South Pacific Regional Environment Programme (SPREP)
US Dollars

	Capacity Building	Data Mngt.	Reporting Assessment	Total
10 Project Personnel Component				
1100 Project personnel		10,000		10,000
1600 Travel on official business				
1601 Staff travel		7,000		7,000
1199 Sub-total		17,000		17,000
30 Training Component				
3300 Meetings, conferences, etc.				
3301 Consultation with govts			10,000	10,000
3999 Sub-total			10,000	10,000
40 Equipment and Premises Component				
4100 Non-expendable equipment				
4101 Software and maintenance		485		485
4200 Non-expendable equipment				
4201 Hardware for ENRIC	15,000			15,000
4999 Sub-total	15,000	485		15,485
50 Miscellaneous				
5200 Reporting costs				
5201 Sub-regional SoE			10,000	10,000
5203 Case studies	10,000			10,000
5999 Sub-total	10,000		10,000	20,000
99 Total	25,000	17,485	20,000	62,485

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Duty Travel Report

Country: Fiji, June 19th-23rd, 1995.
Officer: Bismarck
Title: GIS/Database Analyst Officer

Introduction:

As prioritised in the 1994-1995 Work Plan of PENRIC, more emphasis is placed in the area of information technology and how it can be improved through strengthening its capacity building component.

The Fiji Environment GIS Unit was established under SPREP/UNEP/PENRIC program which AMSAT was subcontracted to carry out. The final phase of the program was completed in February this year as up to now we haven't heard anything about it.

Aim:

1. After consultation with UNEP, there is need to assess and follow up the GIS Unit established under the UNEP/SPREP/PENRIC Program.
2. Follow-up the Fiji Environment Officials on the upcoming UNEP EAP-AP/SPREP Government Consultation meeting schedule for second week of December.
3. Discuss with USP GIS Unit possible collaboration in jointly putting together a workshop on "Integration of Environment and Population through the use of GIS Technology". This was proposed as an USP/UNEP/UNFPA/SPREP initiative.
4. Discuss with the UNDP the status of the ESCAP State of the Environment Report.

Ministry of Environment:

1. The status of the equipments is good. Final payments is yet to be received by the supplier. I will follow it up with UNEP EAP-AP Office in Bangkok for the final payment to ITS.

	Present Status	Further Action
1	Computers <ul style="list-style-type: none"> * 2 serial ports instead of 3 ports specified and quoted for. * Software for 8514/A emulation under DOS not provided * MS DOS 6.22 Diskettes and documentation not provided * Windows for Workgroups 3.11 not provided 2 486's, 17' monitor, ANCER 	<ul style="list-style-type: none"> * Install one serial port in each of the two machines * Provide Software driver for the Cirrus graphics card to emulate the 8514/A graphics display under DOS * Provide 2 MS DOS 6.22 licences with diskettes and documentation. * Provide 2 licences for Windows for Workgroups 3.11 with diskettes and documentation

2	Digitizing Tablet	Fails manufacturer's diagnostic	* Supplier to look in to this and rectify fault
3	Inkjet Plotter	OK	None
4	Dot Matrix Printer	OK	None
5	UPS	OK	None
6	CD-Recorder	not supplied A 3.5" 128MB magneto-optical drive provided instead DoEnv informs that this is not the suppliers fault. The supplier was led to understand that this item meant the rewritable optical drive, also in use in at least one other GIS installation in Suva.	Suggest that we accept this item since DoEnv feels it more appropriate for data exchange with other government departments in Fiji.

2. In the National Environment Strategy for Fiji, that was prepared and published by IUCN, it assemble essential problems relating to environmental legislation as three-fold. As reported, Firstly, there is no single body responsible for the administration of the current existing environmental law and which can influence Government at policy making level. This has resulted as reported in the lack of a uniform policy and a shortage of information and awareness at high levels. Secondly, this lack of a single body of environmental law has resulted in a half hearted enforcement of current standards and a lack of trained staff to do so. Thirdly, the existing environmental laws need modification in at least 9 areas: the land tenure system, planning and assessment, agriculture, minerals, fisheries, water quality, waste management and pollution and the establishment of protected areas. In light of these problems, ADB has employed 3 consultants to look at an Environmental Legislative Framework that can be achieved through Environment Education & Awareness as well as improving the status of environment information through the use of GIS thus setting up of a National Environment Database.

I met up with the consultant engaged for GIS support and we had a good talk about the initiative. We discussed the extent of the ADB support on the GIS system as he agrees that his visit was to merely assess the system on the status as well as identifying ways to incorporate its support in Environmental Legislation through improved information.

I left a requests for a copy of David Giltrap's consultancy report. As we discussed, the recommendations of the mentioned consultancy will be useful in seeing where UNEP/SPREP comes in for future assistance.

The 3 consultants were on their first visit which is partly focus on identifying local counterparts to follow-up programs and initiatives as well as liaising closely with them on developments.

I complimented the Environment Division on their effort to secure assistance from other donors especially on the GIS part and felt it should be put forward to other member countries.

3. As a followup to the UNEP EAP - AP/SPREP Government Consultation meeting in February, the Fiji officials agreed to host a followup meeting that was initially schedule for November. I was advised by the UNEP Environment Assessment Program for Asia and the Pacific Office in Bangkok on the possibilities of putting it to the second week of December due to some UN commitment in Nepal. I raised it up with the Fiji Officials and they didn't have any problems with it. The only concern is that generally that time of the year, it is quite difficult to track down participants because of the Christmas Holidays etc. But I see that we shouldn't face it to suit ourselves as the DONORS has there

own callender which is quite important to abide to it if we need their maximum cooperation. I will advise the UNEP EAP-AP Office in Bangkok that there is no problems with the changes in the dates.

4. The current changes in the Ministries will see benefit to the GIS initiative as well as other environment related projects. As in many other countries, Land & Survey Dept. and Forestry are the departments that are taking the leading role in utilising GIS. As with Fiji, the FLIS (Fiji Land Information System) which now come under the same ministry as the Environment Department will see a lot of usefulness in terms of exchanging data as well as further collaboration in terms of expertise. The current support from New Zealand for the FLIS is seen as a cornerstone and if collaborated with the Environment this will give momentum in securing further assistance from other donors like UNEP. Also given that the Permanent Secretary is the Chairman of the Fiji GIS/RS Council, the issue on departmental collaboration for data exchange and data compatibility should be seen diverted to a common interest with less data integrity.

5. I raised with Mr. Navin, Environment Officer, the initiative that we are updating. This is the Pacific Data Inventory and Needs Assessment Project. The main aim behind the compilation of the directory is to assess the expertise available in the region in terms of individuals and institutions as well as assess the status of environmental information and the format they are available. The initiative will help the secretariat to identify the expertise as well as looking at ways of strengthening it. In terms of data, we have realised that there is alot of work already been done in the region. The problem is what it is, where is the data and what format it is available. I confirmed to them that the secretariat is not in a position to collect this data. What is important is where it is and most importantly what are the gaps. Knowing what has already been done will save a lot of duplication. The first volume was produced August last year in which we subcontracted Landcare Research to compile it. The first volume didn't cover Fiji very well especially USP. In fact, Bruce Davies, Coordinator of the USP GIS Unit was coordinating the distribution and collection of the questionnaires for that volume and it wasn't a job well done as I had a few queries from some USP lecturers on the directory as they weren't advised of it. Now, SPREP is putting together the 2nd Volume which is more an update to the first one. We are looking at end of October for publishing and I requested the environment department to coordinate the distribution and collection of the questionnaires.

6. As with other activities, we are awaiting UNEP to send proposal guidelines. This came out of the Fiji Consultation Meeting in February this year. SPREP is now starting to compile pacific data for the Pacific SoE.

7. Also, under the schedule of activities recommended from the February Consultation, there should be preparations for the Fiji pilot DB & Analysis now. I have agreed that if they need help, they can formally request for it.

USP

8. I visited the USP GIS Unit to talk with Dr. Bruce about a GIS Workshop schedule for September. This a joint venture between PENRIC Project and Population Project (Taimoni). As may recall, the GIS Unit at USP was put together under this project and we see it as the regional GIS Training Center. The SPREP/UNFPA Population Project have planned to carry out 3 subregional training on population data capturing and analysis and given the objective of such training, it was seen that a compine training on using GIS for Intergrating Population and Environment will best fit the workplan of both projects. I raised it up with USP the idea of getting them in and they were supportive. I felt that getting USP in will save cost especially when we use USP people in the workshop and also given that UNEP/PENRIC is involved, their is possibility of not paying anything for the use of USP facility. But this yet to be finalise. USP is now working on the logistics and Agenda which a draft should be send down to SPREP for consultation. The Workshop now stands as a USP/UNEP/UNFPA/SPREP Workshop on "Intergration of Population and Environment through GIS Application".

9. I spend the whole afternoon with one staff and 2 final year students following up some of the queries they had on ARC/INFO Package and ARCVIEW.

UNDP

10. I went to the UNDP Office and talk to Mr. Robert Piper, who is looking after Suresh stuff while awaiting for a replacement, to followup on the ESCAP State of Environment Report and I was suprised that they haven't heard about it, it makes the visit very short. He raised UNDP disappointment with the Fiji Government on the lack of commitment on the SDN Project as none of the Fiji Departments, even the Environment had requested in full support for an e_mail. As of the Environment, they have responded that they will look in to it after their GIS is fully setup and operational. He felt that GIS shouldnot be prioritise to that extend on the expense of another useful program like SDN. I comment that it more on how the Fiji Government see on the impact it does on their commercial communication stratergies already in place.

It was a short visit but it was received useful.

Faafetai.

LETTER OF UNDERSTANDING

This LETTER OF UNDERSTANDING is made on the 9th of August 1995 by and between the South Pacific Regional Environment Programme (SPREP) and the University of the South Pacific/GIS Unit (USP/GIS Unit), Suva, Fiji, for the conduct of a GIS application for Population & Environment Integration Workshop, scheduled on 4 - 8 of September 1995. The workshop is jointly funded by UNFPA and UNEP EAP-AP in collaboration with SPREP.

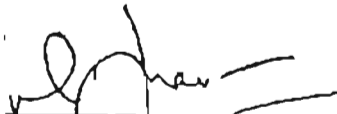
WHEREAS, USP has decided to organise and conduct jointly the above named Workshop with SPREP; and

WHEREAS, SPREP is willing to provide support to this same Workshop, this Letter of Understanding witnesses that it is now agreed by and between those parties as follows;

- That SPREP and USP will jointly organise the Workshop with USP to document the proceedings and produce a workshop report.
- That UNFPA and UNEP EAP-AP; in collaboration through SPREP will co-fund the workshop as set out in Attachment A.
- That USP will provide a report of all funds expended with receipts no later than fifteen (15) days after the workshop.
- That any balance of funds will be returned to SPREP with the financial report referred to in item 3.

For SPREP

For USP


M. A. Fuvavo
Director


Afioga Alimurunga E. Solofa
Vice Chancellor

25/8/95
Date

25/8/95
Date

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GIS Application for Population and Environment Integration Workshop

4 - 8 September, 1995

USP, Suva, Fiji

Budget		USD
Facilities (USD175/day)	5 days	875.00
Senior Lecturer Instructor (USD 210/day)	5 days	1,050.00
Staff Assistant & Materials (USD 105/day)	5 days	525.00
Bus transportation for field trips		160.00
Closing Dinner (USD 17/person)	18	306.00
TOTAL		<u>US 2,916.00</u> =====

[Handwritten signature]
23/8/95

[Handwritten signature]
25/8/95



INTER-OFFICE MEMO

File: AP 10/3/1
Date: 13 September 1995

TO: All SPREP staff
COPY: Gerald, Don, UNFPA
FROM: Taiamoni Tongamoa

SUBJECT: GIS workshop for demographic and environmental data analysis

4 - 8 September, 1995

Objectives:

1. to develop the technical capacity of environment units and related ministries (Statistics/Planning) to use GIS application (Popmap) for demographic (and other socio-economic) and environmental data analysis.
 2. to introduce the use of Popmap software package for demographic and environmental data analysis
 3. to introduce the integrated use of GIS for demographic and environmental data analysis and manipulation
 4. to assess and identify country needs in the area of demographic and environment information data analysis
 5. to evaluate and assess training needs for a similar workshop in 1996 for Melanesia and Micronesia sub-regions.
-
- Two participants from each of seven Polynesian countries (W.Samoa, A. Samoa, Tonga, Niue, Cook Islands, Tuvalu and Fiji) attended the workshop
 - The workshop was officially opened by the University's Pro-Vice Chancellor, Dr Vijay Naidu
 - Participants were given an overview of the SPREP/UNFPA and UNEP Projects and briefed on the objectives of the workshop.
 - This was followed by a country report by the participants on the state of GIS and how they see GIS in general and Popmap in particular as planning tools in their respective countries. These country reports will be attached to the workshop report by the Coordinator, Dr Bruce Davis, GIS Unit, University of the South Pacific.

- The workshop was the first of its kind to be conducted on a sub-regional/regional basis by the GIS Unit, USP. The participants were also for the first time introduced to the Popmap software package. Hence, the workshop focussed primarily on understanding the basic application of GIS and the Popmap software.
- Participants were also provided with a free Popmap software package to take back to their offices to be used for creating database and producing population distribution/environment overlay maps for their respective countries.

The workshop was rounded up on the last day (Friday, 8 Sept, 1995) with an evaluation/roundtable discussion. Some of the points raised were:

1. customisation of the popmap software package
2. realising the difficulties of obtaining national data, it was suggested that SPREP could build a regional database which could be tapped into by different countries
3. the GIS section (SPREP) to produce a quarterly new letter/GIS fact sheets as part of the GIS awareness activity. These should be sent to relevant ministries of member countries
4. for future workshops, coordinator (GIS Unit, USP) to send the workshop programme in advance to participants so that they have some ideas of the training sessions.
5. Niue and Tuvalu expressed their problem with installing and using the free popmap package provided at the workshop, and utilising the skill they have learned due to the absence of a computer at the Environment Unit. Possibility of providing them with computer was sought. Both countries were advised to submit a proposal for consideration under the GIS and Population/Environment Projects.
6. Given that this was the first sub-regional workshop ever held on the use of popmap and, that the focus was on the basics of popmap application, it was felt that a follow-up workshop on the actual application of popmap to map production and overlays should be carried out. This could be held around May/June 1996, after the basic training for Melanesian/Micronesian countries is completed about March/April 1996.

Thank You,



Taiamoni Tongamoa
Population and Environment Development Officer



South Pacific Regional Environment Programme
(SPREP)

GIS WORKSHOP FOR DEMOGRAPHIC & ENVIRONMENT DATA ANALYSIS
USP, Suva, Fiji, 4-8 September, 1995

UNFPA/SPREP - UNEP/USP

Provisional List of Participants

OFFICIAL MEMBERS

American Samoa

Mr Fuli Solaita
Coastal Zone Management Officer
Environment Protection Agency (EPA)
Pago Pago
American Samoa

Telephone: (0684) 633 2304
Fax: (0684) 633 5801

Mr Wally Jennings
Enforcement Officer
Environment Protection Agency (EPA)
Pago Pago
American Samoa

Telephone: (0684) 633 2304
Fax: (0684) 633 5801

Cook Islands

Mrs Tina Drollet
Computer Training Coordinator
GIS Coordinator/Training
Prime Minister's Department
Rarotonga
Cook Islands

Mr Framhein Wichman
EIA Planning Officer
Cook Islands Conservation Service
Rarotonga
Cook Islands



Fiji

Mr Karuna Garan
Statistical Officer
Department of Bureau Statistics
Suva
Fiji

Mr Tui Fagalele
Ministry of Regional Development
Suva
Fiji

Niue

Ms Josie Tamate
Economist Officer
Economic Planning Officer
Alofi
Niue

Mr Wayne Tagelagi
Environment Officer
Environment Unit
Department of Community Affairs
Alofi
Niue

Telephone: (0683) 4019
Fax: (0683) 4010

Tonga

Mr Penitiketo Tupou
Assistant Surveyor
Lands, Survey and Natural Resources
Nuku'alofa
Tonga

Telephone: (0676) 23 210/23
Fax: (0676) 23 216

Mr Saimone Vuki
Demographer
Central Planning Officer
Nuku'alofa
Tonga



Western Samoa

Mr Laavasa Malua
Environment Officer
Department of Environment and Conservation
Apia
Western Samoa

Telephone: (0685) 26 681
Fax: (0685) 23 176

Mr Kaiona Fonoti
Statistics Officer
Statistic Department
Apia
Western Samoa

SPREP SECRETARIAT

P.O. Box 240
Vaitele
Apia

Telephone: (0685) 21 929
Fax: (0685) 20 231
E-mail: sprep@pactok.peg.apc.org

Dr. Taiamoni S. Tongamo
Population and Development Officer

Mr Bismarck Crawley
Project Officer/Environmental Information Data-Analysis Officer

16 August, 1995

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LETTER OF AGREEMENT

This Letter of Agreement is concluded among

Manzaki Whenua Landcare Research New Zealand Ltd.
located at Massey University Campus, New Zealand
hereinafter referred to as Landcare;

South Pacific Regional Environment Programme
located at Apia, Western Samoa
hereinafter referred to as SPREP;

and

UNEP Environment Assessment Programme for Asia and the Pacific
based at the Asian Institute of Technology, Bangkok, Thailand
hereinafter referred to as UNEP/EAP-AP, on the other.

1. Under this Letter of Agreement (LoA), Landcare will prepare a case study of Atiu Island, Cook Islands.
2. Within this LoA, Landcare will provide the following specific outputs:
 - 2.1 Documentation of a specific GIS application in a case study format that can be used by decision makers, written in simple English with the main text supported by graphs, maps, diagrams and/or pictures;
 - 2.2 Documentation of the case study methodology used which can be utilised as a training material for technical level training, with an abstract included as per attached "Guidelines for SPREP Reports" (Attachment-1).
 - 2.3 Training data sets consisting of the core data (i.e. topography, soils geology, hydrology, demography, infrastructure, administrative boundaries and land use) with descriptions on how they can be manipulated and linked for such applications as cropping options, susceptibility to erosion, and vulnerability to sea level rise; and
 - 2.4 Outputs 2.1 and 2.2 will be presented in hard copy with a write up on acknowledgement, abstract and preface and on disk, as per attached "Guidelines for SPREP Reports".
 - 2.5 Diskette copies of outputs 2.1, 2.2 and 2.3;
3. In preparing the case study, Landcare will be guided by the guidelines provided by UNEP/EAP-AP which is attached to this LoA as Attachment-2.

4. UNEP/EAP-AP through SPREP, on the other hand, will contribute a sum not exceeding US\$7,000.00 (U.S. Dollars Seven Thousand) for the case study and data set. An initial cash advance equivalent to 50% (US\$3,500) of the total amount will be paid to Landcare upon signature by all parties concerned. The remaining balance of 50% (US\$3,500) will be paid upon acceptable receipt of the outputs listed in 2.1, 2.2, 2.3, 2.4 and 2.5 and a detailed statement of expenditures from Landcare.
5. Landcare will complete the case study and digital data set not later than 31 December 1995. The first draft is expected to be completed by mid-November 1995 and the case study will be ready for final layout by 31 December 1995.
6. The first draft should be forwarded to SPREP and UNEP/EAP-AP for consultation and assessment before final layout and printing by SPREP.
7. This LoA will take effect from the date of the last signature and terminate not later than 31 December, 1995.
8. This LoA may be amended and/or extended by an exchange of letters among the signatories detailing agreed upon amendments and/or extensions.
9. Settlement of Dispute: If any dispute arises in the future during the execution of the present LoA for reasons whatsoever, the dispute will be settled by mutual discussion among all parties without involving any other person(s) and/or alien to the present LoA.

Consentence:

For Landcare Research

Bruce B. Trangmar
 Bruce Trangmar
 Manager
 International Business Unit
 Landcare Research
 New Zealand

Date: 21/8/95

For SPREP

Wili A. Fuavao
 Director
 SPREP
 Apia, Western Samoa

Date: 7/9/95

For UNEP/EAP-AP

Steenora Shrestha
 Director
 UNEP/EAP-AP
 AIT, Bangkok, Thailand

Date: 8.8.95

Guidelines for SPREP Reports

(As of 14 July 1994)

These guidelines are for reports and studies that are commissioned by SPREP. These reports are the principle form of communication between the contractors, SPREP and the users of the report.

It is important that this information be presented at a standard consistent with SPREP's and the region's own standards. For more information or answers to queries, please contact the Information and Publications Officer at SPREP.

General

1. Reports should be typed into a wordprocessing package on a computer.
2. SPREP reserves the right to edit reports to comply with the standard SPREP Report Format.

Computer Hardware and Software

3. SPREP currently uses IBM-compatible computers only, with no access to Macintosh equipment.
4. SPREP uses these software:
 - a. Wordprocessor: Word for Windows 2.0
 - b. Spreadsheet: Excel 4.0
 - c. Databases: Foxpro for Windows 2, ProCite.
 - d. Desktop Publishing: Pagemaker 4.0
5. The report file should be sent in one of the following formats (in order of preference):
 - a. Word for Windows
 - b. MS Word or WordPerfect
 - c. Rich-text Format (.RTF)
 - d. ASCII

Write the format of the file and the file name on the disk.

Layout

6. *Page size:* SPREP publications will be laid out and printed on A4 paper, unless otherwise specified: 210 mm (8.27") x 297 mm (11.69"). All reports are to be laid out to fit this size.

7. *Page Margins:* Top: 20 mm (0.8"), Bottom: 15 mm (0.5"), Left and Right Margins: 20 mm (0.6").

8. *Font:* The preferred typeface is 10-point Century Schoolbook (which is used in these *Guidelines*). Others that are comparable are 11-point Times Roman, 11-point CG Times, and 10-point Lucida Bright (as shown here). Please layout in these typefaces so you know how long the report is likely to be. Do not use sans-serif type faces such as Arial or Century Gothic.

9. *Page Order:*

Page (i): Front Covering Page

Page (ii): Foreword or Executive Summary (if necessary).

Page (iii): Contents (do not include page numbers)

Page 1 onwards: body of the Report

Page ____: References

Page ____: Annexes

10. *Headings:* Use one space only between all headings and text body. Use one [tab] space only between heading numbers and the heading, not spaces! Do not underline headings. Justify all headings to the left. Do not use all capital letters for headings, only the first letter.

11. *Numbering Headings:* Use decimal "1.2.4" format for numbering headings and sections in the report. Attempt to limit the number of decimal levels to three. Do not number paragraphs.

12. *Paragraphs:* Use one space between paragraphs. Justify all print, except in headings (see above). Use two spaces between sentences after the full stop within the paragraph.

13. *Tables:* Use the "Table" function available in most modern word-processors. This ensures that the table remains aligned when changing typefaces. If it is not in your wordprocessor, use [tab] settings to align the columns. Do not use the [space] bar to align columns! Align tables in the centre of the space used.

14. *Diagrams, maps, graphs photos and figures:* There are all to be called Figures.

14. *Diagrams, maps, graphs photos and figures:* There are all to be called **Figures**, and are to be cited as "Fig. _" in the text. Figures are to be included in the body of the text, immediately after the paragraph where a figure is first cited, or at the top of the following page if there is insufficient space. Do not add these as an annex to the report. Use graphs to display data as much as possible and where appropriate.
15. *Annexes:* Any information added to the report is to be placed in Annexes. Do not use "appendix".
16. *Species names:* Use *italics*, not underline.
17. *Spelling:* Use English (Australia or NZ) spelling for all SPREP reports except those specifically for American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Palau and the Marshall Islands. In these cases, use US spelling (and US spell checker on the wordprocessor).
18. *Referencing citations:* Use the Standard Harvard system for referencing cited material in the report. This system is used in most scientific and many economic publications. Do not use footnotes. References should be cited in the text, e.g.:
"... and so this is a fact (Nitt, 1992, 2)"
19. *Bibliography and References:* Should be titled "References", and placed between the report body and any annexes in a separate section. Type book and journal names in *italics* - do not underline or bold. Use a hanging indent for each title cited. Use the following format:
Books: Author(s). Year. *Title*. Publisher, city. Pages.
Journal article: Author(s). Year. *Title*, *Journal*. Volume (number). Page(s).
20. *Report Cover:* Include a cover page, stating the report title, author(s) employing organisation(s), and funding agency(ies) for the report. SPREP will design the front cover. Send suitable photos if appropriate and available - check with SPREP first. All photography is duly acknowledged.

Dispatch

21. Reports should be sent on a 3.5" (preferred) or 5.25" floppy disk, and a "hard copy", preferably by DHL courier. Notify SPREP by fax that they have been forwarded.

Printing

22. SPREP is responsible for printing the final report, unless otherwise stated in the contract.



AMSAT

SPREP TURTLE DATABASE

The Turtle Database presently existing at SPREP is a tabular database developed in Foxpro for Windows. An examination of the database provides the following information.

THE EXISTING DATABASE

There are 21 fields in the database, named as follows:

PTAG
TAG
TAGST
SP
SEX
AGECL
CDATE
LOCAL
SECT
HABIT
PRIAC
SECAC
TERAC
EXPER
CCL
ISRP
REGN

LATD: Latitude degrees
LATM: Latitude minutes
LOND: Longitude degrees
LONM: Longitude minutes

The fields containing geographical coordinates are LATD, LATM, LOND and LONM.

Several deficiencies in the database structure are evident, as given in the following section.

DEFICIENCIES OF THE DATABASE STRUCTURE

1. There are no fields for entering the 'seconds' in latitude and longitude, even though several observations appear to have values for degrees, minutes and seconds.
2. The width of the latitude field (LATD) is set at 2. This means that negative 2-digit latitude values (for the southern hemisphere) cannot be entered.
3. The width of the longitude field (LOND) is set at 3, meaning again that negative values (for longitudes west of Greenwich) cannot be entered.
4. The width of the minute fields for both latitude and longitude are set at 2. While this would be acceptable if separate fields were defined for direction (East or West longitude and North or South latitude), it is necessary under the present circumstances to increase the fields for LATM, and LONM to 3.

This is essential in order to enter a minus sign to indicate South latitudes and West longitudes, in cases where the LATD and/or LOND values are zero.

5. A numeric field for entering unique observation IDs does not exist. Such unique IDs are essential for creating a point ARC/INFO coverage, and for linking to other attributes. However, it should be noted that such a field is NOT required if ArcView 2.x is used as the viewing/querying tool, since ArcView 2.x can directly display tables having X,Y (or Longitude/Latitude) fields, as an *event theme*.

REMEDIES

1. Increase the field width of LATD to 3 to allow for negative values (southern hemisphere).
2. Increase the field width of LOND to 4 to allow for negative values (west of Greenwich).
3. Increase the field width of LATM and LONM to 3, again to accommodate negative values.
4. Add fields for LATS and LONS (seconds component of latitude and longitude), of width 3.
5. Enter latitude and longitude values using the following convention:

North Latitudes: LATD, LATM and LATS as positive values.

South Latitudes: LATD, LATM and LATS ALL as negative values.

Longitudes east of Greenwich: LOND, LONM and LONS as positive values.

Longitudes west of Greenwich: LOND, LONM and LONS ALL as negative values.

6. Check each record of the database, and rectify errors in LATD, LATM, LATS and LOND, LONM, LONS.
7. Add a numeric field, of width 8, for entering unique Observation IDs.
Sort the database by the field CDATE (within Foxpro).
Assign record number values to the ID field. This is easily done in TABLES using the command:

CALCULATE ID = SRECNO

Future observations should be assigned sequential serial numbers as they are received and appended to the database.

PROCEDURE FOR DEVELOPING A SPATIAL DATABASE FOR ARCVIEW 1.X

1. Make a copy of the completed database. Say for example, the copy is named TURTCOPY.DBF. *Do NOT work on the original database.*
2. Delete all fields from the copy except for the following fields:
 - ID (Observation_ID)
 - LATD
 - LATM
 - LATS
 - LOND
 - LONM
 - LONS
3. Add two fields to the resulting table. One field should be named LONGITUDE and the other LATITUDE.

The LONGITUDE field should be numeric, of width 12, no. of decimal places 6.
The LATITUDE field should be numeric, of width 12, no. of decimal places 6.

Make sure that the LONGITUDE field comes BEFORE the LATITUDE field.

4. Next, calculate the LONGITUDE and LATITUDE fields as follows (in TABLES):

```
CALCULATE LATITUDE = LATD + LATM / 60 + LATS / 3600  
CALCULATE LONGITUDE = LOND + LONM / 60 + LONS / 3600
```

Now, we do not want negative longitude values since we want the map to be displayed continuously left to right with Papua New Guinea on the left and American Samoa on the right. To achieve this, we need to convert longitudes to lie in the range 0-360.

Use the following commands in TABLES:

```
RESEL LONGITUDE < 0           to select negative longitudes only  
CALC LONGITUDE = 360 + LONGITUDE  
QUIT
```

5. Delete the fields LATD, LATM, LATS and LOND, LONM, LONS, so that only the following fields remain: ID, LONGITUDE, LATITUDE.
6. Now do a text dump of the database. Is using ARC/INFO TABLES, use the command DUMP, like so:

```
DUMP IDXY.TXT DELIMITED
```

This will create a text file named IDXY.TXT.

7. Use ARC/INFO GENERATE to create a point coverage using the file IDXY.TXT. If the point coverage name is to be TURTCAPT, use the following command in ARC/INFO.

```
GENERATE TURTCAPT
```

This will bring up the Generate> prompt.
Now enter the following commands:

```
INPUT IDXY.TXT  
POINTS
```

When the Generate> prompt returns, enter the command QUIT.

8. BUILD the coverage using the POINT option, like this:
BUILD TURTCAPT POINT
9. Invoke TABLES and select the file TURTCAPT.PAT
Add an item named ID, defined as numeric, width 8, decimals 0. Then, issue the following commands:
CALCULATE ID = TURTCAPT_ID
QUIT
10. We are now ready to join the point coverage TURTCAPT to the original turtle database (named for example, SP00KAPT.DBF). Use the following commands from the ARC prompt.

```
JOINITEM TURTCAPT.PAT SP00KAPT TURTCAPT.PAT ID ID
```

This will join the attributes of the turtle database to the point coverage. This point coverage named TURTCAPT can then be displayed using ArcView 1.x or ArcView 2.x.

It must be noted that if ArcView 2 is used, it is not necessary to create a point coverage. It would be sufficient to add the fields LONGITUDE and LATITUDE to the original database, calculate values for LONGITUDE and LATITUDE, and access the database directly from ArcView 2 as an 'event theme'.

THE BASE MAP

Projection parameters of the base map available at SPREP are not known, thereby making it virtually impossible to re-project it to geographic coordinates, or project the database coordinates to the projection of the base map.

If full documentation describing the projection and projection parameters can be obtained, conversion of one to match the other is a relatively simple task.

If such documentation cannot be obtained, it is suggested that the Digital Chart of the World (DCW) be used as the base map. The complete DCW (on 3 - 4 CD ROMs) covering the entire globe can be bought from ESRI (the ARC/INFO developers) for around US\$ 500.

The possibility of obtaining the coastlines, for the region of interest, from UNEP/GRID at Bangkok could be explored.

Udai C Pradhan
7/3/96

Udai C Pradhan
Project Manager (IT)
AMSAT Limited

7 March 1996



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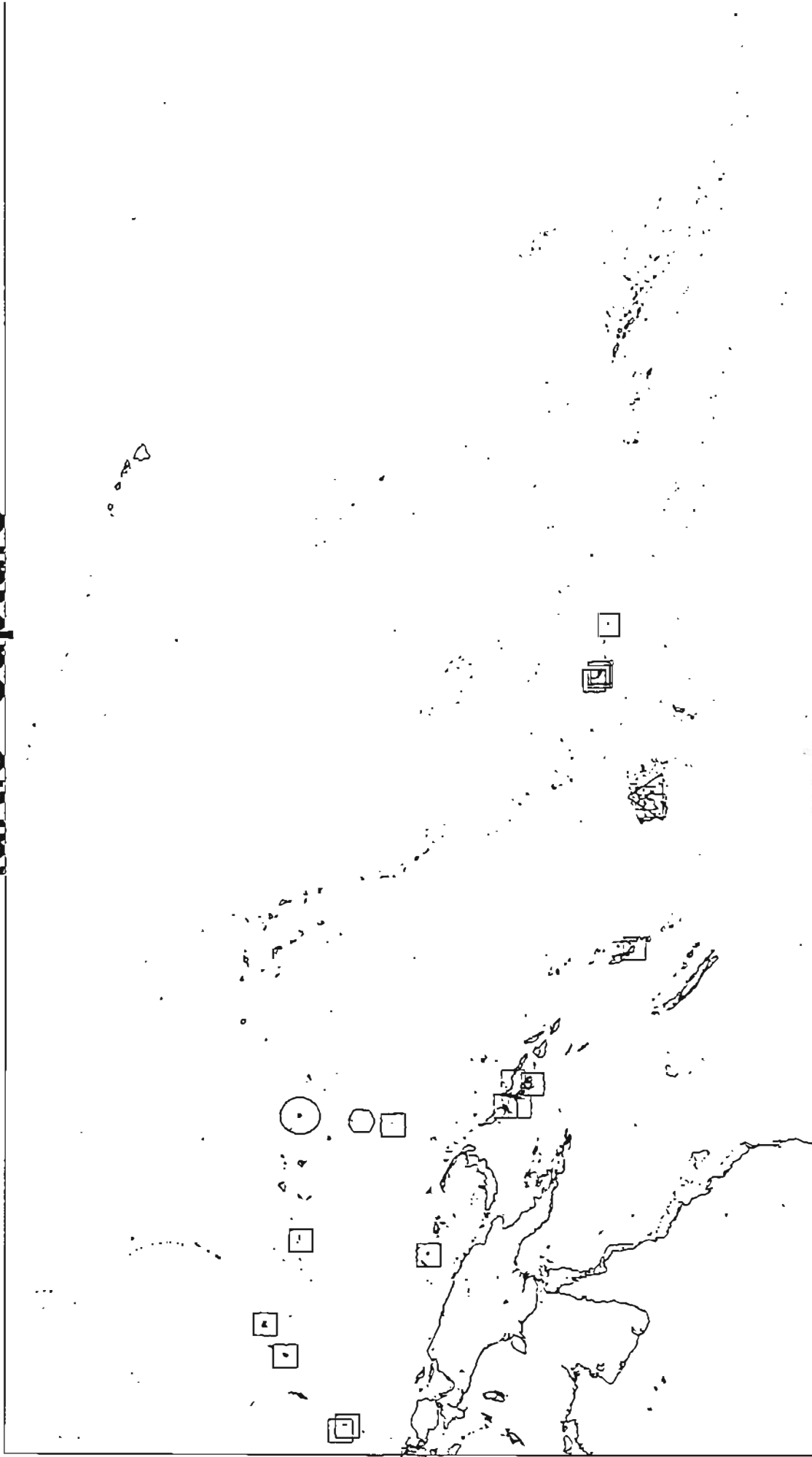
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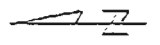
4



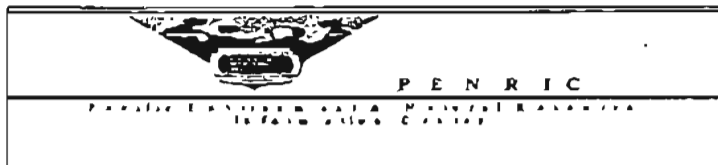
Turtle Capture



- Turtles Captured**
- Unknown
 - Greenback
 - Hawksbill
 - △ Loggerhead
 - ◇ Olive Ridley
- Coastline**



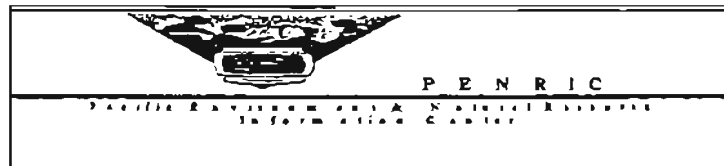




South Pacific Regional Environment Programme

Dataset Catalogue

<u>Title</u>	<u>Type</u>	<u>Location</u>	<u>Scale</u>	<u>Size</u>
American Samoa	Vector	Tutuila Island	1: 60,000	2MB
Federated States of Micronesia	Vector	Pohnpei	1: 100,000	8 MB
Federated States of Micronesia	Vector	Truk	1: 125,000	1.5 MB
Cook Islands	Vector	Anutaki, Mangaia	1:50,000	5 MB
Guam	Vector	National	1:100,000	2 MB
Republic of Kiribati	Vector	Aranuka	1: 25,000	59 KB
Republic of Kiribati	Vector	Arorae	1: 50,000	33 KB
Republic of Kiribati	Vector	Kuria	1: 25,000	192 KB
Republic of Kiribati	Vector	Tarawa	1: 50,000	159 KB
Marshall Islands	Vector	Majuro	1:35,000	161 KB
Republic of Nauru	Vector	National	1:10,000	4 MB
Niue	Vector	National		7 MB
Palau	Vector	Northern Part	1:25,000	2 MB
Solomon Islands	Vector	Guadacanal	1:50,000	8 MB



South Pacific Regional Environment Programme

Dataset Catalogue

<u>Title</u>	<u>Type</u>	<u>Location</u>	<u>Scale</u>	<u>Size</u>
Tokelau	Vector	Nukunonu		
Tonga	Vector	Tongatapu	1:25,000	10 MB
Tuvalu	Vector	Nui		
Republic of Vanuatu	Vector	Efate	1:50,000	2 MB
Western Samoa	Vector	National	1:50,000	22 MB

MEMORANDUM OF UNDERSTANDING

This memorandum of understanding is made between the South Pacific Applied Geoscience Commission (SOPAC), the South Pacific Commission (SPC), the South Pacific Regional Environment Programme (SPREP), the South Pacific Forum Fisheries Agency (FFA) and the University of the South Pacific (USP).

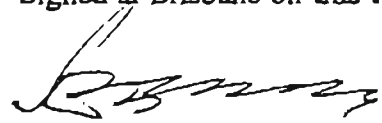
Recalling that the parties to this MOU were established to provide technical services to their member countries;

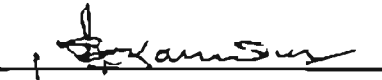
Recognising the importance of the usage of remotely sensed data and the great potential benefits including cost savings to be derived from the closer cooperation in the use of remotely sensed data and imagery;

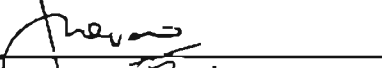
the Parties to this MOU, being concerned to promote the coordination of work programmes and the efficient use of the available resources, agree as follows:


1. There is established a Geographical Information Systems (GIS) and Remote Sensing User Group. The parties will participate as members (Users) in the work of the User Group.
2. Each user may make available to other Users, at incremental cost only, all remotely sensed data in both digital and hard copy form.
3. The Users will establish and contribute to a catalogue of data and information to be held at each User organisation. SOPAC will coordinate this activity, maintain the master catalogue and ensure all Users are up to date.
4. The Users may cooperate in the acquisition and sharing of GIS and remotely sensed data, in particular satellite imagery, in the following manner. Provided that funds are available, a User purchasing new data shall meet the cost of a single user licence and the additional copyright cost to make the data available to all Users. Should funds not be available to meet the additional copyright cost, the next User requiring that data shall meet the cost. Any User requiring existing data held by another User shall meet the additional copyright cost to make the data available to all Users.

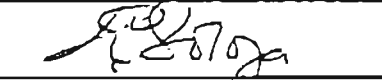
Signed at Brisbane on this twenty-seventh day of July 1994.


_____ for South Pacific Applied Geoscience Commission (SOPAC)


_____ for South Pacific Commission (SPC)


_____ for South Pacific Regional Environment Programme (SPREP)


_____ for South Pacific Forum Fisheries Agency (FFA)


_____ for University of the South Pacific (USP)

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AMSAT

**Inventory of Computer Equipment at SPREP/PENRIC
7 March 1996**

The following equipment currently exists at the SPREP PENRIC Unit.

COMPUTERS

Compaq Deskpro 5/60 M	Pentium 60 MHz 8 MB RAM / 540 MB HDD 17" color monitor	Windows 3.1 ARC/INFO 3.4.1 ERDAS 7.5 IDRISI 4.0 FoxPro for Windows
Compaq Deskpro 5/60 M	Pentium 60 MHz 16 MB RAM / 540 MB HDD 17" color monitor	Windows 3.1 ARC/INFO 3.4.1 IDRISI 4.0 ArcView 1.0 a FoxPro for Windows
Acer	486 DX 25 processor 4MB RAM / 340 MB HDD 14" color monitor	Windows 3.1 Word-processing
Toshiba Satellite Notebook	486 DX2 Processor 8MB RAM / 200 MB HDD Color LCD Monitor	Windows 3.1 ARC/INFO 3.4.1 ArcView 1.0a FoxPro for Windows

PLOTTER/PRINTER

Calcomp Pacesetter	8-pen plotter, A1 size	Damage to plastic cover around carousel. Leads to pens skipping. Repair needed.
HP Deskjet 660C	Inkjet Color printer	Almost new
Epson LQ1170	24-pin Dot-matrix printer Wide Carriage	Working
HP Paintjet	Inkjet color printer	Working

INPUT DEVICES

Calcomp Digitizer	A1 size 16 button cursor Power base	Working
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STORAGE DEVICES

Cipher 9-track tape drive	1600 - 6250 bpi	Damaged
Ricoh CD-ROM Recorder		See comments below

It is unfortunate that no use has been made of the CD-recorder acquired 2 years ago. It is understood that updated CD-mastering software from the vendor has not been received yet - the software provided originally is a beta test version which has several problems and further compounded by inadequate documentation

The equipment presently available is adequate for the current activities of the unit, except for the software which should be upgraded if possible.

It is recommended that the existing PC ARC/INFO 3.4.1 and ArcView 1.0a be upgraded to the current versions available. Upgrade to ArcView 2.1 or ArcView 3 (due this year) would necessitate the upgrading of memory to 16 MB for the Compaq machine which presently has 8 MB RAM.

The Cipher 9-track tape drive was damaged several years ago while being moved. There does appear to be a need for the drive.

Summary of Upgrade recommendations

1. Upgrade Compaq Pentium memory to 16 MB: Extra 8 MB RAM needed.
2. Upgrade PC ARC/INFO 3.4.1 to current version: 2 licenses
3. Upgrade ArcView 1.0a to current version: 2 license
4. Obtain CD-mastering software for CD-ROM Recorder from original suppliers.
5. Repair Calcomp Plotter. The plastic housing surrounding the carousel needs replacement.

Udai C Pradhan
7/3/96

Udai C Pradhan
Project Manager (IT)
AMSAT Limited

7 March 1996



File: AP 4/7/3
Date: 6 February 1996

Circular: 409

TO: SPREP National Focal Points:
(Cook Islands, Fiji, FSM, Kiribati, Marshall Islands, Niue, Tuvalu, Tonga,
Solomon Islands, Western Samoa, Vanuatu)

SPOCC Organisations

SUBJECT: State of the Environment Meeting/Training, March 18-23, 1996. Fiji

SPREP and the United Nations Environment Programme are committed to developing and strengthening the capabilities of national governments and institutions for formulating sustainable development policy. This is a contribution to implementing the Earth Summit's Agenda 21 and more recently the Barbados Programme of Action for the Sustainable Development of Small Island Developing States.

In sharing this goal of achieving sustainable development, SPREP and UNEP are partners in implementing a project designed to strengthen national decision making on environmental matters, through the provision of better information

In response to the recommendations of Agenda 21 and the Barbados Conference, the UNEP Environment Assessment Program for Asia and the Pacific (UNEP/EAP-AP) in collaboration with SPREP aims to: improve the capabilities of countries to use and access the existing environmental related data; to support the production of environmental-development assessment reports at national and regional levels as a basis for decision making; provide access to intergrated information on socio-economic and bio-physical condition as a means for sustainable development; emphasise and enhance focus on emerging issues and early warning; and finally, to intergrate the provision of UNEP information in to one system.

There has been a growing recognition in recent years of the importance of periodic analysis and reporting of environmental conditions and trends for development of policies, and setting environmental standards that are environmentally sound. Only reliable and appropriate information about the state of the environment and processes, can contribute to improve environmental conditions.

SPREP is fully committed to these initiatives as it sets the basis for the revision of the SPREP Action Plan. The production of the State of the Environment Report for the Pacific Region will assist SPREP/members identify the main environmental issues that need to be address in the next 5 years.

In February 1995, UNEP/EAP-AP and SPREP held consultations with Governments as to assess their needs for capacity building and environmental assessment as a step towards

formulation of the State of the Environment Report for the Pacific. Proceedings of these consultation was distributed with circular No. 328. The principal recommendation calls for production of the SoE Report and Database to monitor the most detrimental environmental issues in the South Pacific Region. Countries that participated in these consultations were : Fiji, Vanuatu, Solomon Islands, Cook Islands, Federated States of Micronesia and Tonga.

As a followup, SPREP in collaboration with UNEP/EAP will host a meeting/training in March 18-23, 1996. One day for further consultations with governments will be held on 18th March followed by 5 days of specialised SoE training, 19th-23rd.

Objective:

The main objectives of the consultation are to:

- Discuss SoE Reporting and Assessment Activities in the Pacific
- Review a draft of the South Pacific State of the Environment Report
- Identify priorities for the review of the SPREP Action Plan.

Venue: Environment Department, Conference Room, Suva

Dates: March 18-23, 1996.

Participation:

Governments are invited to nominate 2 participants, 1 from the Environment Management and the other from Planning or Statistics Department with practical background on national data management.

Country participants are asked to produce 1 country report which should be focusses on the following:

1. SoE Reporting and Assessment Activities in your country
2. What are the main environmental issues
3. What are your needs with regards to Capacity Building. (ie. training, Hardware/Software, State of the Environment Database)
4. Discuss database activities within your country.

You will receive, tables for a draft Environmental Information Database that will provide the basis for training activities, 19-23 March. We would appreciate if you could fill in these tables wherever possible (shaded areas need not be attempted) and send it to SPREP. These tables should be treated with some priority and we would appreciate if they could be forwarded to SPREP before the 7th of March. Your input is essential for the SoE database and the success of the training programme. Each country that successfully completes the training programme will receive a desktop after the training to assist them build their National State of the Environment Database.

Agenda:

You will find attached a draft provisional agenda.

Travel/Perdiem:

SPREP will cover the cost of country participants to the meeting/training including economy air travel and perdiem at SPREP rates for Suva. Upon receipt of nominations, participants will be advised of their travel to and from Suva. Nominations must be received by February 29th.

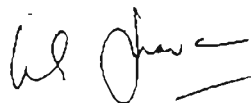
Accommodations:

Further information will be provided on receipt of nominations.

Enquiries:

Any enquiries should be directed to Mr. Bismarck Crawley, PENRIC Project Manager at the SPREP Office, Apia

Yours sincerely,



Vili A. Fuavao
Director

Att.

VAF/bc

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Provisional Draft:

**SoE Meeting/Training
March 18-23, 1996
Suva , Fiji**

Meeting

Monday 18th

- | | |
|-------|---|
| 9.00 | Official Welcome: |
| 9:30 | Morning Tea |
| 9.45 | Election of Officers |
| 10:00 | UNEP/EAP-AP: SoE Reporting and Assessment Activities in Asia & Pacific

Discussions |
| 11:00 | Country Reports:

Cook Islands
Fiji
FSM
Kiribati
Marshall Islands
Niue
Tuvalu |
| 1.00 | Lunch |
| 2.00 | Continuation of Country Reports

Tonga
Solomon Islands
Western Samoa
Vanuatu |
| 3.30 | Afternoon Tea |
| 3.45 | Review of the South Pacific SoE (SPREP/SoE Consultant) |
| 4.30 | Planning |
| 5.00 | Close |
| 7.00 | Cocktail host SPREP/UNEP EAP |

Training:

Tuesday 19th Concepts of SoE; its reporting framework & guiding principles
Pressure State Response Model for SoE Reporting
Environmental Issues, bio-physical and socio-economic linkages

Wednesday 20th Environmental Indicators;
Concepts, Types, and issue-indicator-data

Thursday 21st Conceptual framework for SoE Development

Friday 22nd: Pacific SoE Database. DB Software

Saturday 23rd: Methodological issues in developing and compiling environmental data/information,
mathematical and statistical concepts for environmental trend analysis.



South Pacific Regional Environment Programme (SPREP)

Provisional Agenda

SoE Meeting/Consultation on Action Plan Review
18 March, Suva, Fiji

Meeting

Monday, 18 March 1996

- 8.00 Opening Address by Dr Vili A. Fuavao
- Opening Statement by Mr Karunesh Bhalla, Deputy Resident Representative,
 UNDP, Fiji
- Opening Statement by Mr Surendra Shrestha, Regional Coordinator, UNEP
 EAP-AP, Bangkok
- 9.30 *Morning Tea*
- 9.45 Election of Officers
- 10.00 SoE Reporting and Assessment Activities in Asia & Pacific by UNEP EAP-AP
- Discussions
- 11.00 National Activities for SoE Reporting, Assessment & Database
- 1.00 *Lunch*
- 2.00 Review of the Pacific State of the Environment Report (*Bob Thistlethwaite &
 Bismarck Crawley*)
- 3.30 *Afternoon Tea*
- 3.45 Review of the SPREP Action Plan
- 5.00 Planning
- 6.00 Close
- 7.00 Cocktail host SPREP/UNEP EAP at the Forum Secretariat

Training

- Tuesday 19th** Concepts of SoE; its reporting framework & guiding principles
Pressure State Response Model for SoE Reporting
Environmental Issues, bio-physical and socio-economic linkages
- Wednesday 20th** Environmental Indicators;
Concepts, Types and issue-indicator-data
- Thursday 21st** Conceptual framework for SoE Development
- Friday 22nd** Pacific SoE Database, DB Software
- Saturday 23rd** Methodological issues in developing and compiling environmental
data/information, mathematical and statistical concepts for environmental
trend analysis.

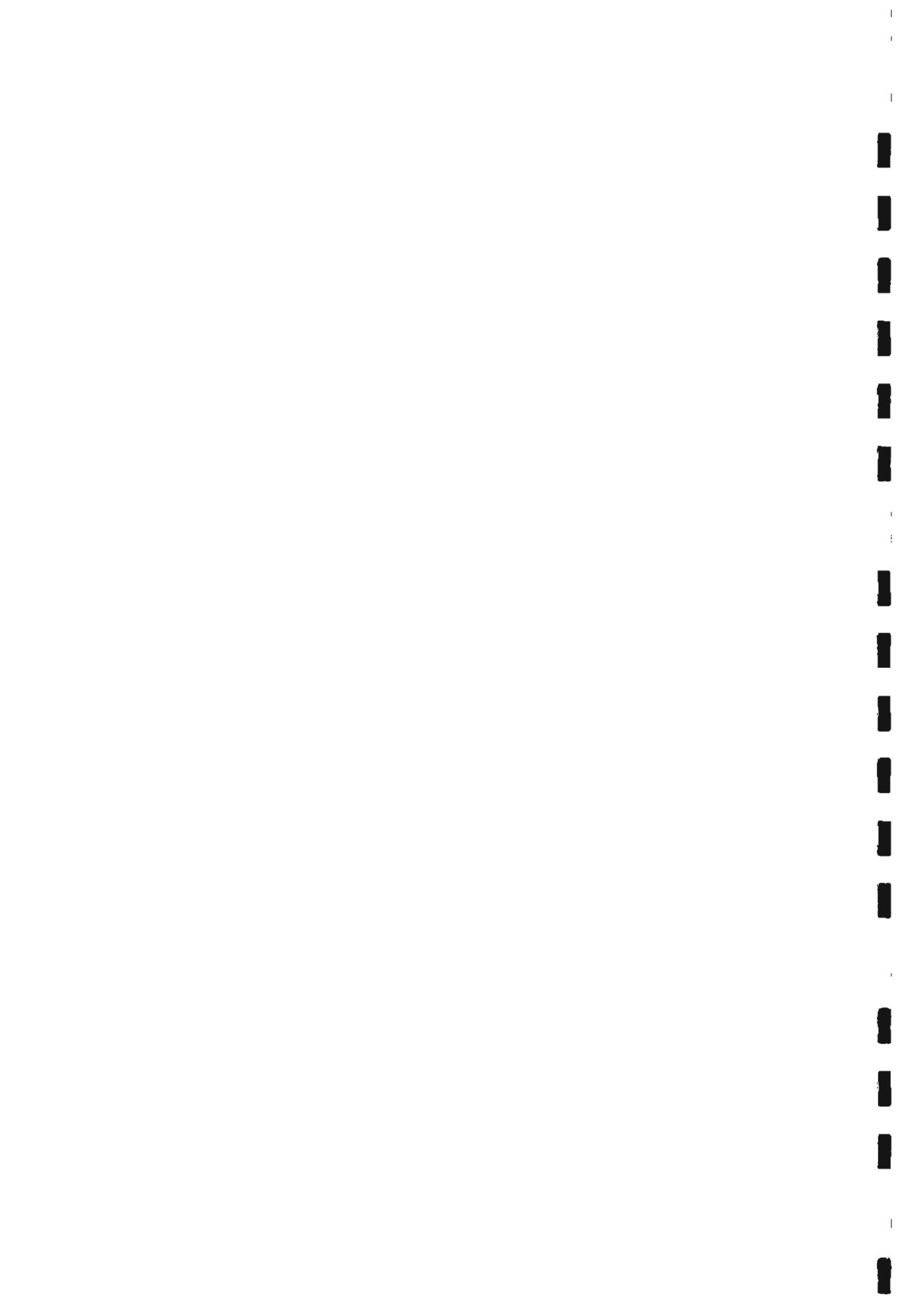
SOUTH PACIFIC CONSULTATION

on

**UNEP ENVIRONMENT ASSESSMENT
PROGRAMME**

DISCUSSION RECORD

**15 - 16 February, 1995
Suva, Fiji**



**SOUTH PACIFIC CONSULTATION ON
UNEP ENVIRONMENT ASSESSMENT PROGRAMME
15 - 16 February, 1995
Suva, Fiji**

DISCUSSION RECORD

1. Welcome

Bismarck Crawley opened the meeting by welcoming all the participants. He then briefed the group on the background and objective of the meeting.

2. Election of Office Bearer

Being a small group, the participants decided to have a round-table type of discussion to allow a free flowing and more informal sharing of ideas. With the agreement of the participants, Bismarck assumed the role of chairperson during the morning session of the first day and Sefanaia Nawadra of the Department of Environment, Fiji for the remainder of the meeting.

3. Briefing on UNEP's Environment Assessment Programme (UNEP/EAP)

To orient and update the participants on the current programme and new thrusts of UNEP, Dan van Claasen made a presentation on the mandate, mission, programme components and corresponding activities, world environment outlook, conceptual framework of UNEP/EAP. In the discussion that followed, clarifications were made on the relationship between ESCAP's SoE Report and UNEP's support for the SoE Database.

4. Briefing on South Pacific Regional Environment Programme

Bismarck Crawley provided a brief on SPREP and re-emphasized that SPREP has been mandated as the executing agent on environment issues for the South Pacific Sub-Region. He enumerated SPREP's collaboration efforts in the sub-region for the past two years, its activities with regards to Pacific Environment and Natural Resources Information Centre (PENRIC), the database build-up, the SoE as well as NEMS outputs.

5. Country Reports

5.1 Cook Islands

Framhein Wichman of Cook Islands Conservation Service enumerated the environmental issues as listed in the NEMS report and informed the group that these issues are currently being addressed through the programmes defined in the document. However, in implementing these programmes, [the need for capacity building in terms of human resources development towards the build up of its own baseline data has been identified] Preferred forms of training are on-the-job and in-country training. Identified too are the needs for a [legislative framework to be passed by the parliament and for coordination among] the various sectors involved in environment. (Attachment-1)

5.2 Federated States of Micronesia (FSM)

Andrew Munro of the Department of Health Services highlighted FSM's environmental issues related to solid waste disposal, waste water treatment and quality of its rives and lagoons. The performance of the Department of Health Services which houses a small environmental unit and the EPAs of each state are found to be constrained due to [limited/outdated regulations and lack of expertise of its personnel.] While FSM is keen in actively participating in environment assessment, it needs [assistance in terms of equipment, manpower and training to be able to generate and build up the required data base] (Attachment-2)

5.3 Fiji

Sefanaia Nawadra and Dorsami Naicker, both of the Department of Environment, shared with the group the assessment on Fiji's environmental issues relating to: land, water, global warming, people, biodiversity, coastal development, waste management, mining, energy, fisheries and environmental management. Enumerated are the priority areas and projects that the Department is pursuing to address these issues. The Department is currently enhancing its capability to collect data by establishing its GIS unit to build up its data base and facilitate analysis for environment assessment. (Attachment-3)

5.4 Solomon Islands

Tia Masolo of the Ministry of Forests, Environment and Conservation gave a brief update on some of the environmental projects being undertaken by the Environment Division which include undertakings related to protected areas, wildlife trade, logging, climate change, awareness programme, GIS and EIA. Legislation on the Environment Bill and Wildlife Management is awaiting Parliament approval. [The need for assistance, primarily on capability building and training, have been emphasized] (Attachment-4)

5.5 *Tonga*

Rennie Vaiomo'unga of the Ministry of Lands, Survey and Natural Resources enumerated the activities being undertaken by the Kingdom of Tonga in relation to environment issues which include, among other things, underground water, pollution, chemical changes, coastland areas. [Lack of funds and capability of the staff are the problems identified that constrain the effective management of their resources.] (Attachment-5)

5.6 *Vanuatu*

Some of the environmental issues identified by Aru Mathias of the Department of Forests were water pollution, rapid depletion of natural forests and mangroves. He commented on the [lack of awareness on environment conventions and international agreements even among the officials of the Ministry (e.g. Agenda 21). He underscored the need for more intersectoral partnership and collaboration] (Attachment-6)

6. **Update on UNEP/EAP for Asia and the Pacific**

Surendra Shrestha of UNEP/EAP-AP made a brief presentation on the specific activities of the three main components that have been undertaken since 1993 focusing, among other things, on the network, training facilities, the datasets at various levels and scales, sub-regional consultation. The emphasis of the programme is assisting and strengthening national environment agencies to develop their capacity in environment information in partnership with sub-regional organisations.

7. **Environment Assessment and Reporting Guidance**

Through consultations held with governments in the past two years, the SoE reports produced so far were found to be: very qualitative; lacking in quantitative analysis; the text has scientific descriptions which could not be easily understood by decision makers and lay persons; and ad-hoc in nature. It was requested during these consultations that an SoE database be developed to build up the required knowledge base for a more regular environmental assessment and reporting with greater emphasis on quantitative analysis. Through a series of reviews of existing and available reports produced by several countries and other regional/international organisations, an SoE DB framework was proposed for further development and submitted for comments and corrections by the national governments.

8. **Decisions**

- 8.1 The meeting agreed to consult with relevant agencies at the national level on the SoE database. The meeting decided to provide the DB tables filled to the extent possible and comments within 3 months after this consultation (15 May 1995).

- 8.2 The meeting agreed to request SPREP to compile the DB for the South Pacific Sub-Region within 2 months after submission by the national level (15 July 1995).
- 8.3 The meeting decided to request SPREP, USP, and UNEP for the following: a week long training and meeting centred around 20-27 November, 1995 ; the training would be focused on SoE DB; discuss and review the capacity building proposals; review the progress of the DB activities; review the South Pacific SoE to be presented by SPREP; plan for activities for 1996/1997. UNEP/SPREP would provide the format for the proposals. As part of the capacity building component, one PC computer system will be provided to each country after the training which would already contain the database compiled with data from within and outside the countries and sub-region. The Government of Fiji (Department of Environment) agreed to host the meeting..
- 8.4 The meeting requested UNEP to provide copies of publications catalogue of UNEP and ADB to the participants within February 1995.

Agreed detailed schedule of activities is enclosed in Attachment-7.

9. Adoption of the Discussion Record

The meeting unanimously adopted the Discussion Record.

South Pacific Consultation on UNEP Environment Assessment Programme
15-16 February, 1995
Suva, Fiji

SCHEDULE OF ACTIVITIES

	<i>Tasks</i>	<i>Responsibility</i>	<i>Date</i>
1.	Review SoE DB document	Country Representatives	15 Feb
2.	Fill SoE DB with available data	Country Representatives	15 Mar
3.	Send DB to SPREP	Country Representatives	15 May
4.	Send proposal format with guidelines	UNEP	15 Jun
5.	Compile South Pacific data	SPREP	15 Jun
6.	Prepare Fiji pilot DB & analysis	DoEnv, Fiji	15 Aug
7.	Prepare draft South Pacific SoE	SPREP	15 Aug
8.	Prepare training materials	UNEP/USP/SPREP	15 Sep
9.	Order computers	USP/SPREP/UNEP	15 Sep
10.	Send capacity building proposals to SPREP	Country Representatives	15 Sep
11.	Identify second participant from appropriate agency e.g. Statistics Department	Country Representatives	15 Sep
12.	Compile data from external sources	UNEP/SPREP	15 Oct
13.	Compile integrated data sets from national and external sources	UNEP/SPREP/UNEP	15 Oct
14.	Training, national analysis, review proposals, plan for 1996	All	Nov 20-27



P.O. Box 240, APIA, Western Samoa. Tel.: (685) 21 929,
AP 4/7/2, AP 1/4/3 Fax: (685) 20 231. E-mail: sprep@pactok.peg.apc.org

19 October, 1995

Dr. Bob Thistlethwaite
Environmental Management Advisor
263 Chapel Hill Rd
Brisbane, Q.4069
Australia

CONSULTANCY AGREEMENT

Dear Bob,

I am pleased to offer you a consultancy with the South Pacific Regional Environment Programme (SPREP) in accordance with the following terms and conditions.

Terms of Reference

2. These are set out in Attachment A which forms part of this Agreement.

Duration

3. This Consultancy Agreement will take effect from 9 November 1995 and will expire on 9 February, 1995 unless sooner terminated in accordance with paragraph 17 or an extension of time has been granted by SPREP in accordance with paragraph 14.

Report

4. Unless agreed by both parties, your Report will be submitted to SPREP by the expiry date of this Agreement.

Remuneration

5. (i) Consultancy Fee

The total consultancy fee payable under this Agreement is USD 20,000.00

(ii) Per Diems

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19/10/95
6/11/95

1/11/95
9/11/95

Rights and Obligations

10. The Consultant is entitled only to those benefits stated in this Agreement.
11. The Consultant is required to fulfill all obligations under this Consultancy with full regards to SPREP's interests and not to take any action that might adversely affect SPREP.

Title Rights

12. The title rights, copyrights and all other rights in any material produced under this Consultancy Agreement shall be the exclusive property of SPREP.

Delays

13. The Consultant must notify SPREP in writing as soon as any delay arises beyond the Consultant's control together with an estimate of further time required for the completion of the consultancy.

Extension of Time

14. The completion date of Consultancy may be extended by SPREP if notification has been received in accordance with paragraph 13 and if SPREP considers the extension is justified.

Confidentiality

15. The Consultant will maintain the confidentiality of all information and data obtained during the course of the Consultancy. Any Reports, Working Papers and other material obtained during the course of the Consultancy and the Final Report shall be the property of SPREP.

Disclaimer

16. SPREP shall not be responsible for any insurance cover, whether life, medical, travel, luggage, personal effects or otherwise during this Consultancy. SPREP shall not be liable for any damages or compensation arising out of the undertaking of this Consultancy.

Termination

17. Either party may terminate this Agreement at any time by giving the other fourteen days' notice in writing of its intention to do so.
18. Compensation for actual work done will be payable provided the work performed up to the termination of this Agreement is satisfactory to SPREP.

du 1/11/95
9/11/95

A per diem allowance will be paid at current SPREP consultancy rates for approved travel under this Agreement. This will include necessary transit periods and while at SPREP Headquarters.

(iii) Incidental

Incidental expenses such as photocopying, communications, taxi fares and airport taxes, may be reimbursed. Claims for incidental expenses must be supported by receipts.

Payment of Remuneration

6. (i) Consultancy Fee

Fifty per cent of the maximum payable consultancy fee will be paid at the commencement of the Consultancy.

The balance of the fee will be paid within one month of acceptance of your Report by SPREP in accordance with paragraph 4.

(ii) Per Diem

A per diem allowance at current SPREP consultancy rates on the approval itinerary will be paid in advance at the commencement of the consultancy. If there are any variations to the initially approved itinerary, a reconciliation of actual entitlement against actual advance must be submitted to SPREP at the completion of the consultancy.

(iii) Incidental

Incidental expenses will be reimbursed on completion of the consultancy and on submission of receipts.

Withholding Remuneration

7. SPREP reserves the right to withhold remuneration under paragraphs 5 and 6 if, in its opinion, the Consultancy, including the Report under paragraph 4, is unsatisfactory, incompetent, or incomplete until such time as the Consultancy has been finalised to its reasonable satisfaction.

Travel

8. SPREP will provide the consultant with return economy airfares from Brisbane to Apia by the most direct and economical routes.

Status of Consultant

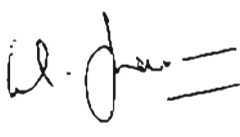
9. The Consultant (and agents or employees, if any) shall not be regarded as officials or staff members of SPREP.

[Handwritten signature]
9/11/95

Acceptance

20. Should this offer be acceptable to you, please sign the attached copy of this Consultancy Agreement in the space provided on the last page, also initial each page of the Agreement and its Attachment, and return one copy of each to me.

Yours sincerely,

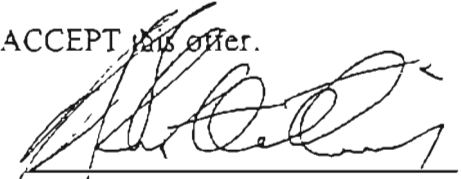
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Vili Fuavao
Director

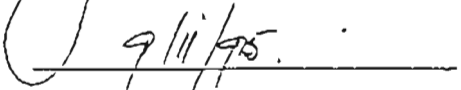
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I HEREBY ACCEPT this offer.

Signed



Date



DS/dk

ATTACHMENT A

TERMS OF REFERENCE

- review existing national Environment Reports, National Environmental Management Strategies and existing GIS Data
- identify, in close consultation with SPREP and in a manner consistent with UNEP's objectives for the State of the Environment Reporting, key issues and a framework for the SoE
- Work with the GIS Officer on PENRIC GIS Database and identify possible intergration into SoE Database and Reporting
- prepare an annotated outline of the SoE for consideration by Heads of Division and SPREP Management
- following approval of the outline by HODs and SPREP management, prepare a draft of regional State of Environment Report for the Pacific that will provide input to the review of the SPREP Action Plan
- finalise the SoE in response to a review of the draft and final copy of the SoE Report on paper and disk (see attached guidelines) -

J 1/11/95

9/11/95