

NEEDS AND CHALLENGES OF INFORMATION MANAGEMENT AND LITERACY/EDUCATION: PACIFIC ISLANDS MARINE RESOURCES INFORMATION SYSTEM (PIMRIS) EXPERIENCE INCLUDING SPREP ENVIRONMENT INFORMATION NETWORKING

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ABSTRACT: This paper presents an overview of marine science information developments in Pacific island region, providing an overview of major regional initiatives. It further focuses on information literacy initiatives in marine education as developed and implemented by PIMRIS within USP. A special presentation is included (as appendix 4) which explains the development of a regional environment information network.

Introduction

Information relating to marine resources is of prime importance to Pacific island states, as it is for most coastal states in the world. The new Law of the Sea Convention has greatly expanded jurisdiction over marine areas. Such an enormous responsibility has influenced the island states to mobilize their efforts to manage their significant new resource base effectively. A fundamental question was raised as these efforts promulgated at practical level in the mid 1980s. The question relates to collection and dissemination of appropriate information to the 'managers' of the newly acquired source of wealth.

It is through the establishment of a marine information network that information gathering and dissemination has been possible. Collection, organisation, and dissemination of fisheries/marine resources information in the Pacific Islands region has been the mandate of Pacific Islands Marine Resources Information System (PIMRIS). This paper describes the various arrangements that have been established within the region to tap into various information resources.

PIMRIS has taken the initiative of developing information literacy (IL) within The University of the South Pacific (USP) jointly with the University Library. Information literacy can be defined as being the ability to access, evaluate and use information from various sources. A person classified as being information literate recognizes the need for information; recognizes that accurate and complete information is essential for intelligent decision making; formulates questions on the basis of information needs; identifies

potential sources of information; develops search strategies; accesses various sources (in various formats) and is a competent reader (Doyle 1992). Doyle further explains that having accessed the information such a person also evaluates and uses information for practical purposes and contributes to the existing body of knowledge. This paper provides an insight into the IL initiatives implemented at PIMRIS-USP.

Since the representative from South Pacific Regional Environmental Programme (SPREP), Satui Bentin, could not attend this conference, the author presented a slide show on her behalf which is attached as an Appendix 4 to this paper.

PIMRIS - A Brief Background

In the 1980s, it was realised that although the Forum Fisheries Agency (FFA), South Pacific Commission (SPC), and The University of the South Pacific (USP) Libraries had developed an extensive collection of fisheries information, "no specialised institution or system existed to satisfactorily fulfil information needs of researchers dealing especially with fisheries in the region" (Chow 1989)

A formal study done by Fakahau and Shepard in 1986 described the fisheries research needs of the South Pacific region. The study subsequently showed a genuine need for the establishment of a specialised information system. The consultants stated that "information systems must be established in a painstaking manner with utmost efficiency and economy" (Fakahau and Shepard 1986). A shortage of human resources, as well as technical and technological requirements, puts constraints on the ability of many island countries to operate any such specialised information system individually. Hence a cooperative effort eventually saw the birth of a regional system know as PIMRIS. (See Appendix 1 for a PIMRIS Overview.)

PIMRIS

PIMRIS collects, organizes, and disseminates information on living and nonliving marine resources in the tropical Pacific. Its services include: reference; library consultancies; literature searches; current awareness; interlibrary loan; searches on Aquatic Sciences and Fisheries Abstracts on CD ROM, print and online, access to regional and international databases, and document delivery. Assistance is also provided in the area of marine information management and training to people in the island countries. The cooperating institutions, and PIMRIS itself, produce a range of information products. It helps research workers, government officers, librarians/information officers, students, fishermen, and general users.

In addition to the on-going activity of collecting items from the island countries for deposit in the USP library's Pacific Collection, PIMRIS has undertaken a major task of developing a bibliographic database on marine resources to incorporate information relevant to the Pacific island countries.

Information Sharing Links

To sustain a good and effective information service, sufficient library resources are essential. However, this is economically difficult in libraries of developing regions/countries. Furthermore, in view of increasing costs of journal subscriptions, libraries around the world are faced with the difficulty of maintaining large journal/periodical collections. Hence there is a need to establish networking amongst libraries to facilitate maximum use of existing resources. One of the aims/objectives of establishing PIMRIS was to enhance regional and international links for sharing of information

Regional Links

Within the PIMRIS network, the cooperating libraries of the respective regional institutions maintain their respective collections. These form the strong information resource base for PIMRIS. Because of the stronger financial positions of these institutions compared to individual fisheries libraries, they generate a greater degree of sustainability of their collections and any information services supported by them.

The island countries' fisheries library collections are generally strong in their local materials, most of which are "grey literature." Through technical assistance from PIMRIS most of them have attempted to organise their collections and create a computerised database. The electronic records are then merged with those received from the regional institutions to develop a regional bibliographic database on marine resources.

The PIMRIS Steering Committee has resolved that within the geographic coverage of PIMRIS information services will be provided gratis. However, the cooperating regional libraries will make all attempts to incorporate document delivery costs within their local operational budgets.

Having said the above, delivery of these documents is another issue. It is not always easy to fulfil all requests. The methods used for document delivery include normal mail, fax, and scanned e-mail attachments. Over the past five years a lot of effort has been put into improving the regional arrangements to strengthen PIMRIS. Efforts have also gone into the establishment of individual as well as joint information services in the region by the PIMRIS cooperating institutions.

Presentations from SPREP (see Appendix 2), FFA, and SPC during this conference will provide more details of their specific mandated activities.

Pacific Islands Scenario in Information Literacy

The current trend in the information age is to empower users not necessarily with information but skills to access, evaluate and use information. With increase in technological development one needs to be made aware of and be provided with skills to retrieve relevant information. An underlying factor amongst Pacific islanders is that the

education system at primary and secondary academic levels has yet to move in the direction of empowering students with these skills. It is considered necessary to include these skills to educate tertiary students.

PIMRIS from its Coordination Unit at the University of the South Pacific Library provides various educational sessions to impart such bibliographic instructional sessions in conjunction with lecturers as well as one to one individual sessions in accessing marine information. It has been an observation that the clients feel more comfortable approaching the person who conducts those sessions as opposed to going to the staff servicing public information desk. It can be partly attributed to the fact that familiarity with the "custodian" of information creates a comfortable information environment.

Huston (1990) notes that information users are surrounded by various information universes:" the universe of everyday information comprising of natural communication networks; the universe of scholarly knowledge including 'natural and designed' communication networks"; and the universe of "information storage and retrieval systems."

Mental Map of Information Environment

Case Study 1

A student enrolled in MSc programme was attempting to get started in formulating a thesis proposal. He had an idea or interest to work in the area of 'legal aspects of ocean resource management'. His supervisor instructed him to do a literature survey. He had difficulties with where to start. He was new to USP and came from Solomon Islands. He knew a person who had worked in this area in Forum Fisheries Agency. That person immediately directed him to PIMRIS. The student then approached the PIMRIS Coordinator with his needs. The Coordinator held two in-depth sessions over one day spending about one and half hours. The student was thrilled at the enormous exposure he received and got a few dozen references to work from.

The student was basically so close to the source yet so far. It is a case which proves Huston's (1990) reflection information universes. The user firstly used his natural communication network i.e. universe of everyday information followed by designed communication network i.e. PIMRIS. The information professional utilised the universe of storage and retrieval systems to assist the user. The professional was also aware of pre-bibliographic sources to provide institutional answers in addition to bibliographic sources. Reuben (1991 in Bruce (1997)) describes this as information professional's mental map of information environment.

It is likely that a specialist information professional develops pre-bibliographic sources over years of experience through networks with pure and applied researches, librarians and people in the field. The current trend in specialized information systems is to recruit information professionals with the relevant subject specialty to facilitate retrieval of relevant information.

Client-Centered Approach

With the intent of empowering users with search and research skills, librarians need to consider the needs of individuals as being of prime importance in their approach to the services that are provided. Furthermore, Galvin et al. (1978) emphasise that even the content and character of the collection need to reflect the needs of clients.

It is common that PIMRIS is represented at regional meetings where various issues/topics of relevance to marine/fisheries sector are discussed. It is here that ideas are picked up for collection development for users of the region in a proactive manner. There is also a direct input from staff and students for collection development.

In view of increasing costs of publications and journals, it is practically difficult for libraries to be comprehensive in collection development, Hence the concept of resource sharing has been put into practice more so amongst special libraries. This cooperative nature of PIMRIS network has translated this concept into practice.

Case 2

A fisheries officer in Vanuatu heard through a Heads of Fisheries meeting that Kiribati and Fiji had been successful in *Eucheuma* seaweed farming. The officer, having known of the existence of an institutional arrangement such as PIMRIS, approached them for appropriate information. In addition to the provision of literature, the officer was referred to persons in the field for direct practical and unpublished information.

Information access using modern technology: Focusing on Internet.

It is a fact that very few schools Fiji and the Pacific islands offer Internet facilities. Hence most of the students at tertiary level are unaware of the techniques of information retrieval. Hence at PIMRIS-USP library introductory sessions are conducted for searching on the Internet. It has been observed that most of the time users have difficulty with where to start searching on specific topics. The issue that appears in front of them over and over is relevancy and quantity. Once users feel comfortable with search engines, they are able to explore on their own. It is always helpful to provide some basic help to beginners by using examples.

Case Study 3

A group of final year students from an aquaculture course were sent to PIMRIS by their lecturer. All of them were familiar with Internet searching. So it was evident that they would benefit from some advanced skills. They were guided through known web sites, hyperlinks to other relevant sources and institutions with full-text documents. A session was held to search an international database – Aquatic Sciences & Fisheries Abstracts, online using username and password access. They were further trained on ways of obtaining full documents after seeing the abstracts. It is essential to advise the users on copyright issues and referencing.

It is always a fact that web sites are generally a dynamic source of information. The host of a site may allow access to information with varying limitations and may add, delete, amend, and relocate its contents. Brown (1995) explains that the greatest challenge for an Internet user in using World Wide Web (WWW) is finding the relevant resources. Hence users are dependent upon word of mouth, emails, List serves and User groups to become aware of relevant web sites.

Information literacy Programme (ILP) integrated with Faculty

Initially the experience has been that it is not always a smooth process to involve faculty members particularly when it involves allocation of their class time for ILP. Appendix 3 provides an example of subject specialised programme plan.

Semester 1, 2002

<i>COURSE</i>	<i>ATTENDANCE</i>
MS111 (PIMRIS Library Orientation)	25 (21/2/02)
MS 305 (Marine Biology) searching skills	48 (2 sessions) (6-7/3/02)
MS312 (Marine Pollution) ""	36 (2 sessions) (6-7/3/02)
SSED Post Graduate Orientation	50 (8/3/02)
SE412 SSED Post-Grad searching/writing skills	45 (28/3/02) (38 PostGrad 6 Under Grad; 1 staff)
SPAS Post Graduate Orientation	35 (16 March 02)
BI104 (Biology) (Basic Orientation)	95 (detailed sessions will be held later)
MS211 (Marine Sedimentology)	12 (4/4/02)
BI207 (Invert Bio)	84 (various sessions)
CH301 (Chemistry) Chemical Abstracts	61 (3 sessions) (13-15/3/02)

Semester 2, 2002

<i>COURSE</i>	<i>ATTENDANCE</i>
CH102 (intro : all modules of Info Literacy)	10 min lecture (U8) re: Info Lit. Students to sign up during Sem 2 with Reader Services.
PH101 (all modules of Info Literacy)	10min sessions during lab times - week 4. 5 sessions. Students to sign up during Sem 2 with Reader Services.
MS307 (Fisheries Bio) Subject guide & writing	42 (2 hr session) (26/7/02)
MS203 (Fisheries Economics and Management)	26 (2 sessions *13 stud.)(17 &24/7/02)
BI102 (Biology) (Internet & writing Skills)	111 (6 sessions - Internet; 6

	sessions - writing) Weeks 3-4
CH301 (Chemistry) Chemical Abstracts	51 (3 sessions) (16/7/02)

Evaluation Analysis: Information Literacy Sessions

(a select list of courses analysed by the author)

At the completion of the ILP sessions students were provided with an evaluation form (see Appendix 2). The responses were analysed. It was noted that more than 90% of users found it to be useful and beneficial in developing their information skills. These were the courses in which the faculty member had linked the session to a formal assessment task. In one unit analysed below the results showed a low level of usefulness and it was deduced that this could be due to the fact that this course did not have a formal assessment linked to the sessions. Hence it can be said that a curriculum and assessment integrated approach is always more effective.

Another factor observed as contributing to the results was the class size. Smaller classes allowed for greater interaction.

Crse	Enrol ment	Evaluation Forms	%	ILP Not Useful	Somewhat Useful	Very Useful	Developing Info Skills Not at All	Some what	Very Well
MS307	42	28	67%	0 (0%)	2 (7%)	26 (93%)	0 (0%)	5 (18%)	23 (82%)
MS203	26	14	54%	0 (0%)	1 (7%)	13 (93%)	0 (0%)	3 (21%)	11 (79%)
BI102/ 104	111	74	67%	0 (0%)	11 (15%)	63 (85%)	1 (1%)	20 (27%)	53 (72%)
PH101	160	152	95%	24 (16%)	41 (27%)	87 (57%)	26 (17%)	55 (36%)	71 (47%)
Total	339	268	79%	24 (9%)	55 (20%)	189 (71%)	27 (10%)	83 (31%)	158 (59%)
						Useful: 91%			Useful 90%

Conclusion

It can be concluded that information literate people are those who have learned how to learn. They know how information is organised, how to find and use it such that others can learn from them. In the context of marine information access, PIMRIS has successfully formulated and implemented information literacy sessions to enable marine studies students to acquire information skills.

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Appendix 1

PIMRIS is a formal marine information networking system (of regional institutions and Pacific Island countries) devoted to the collection, storage, retrieval and dissemination of information on fisheries and other living and non-living marine resources in the tropical Pacific.

Regional Cooperation

The regional organisations cooperating in this network are:

- Forum Fisheries Agency (FFA)
- South Pacific Applied Geoscience Commission (SOPAC)
- Secretariat of the Pacific Community (SPC)
- South Pacific Regional Environment Programme (SPREP)
- University of the South Pacific (USP)

The **PIMRIS** Coordination Unit is based at the USP Library. The regional organisations cooperate in information service; document delivery; development of a regional marine resources database; production of information material; and assistance to countries to set up information units.

International Cooperation

PIMRIS Coordination Unit at USP has been successful in establishing contacts and agreements with numerous institutions outside the region in the field of marine information. These contacts enable **PIMRIS** to receive documents and share information at no or minimum costs.

PIMRIS is also closely involved with the Pacific Islands Regional Group of the *International Association of Aquatic & Marine Science Libraries & Information Centres (IAMSLIC)* hence it has a permanent voting representation on the Association's Executive Board. It is also an input partner in ASFA.

PIMRIS Steering Committee

This Committee comprises of representatives from the participating regional organisations and national Fisheries/Marine Resources departments. It provides guidance to the network and reviews the activities periodically.

For further information or information requests contact:

Coordinator or **PIMRIS** Assistant, **PIMRIS**, Marine Studies Facility, USP, Suva, Fiji.
Email: pimris@usp.ac.fj

Appendix 2

Information Literacy Programme Evaluation Form 2002

Dear Faculty Member,

We would like to thank you for your cooperation in making it possible for the ILP to achieve its objectives this semester. In order to evaluate this programme properly, we would require some feedback from you. Your time in filling up this form will be greatly appreciated. Please return to Ganeshan Rao, PIMRIS Library, Marine Studies Programme.

BACKGROUND : The Information Literacy Programme consists of 4 modules:

- Module 1 Library Tour & Resources@TheUSPLibrary : Learn about the types and formats of information available for your use; call numbers and classification used in the collection. Find out how you can use the Interlibrary Loans Service.
- Module 2 Catalogues&Databases@TheUSPLibrary : How to use the two kinds of catalogues of the USP Library, access exam papers and articles from online database, view what materials are on reserve, titles of e-books.
- Module 3 UntangleTheWeb@TheUSPLibrary : cyberliteracy, Internet culture, skills to navigate the web; search techniques to help you avoid an information overload. Be a critical consumer of information.
- Module 4 LearnToWriteResearch@TheUSPLibrary : put the information skills that you have developed in creating a product : an essay, a report, a seminar paper ; how to observe information ethics; how to cite and acknowledge sources.

-
- 1) Please rate how useful this programme was for your students
____ Not at all useful ____ Somewhat useful ____ Very useful

 - 2) How important are the development of the information skills and research writing skills of the programme to your course?
____ Not needed ____ Somewhat important ____ Little importance
____ Very important

 - 3) How useful was this programme to your course?
____ Very useful ____ Slightly useful ____ Not useful

- 4) How well do you think the ILP was coordinated with you: course?
_____ Very Well _____ Well _____ Not well

Any suggestion:

- 5) Did you allocate any % assessment out of the course work?
_____ Yes _____ No

- a. Do you think allocation of % credit will make the ILP to be more effective?
_____ Yes _____ No
Why? Or Why not? _____

- 7) If you have any additional comments, particularly on how to improve the Information Literacy Programme, please feel free to write on the back of this paper.

Thank you very much for your valuable input.
Ganeshan Rao & Naomi Villareal /usp library/October 2002

Appendix 3

Information Literacy Programme:MS305/BI305 - Marine Biology

After this programme, the students should be able to:

- name the different resources on Marine Biology available at PIMRIS and main Libraries
- locate information on the Internet using search engines
- evaluate the information found in libraries and the Internet
- use effective search strategies when searching for information
- gain proficiency in navigating the subject guides on the Internet
- evaluate web sites using the START criteria: Scope, Treatment, Authority, Relevance and Timeliness
- cite Internet resources correctly.
- do independent learning.
- identify, create and document information needed to write a research report

Contents of the Information Programme for MS 305 /BI 305

- Package 1 - Review finding information using PIMRIS & Main Libraries.
Introduce Web catalogue (15Min)
- 2 - Finding information using the Internet (30min)
Contents: Using search engines
Evaluating resources.
- 3 - Subject guides on Marine Biology (1 hour)
Contents: Online Databases : Proquest; ASFAWeb sites
Resources: Encyclopedias; Handbooks, Journals, Abstracts,
Atlases, Journals, Thesis, Listservs and Newsgroups
Universities offering Marine Biology
Professional and Scholarly Societies/Organisations
Other useful sites on Marine Biology.
- 4 - Writing a research report (1hour)
Contents: Choosing a topic
Locating sources of information
Preparing citations and note cards
Writing the outline
Writing the draft
Revising the draft
Preparing footnotes / cards
Preparing the title page
Preparing the table of contents
Preparing the bibliography.

Appendix 4

The *Pacific Environmental Information Network* (PEIN):

a People-People Network

by

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PEIN Background (brief)

- As a people's information network, PEIN is designed to provide environmental information in appropriate forms and languages to all sectors of the community recognising that women as well as men can play a significant role in environmental awareness raising

PEIN Design

- PEIN overall objective drawn up in recognition that every programme or project within SPREP required information as a means to an end;
- Majority of national environmental personnel each programme or project dealt with were the same in every country; and
- Skills acquired through PEIN training in information management were to assist national personnel better service requirements of their own national needs

Implementation Phases

- Phase I: Technical assessment of facilities, personnel & targeted audience
- Phase II: Installation of equipment and establishment of National Information Centre(s)
- Phase III: Environmental Awareness activities & Establishment of National Networks
- Phase IV: Country attachment scheme

PEIN 'members'

- By default = 25* SPREP member countries and territories
- Regional links/partners = USP (PIMRIS & SOA); SOPAC; SPC; PIFS and FFA. Formal MOUs
- International links/partners = UNEP-INFOTERRA; IUCN/WRI/IIED-INTERAISE; Global Information Network; various links through existing SPREP projects/programmes – eg: SIDSNet; PaciNet; POPs:UNEP Chemical; IMO; UNDP

etc...Some links operate through formal organisational MOUs whilst others work through 'project mandated' objectives.

Implementation status

- 14 Pacific ACP states + 1 non-ACP state (ie: American Samoa)
- "Operating" in 10 member countries
- Samoa currently the 'top' country in terms of national membership (13 network members; 5 sites: 4 providers & 1 user)
- Can operate as a stand-alone database or accessed via Internet (through SPREP web site). Relies heavily on the "people-aspect" of networking

Experience & Lessons Learnt

- Immediate need to *record* information and knowledge
- Technology on offer has to meet the needs of the target communities. Current 'technology' used by PEIN appropriate but needs fine-tuning (ie: software issues, database development issues...)
- Consider basic everyday operational requirements of countries (eg: 1 computer shared by 2-4 people; 1 computer with Internet connection shared by 4-10 people; download time expensive etc..)
- Project equipment within countries driven by project mandate (use reliant on good relationships between national Project Officers and rest of staff)
- Data entry needs to be standardized.
- Data exchange needs to be 'nationalised'.
- Requires outreach programmes to address usage issues.

Way Forward?

- Cost-sharing & Resource-Sharing between partners (existing and potential).
- Establishment of national information networks as opposed to 'sectoral' information networks (collaboration point for all partners).
- Technical training for targeted groups to be conducted through several avenues as opposed to being "PEIN" specific.
- Review technology (hardware & software) to suit various groups and country needs. Relates to sustainability issue.
- Do not lose focus of the people – train, re-train and re-inforce .
