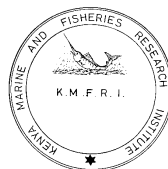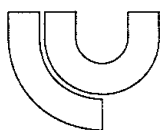Intergovernmental Oceanographic Commission
Workshop Report No.156

IOC-LUC-KMFRI Workshop on RECOSCIX-WIO in the year 2000 and beyond (and training course for librarians)

Kenya Marine and Fisheries Research Institute
Mombasa, Kenya
12-17 April 1999

UNESCO

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ANNEXES

1.   INTRODUCTION

The project RECOSCIX-WIO (Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean) was launched in February 1989 by the Intergovernmental Oceanographic Commission (IOC) of UNESCO at the request of IOCINCWIO to:

- provide marine scientists in the region with the necessary scientific information;
- enhance the use of indigenous scientific information in the region;
- promote and facilitate communication between the scientists, both intra- and inter-regionally;
- disseminate information on scientific research activities in the region.

To achieve these goals the project set out to develop a number of services and products such as:

(i)   provision of bibliographic search and document delivery services;
(ii)   provision of equipment and software to marine science libraries in WIO region;
(iii)   development of the regional directory of marine scientists (WIODIR);
(iv)   development of a regional library holdings database (WIOLIB);
(v)   publication of the newsletter *WINDOW* (Western Indian Ocean Waters);
(vi)   development of MASDEA (Marine Species Database for Eastern Africa);
(vii)   co-operation in ASFA as regional input centre;
(viii)   publication of WIOBASE (integrated Western Indian Ocean data and information sources CD-ROM).

After the initial pilot phase (1989-1992), the Government of Belgium through the Flemish Inter-University Council (VLIR) funded the implementation of the operational phases of the project. The VLIR support ended in April 1999. IOC has been gradually increasing its support for the project to fill in the gap left by VLIR. This support has been provided within the framework of the IOC/Sida-SAREC, and IOC/Flanders initiative for development of an Ocean Data and Information Network for Africa (ODINAFRICA).

The tenth anniversary of the project provided an opportunity to look back and evaluate where the project had achieved its objectives and where it had failed. With this in mind a Workshop on "RECOSCIX-WIO in the year 2000 and beyond" was hosted by the Kenya Marine and Fisheries Research Institute (KMFRI), Mombasa, Kenya between 14-17 April 1999. This workshop also provided an opportunity for partners in the project to redefine the priorities of the project. The workshop was preceded by a two-day refresher technical training session for marine information managers (12-13 April).

Whereas for previous RECOSCIX-WIO workshops and training courses only information managers were invited, for this event each of the institutions participating in the project was invited to nominate both marine information managers AND scientists to attend. Indeed, as scientists are the main users and beneficiaries of the RECOSCIX-WIO services and products they should be involved in the planning of the project's future.

2.   OPENING

Mr. Mika Odido, the Project Co-ordinator RECOSCIX-WIO, welcomed the participants. He apologized to the French speaking participants that the workshop would be conducted in English only. He reminded the participants that in the next three days they were expected to undertake a thorough

evaluation of the project's structure and activities. They should have identified the project's successes and failures, and have recommended actions that should be implemented to enhance the relevance of the project and improve on the delivery of services to marine scientists in the region. He asked the participants to consider the use of new technologies especially in library automation and electronic document delivery. (*A report of a two-day pre-workshop training on these topics is available as Annex VI*).

Mr. Pissierssens of IOC (UNESCO) welcomed the participants on behalf of the Executive Secretary of IOC. In his speech, Mr. Pissierssens reminded the participants that before RECOSCIX-WIO was born, data were considered as state property and could therefore not be shared outside the country. In fact, inclusion of data management in the objectives on the project was quickly dismissed at that time. He stated that RECOSCIX-WIO has contributed to a regional co-operation spirit, which paved the way for an integrated information AND data exchange. Today, following the footsteps of RECOSCIX and ODINEA, a new project called ODINAFRICA-II intends to develop Pan-African capacity for both data and information management. He said that RECOSCIX-WIO has contributed in raising the visibility of IOCINCWIO in other parts of the world and he credited this to the project's newsletter *WINDOW* and to the project's participation in various regional and international activities. *(Full text of his speech in Annex I).*

Prof. Leo Egghe, the Co-Director of RECOSCIX-WIO provided an overview of the Belgian support for the project. He retraced the involvement of the "Limburgs Universitair Centrum" (LUC) from the initial stages of the RECOSCIX-WIO project. LUC started by providing an inter-library lending and document delivery service to scientists working with the framework of the Kenya-Belgium Project in Marine Sciences in 1985. When the pilot phase of RECOSCIX-WIO was launched in 1989, LUC continued to provide similar services to the project. In 1991 when Belgium took over funding of the project, LUC was designated as the implementing agency for the Belgium Government and therefore became a key player in the development of the project.

Dr. Ezekiel Okemwa, the Chairman of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean (IOCINCWIO) who is also the Director of the host institution (KMFRI) and Co-director of the project welcomed the participants to Mombasa. He reminded them that during the workshop they should reflect on the project's activities in the last ten years and define the direction at the turn of the next millennium. He dwelt on how the project started and the activities initiated during the first phase. He enumerated the services and products that were introduced and implemented in operational phase. He concluded by urging the participants to take into account the ODINAFRICA-II proposal that will be presented and submitted to IOC for funding. He then declared the workshop officially opened. *(Full text of the speech in Annex II).*

3. ADMINISTRATIVE ARRANGEMENTS

The participants considered and adopted a proposal for the workshop to work in plenary for the reports on the questionnaire, on ODINAFRICA, and the collaborating institutions. After discussions of these reports, working groups would be constituted to address key issues identified during the discussions. *(List of participants in Annex VIII).*

4. REPORT OF THE RECOSCIX-WIO REGIONAL DISPATCH CENTRE

Mika Odido presented a report on the project's activities since inception. The RECOSCIX-WIO network consists of three components: (i) Co-operating Institutions (CIs), which are the marine science institutions from the region participating in the project; the CIs have received training and equipment to use in developing an electronic catalogue of their holdings; (ii) the Co-operating

Libraries (CLs), which assist in the supply of documents requested by marine scientists from the region and are located in over twenty countries in and outside the region; and (iii) the Regional Dispatch Centre (RDC), which co-ordinates the provision of services and development of the various project products.

The two-year pilot phase started in February 1989. IOC of UNESCO provided an Associate Expert and funds for operational expenses while KMFRI accepted the invitation made by the second Session of IOCINCWIO (Arusha, Tanzania, 1987) to host the Regional Dispatch Centre. In addition KMFRI provided support staff and office equipment, including computers. Fourteen CIs in eight countries (Ethiopia (1), Kenya (3), Madagascar (1), Mauritius (2), Mozambique (1), Seychelles (2), Somalia (1), and Tanzania (3), were recruited from the institutions that had been visited by a UNESCO mission in 1987. In this phase the services included the bibliographic search service on ASFA CD-ROM and DIALOG on-line, and the document delivery, using the services of LUC. Computers were delivered to institutions in Madagascar and Seychelles. E-mail connectivity was set up at the RDC. Other activities implemented in this phase included the development of the Western Indian Ocean Directory of Marine Science Institutions and Scientists (WIODir), and the publication of the *WINDOW* Newsletter.

The first operational phase of the project, from 1991-1995, was supported by the Government of Belgium. A memorandum of understanding for implementation of this phase was signed between the Governments of Belgium and Kenya. LUC and KMFRI were designated as the implementing agencies by the respective governments.

The second operational phase, from 1996-1999, was also funded by the Government of Belgium. In addition to activities from the previous phases, there was an emphasis on the development of data products as requested by the third session of IOCINCWIO (Mauritius, 1992). These included the development of the Marine Species Database for Eastern Africa (MASDEA). RECOSCIX-WIO was designated as an ASFA input centre. Furthermore RECOSCIX-WIO also spearheaded the implementation of the Oceanographic Data Information Network for Eastern Africa (ODINEA), which entailed the establishment of National Oceanographic Data Centres (NODCs) or Designated National Agencies (DNAs) for oceanographic data and information management in the region. Two training workshops on data management course were organized for the DNAs and NODCs. (*See also IOC Workshop Report 154).*

"Query handling" was one of the services introduced at the inception of the project. Searches were made using the ASFA CD-ROM and DIALOG on-line. More recently, in order to improve on relevance of searches, and speed of response to queries, the CIs which actively used the project's "query handling" service were provided with subscription to the ASFA CD-ROM.

"Document delivery" has been one of the core services of the project. The delays in delivery of documents continue to be a cause of concern. In order to improve on this, requests are now transmitted throughout the network by e-mail where possible. The RDC requests the CLs to send the document directly to the requester rather than to the RDC, as was the case before. The drawback here is that the RDC is not able to efficiently monitor whether or not the document has been delivered. Electronic document delivery opens up the possibility of significantly reducing the delays and cutting down on delivery costs since the mailing charges are a substantial factor in the service cost.

The development of the Western Indian Ocean Library Holdings database (WIOLib) has been rather slow. The Kenya Marine & Fisheries Research Institute, the Seychelles Fishing Authority, the Institute of Marine Science (Tanzania), the University of Nairobi, the Kenyatta University, and the Albion Fisheries Research Centre have submitted entries for WIOLib. The Centre National de

Recherches Océanographiques - CNRO (Madagascar), the Instituto de Investigação Pesqueira - IIP (Mozambique) and the Division of the Environment (Seychelles) have not submitted any entries despite of receiving computers, software, and training (workshop and internship). Poor grasp of the basics of the software used, lack of commitment by some of the personnel, and staff mobility are some of the reasons for this poor productivity. These problems should be addressed so that all the CIs be active participants in the project activities.

The Western Indian Ocean Directory of Marine Science Institutions and Scientists (WIODir) is now available on the Internet *via* the IOC webserver as part of the IOC's "Global Directory of Marine (and Freshwater) Professionals" - GLODIR. The directory was also distributed in printed versions in 1992 with support from the United Nations Environment Programme (UNEP). WIODir is updated annually using the GLODIR software developed and distributed by IOC.

The *WINDOW* Newsletter is produced in English and French and distributed to over 1500 addresses worldwide 3-4 times a year. Initially the whole production process (editing, layout, printing and distribution) was undertaken in Mombasa. Due to the high mailing costs, which could no longer be sustained within the project budget, printing and distribution were taken over by UNESCO, while editing and layout remained in Mombasa. The majority of articles in *WINDOW* come from Kenya and Tanzania and may reflect the larger number of marine scientists in these two countries. Nevertheless RECOSCIX-WIO has always stressed the need to have a more balanced coverage and has continued to invite input from all IOCINCWIO countries.

The Marine Species Database for Eastern Africa (MASDEA) is one of the most recent products of the project. The database has now close to 13,000 taxonomic records on marine species found in the IOCINCWIO region. MASDEA has already been distributed as part of WIOBase.

WIOBase, the CD-ROM containing marine science information and data from the region, includes all the databases developed by RECOSCIX-WIO and is the "flag-ship" of the project. The CD-ROM has a sophisticated search engine, which gives even those who do not have access to internet and the WWW yet a feel of how it operates. The latest version of WIOBase was released in late 1998.

RECOSCIX-WIO has organized three training workshops, which covered various subjects such as the use of computers in library management, the development of electronic library databases, and the electronic document delivery. In addition, internships have been arranged for librarians to expose them to the day-to-day operations at the RDC. The project has also stimulated some of the librarians to obtain fellowships to attend the course on Management of Information in Science and Technology (MIST) at the Free University of Brussels in Belgium.

Between 1991 and 1995 the project provided computers and software to ten institutions in the region. IOC (UNESCO) has also, within the framework of the RECOSCIX-WIO/ODINEA, provided support for internet/e-mail access to eight institutions.

In conclusion, RECOSCIX-WIO has strived to promote and support the development of marine sciences in the Western Indian Ocean through improving (i) access to information and data; (ii) communication and networking between marine science institutions and scientists; and (iii) development of capacity for data and information management. In this endeavor RECOSCIX-WIO has received financial and material support from a number of countries and organizations including Belgium (ABOS, LUC, VLIR), Canada, Sweden (Sida-SAREC), USA (NOAA), IOC of UNESCO, UNEP, IAMSLIC, the marine science institutions in the region, and libraries worldwide.

During the discussions some participants regretted that RECOSCIX-WIO only serves the marine community, neglecting the substantial freshwater science community. It was remarked that

IOC's mandate includes only the marine environment but that the project nevertheless provides some, yet limited services to freshwater scientists and institutions.

RECOSCIX-WIO Service Statistics for 1989-1999 are attached as Annex VII.

5. REPORTS OF CO-OPERATING INSTITUTIONS

5.1 NATIONAL MUSEUMS OF KENYA (NMK) LIBRARY

This report was presented by Mrs. Asha Owano. The full report is provided as Annex III (1).

5.2 INSTITUT HALIEUTIQUE ET DES SCIENCES MARINES (IHSM)

This report was presented by Mr. John Bemiasa. The full report is provided as Annex III (2).

5.3 ALBION FISHERIES RESEARCH CENTRE

This report was presented by Mr. Noel Cheong. The full report is provided as Annex III (3).

5.4 INSTITUTO NACIONAL DE HYDROGRAFIA E NAVEGACAO (INAHINA)

This report was presented by Ms. Anna Maria Alfredo. The full report is provided as Annex III (4).

5.5 SEYCHELLES FISHING AUTHORITY

This report was presented by Ms. Josette Confait. The full report is provided as Annex III (5).

5.6 INSTITUTE OF MARINE SCIENCES

This report was presented by Ms. Edna Nyika. The full report is provided as Annex III (6).

5.7 RECOSCIX-CEA REPORT

This report was presented by Dr. Yacouba Sankare. It was noted that South Africa is a Member State of both IOCINCWIO and IOCEA. As such it could participate in both RECOSCIX-WIO and RECOSCIX-CEA. However, for practical reasons it may be appropriate to choose only one. The full report is provided as Annex IV.

5.8 INTERNATIONAL ASSOCIATION OF AQUATIC AND MARINE SCIENCE LIBRARIES AND INFORMATION CENTRES (IAMSLIC) REPORT

This report was presented by Mrs. Martha Pretorius. The full report is provided as Annex V.

5.9 ODINAFRICA-II

This item was presented by Mr. Rondolph Payet, Resource Manager at the Seychelles Fishing Authority. Participants were provided with a copy of the draft project document on Ocean Data and Information Network for Africa - Second Phase (ODINAFRICA-II). The first phase of ODINAFRICA begun in 1997 and includes:

- strengthening of the regional information network RECOSCIX-WIO already in existence in Eastern Africa,

- development of a similar network for Western Africa (RECOSCIX-CEA), and

- development of a network of data centres in Eastern Africa (ODINEA-Ocean Data and Information network for Eastern Africa).

ODINAFRICA-II, if funded, will continue with the activities already initiated in the first phase, but will in addition encompass the development of data centres in Western Africa, taking into account the wider diversity of languages used there. The focus of both projects is on capacity building, both in terms of training and provision of equipment and software. Seed money for initial operational activities of the centres is included. However the data coverage, services and products of each of the centres will depend on the priorities of each of the countries involved.

The proposal has been drafted by a team of IOCEA and IOCINCWIO experts and IOC. It will be submitted in 1999 to the Government of Flanders (Belgium) for funding. If approved the implementation is planned to start in the year 2000.

6. FORMATION OF WORKING GROUPS

On the basis of the discussions of the RDC and National reports, 35 questions were defined that needed to be answered. These questions were clustered into three themes:

- Review of project objectives and structure;

- Services and products - new technologies that can improve them;

- Capacity building - equipment and personnel available in CIs and RDC and what needs to be done to improve on them.

The participants were divided into three working groups to address each of the themes and prepare reports, which would be discussed in plenary. A fourth working group was formed to recommend the database structure to be used by the CIs for developing the catalogue of their holdings, which will then be merged to create WIOLib.

7. REPORT OF WORKING GROUPS

7.1 REVIEW OF PROJECT OBJECTIVES AND STRUCTURE

Group Members:
Rondolph Payet	- Seychelles	(Chairman)
Martha Pretorius	- South Africa	
David Chemane	- Mozambique	
Desiderius Masalu	- Tanzania	
Janet Mwobobia	- Kenya	
Helida Oyieke	- Kenya	(Rapporteur)
Anwar Sheik Mamode	- Mauritius	

Are the initial objectives of RECOSCIX-WIO still valid or should we define new ones?

Previous objectives (see 1. Introduction) are still valid except objective number four which should read: "Disseminate information on scientific activities in the region using the latest technology, especially Internet".

How do we handle fresh water science? How about our relationship with IAMSLIC?

RECOSCIX should continue with document delivery for freshwater if and when requested. RECOSCIX should advise its members to join IAMSLIC. The workshop has identified a strong need for freshwater information. IAMSLIC is requested to identify potential donors to assist and support fresh water groups.

How do we handle the relationship with WIOMSA (the Western Indian Ocean Marine Science Association)?

The workshop recommends that RECOSCIX-WIO seek closer relationship with WIOMSA (Western Indian Ocean Marine Science Association) particularly with regard to regional publications, data and information exchange.

How can the project be made self-sustaining?

The workshop recognizes that RECOSCIX as a project may not be self-sustaining in its present structure. However, it is recognized that the existing structures within co-operating institutions (CIs) could be strengthened with a view to eventually being part of a regional information & data exchange network. This entails that participatory approach be endorsed by all.

What do we do with inactive CIs? How do we encourage collaborative partnerships with institutions and between institutions?

The workshop recommends that the RECOSCIX Co-ordinator establishes contact with inactive CIs to revitalize relationships and determine needs and problems areas with a view to having them addressed.

Is the present structure adequate?

The present structure is adequate. However, with the proposed long-term networking in the region, the structure will have to be adapted to achieve greater involvement of the CIs.

What should be the relationship between scientists and information officers?

Information officers are encouraged to become more pro-active in providing relevant information to scientists and receiving information from them.

What should be the role of RDC? Is there a need for a sub-RDC?

Based on the questionnaire responses the workshop recommends that RDC address the concerns raised with regard to role and performance.

The need for sub-RDCs is not felt at the moment. However, for the long-term vision to be attained, CIs should realize that they are expected to become DCs (Dispatch Centres) within the network.

What should be the role of CIs?

Role of CIs should be to:
- Provide local component of regional databases (WIODIR, WIOLib, and MASDEA);
- Provide local inputs to ASFA;

- Provide detailed list of journal holdings including grey literature to RDC and in future through electronic network;
- Create public awareness on project/network activities;
- Provide RDC with information on on-going scientific activities;
- Contribute to the *WINDOW* Newsletter publication.

Should there be a limit to the number of CIs from each country? And how should the equipment be provided?

There should be no limit to CIs from each country but where there are more than one in a country they should be encouraged to network within the country and identify a focal CI.

How do we recruit CIs?

It is recommended that if there still are potential CIs that are not recruited, RECOSCIX should recruit them. However, emphasis should be placed on reviving the dormant CIs as discussed above.

Comments on the group presentation:

- It should come out more clearly that in future, institutions would be expected to make commitments towards sustaining a network that will be Internet-based. Possibilities of establishing formal agreements between CIs and the RDC will have to be explored if this will enhance commitment.

- Participatory approach in the future project should involve drawing up of agreements that should also cover availability of staff to participate in the network at CI level. Annual and biannual workshops should also focus on project management and review and not just training.

- Details of how to be IAMSLIC members will be sent to every participant by Ms. Martha Pretorius and participants are urged to join IAMSLIC.

- The Executive Officer of WIOMSA and the RECOSCIX Co-ordinator are already exploring ways of strengthening collaboration between the two.

- The four previous objectives should be left as they are with a note that reads: "The above objectives will be achieved through the most effective ways and means of collaboration".

- Scientists should also be urged to be pro-active and update information officers of any information under their custody and projects they are working on.

- It is too expensive to revive DIALOGUE. So this should be left out.

- ASFA input structure is complex and time consuming. It is therefore recommended that CIs submit publications to RDC for inclusion into ASFA centrally.

- CIs should also provide computerized library databases including grey literature instead of only journal lists.

- Where CIs from a country are more than one, it would be useful to compare facilities in the different CIs. This can assist in deciding the focal CI.

- Consider how to handle institutions that are in countries that are not IOC Members, e.g. Comoros and also other cases like Eritrea.

7.2   SERVICES AND PRODUCTS: NEW TECHNOLOGIES THAT CAN BE USED TO
       IMPROVE THEM

Group members:

Asha Owano	-	Kenya	(Chairman)
Yacouba Sankare	-	Côte d'Ivoire	
Josette Confait	-	Seychelles	(Rapporteur)
Melckzedeck Osore	-	RDC	
Eunice Kinyanjui	-	RDC	
Eunice Onyango	-	RDC	
Isedorius Agola	-	RDC	
M. Toany	-	Madagascar	
Samuel Ngete	-	RDC	
James Macharia	-	RDC	
Raphael Okeyo	-	LVEMP	
Stephen Wanjau	-	RDC	

How do we make documents delivery faster?
- For local requests, RDC should monitor progress, e.g. by way of phone call to check on the status of the document;
- E-mail can be used for regional libraries;
- RDC should acknowledge receipt of request to CI;
- Likewise, CIs should also let RDC know of document receipt;
- Despite budgetary constraints, it is absolutely necessary for the RDC to have a dedicated fax number and fax machine;
- With the introduction of ARIEL Software, all institutions should be provided with this software (and e-mail).

Is there a need to ration services to individuals or institutions?
   This should be based on previous statistics on needs of individual and institutions. Requests should be rationed by the RDC to the CIs and from the CIs to the users.

Is there a need for more documents suppliers especially from Africa?
   Yes, RDC should explore the possibility of South Africa as a supplier. It should also identify other suppliers and market their services in Africa.

Who are the users?
- Scientists and researchers in the region;
- University students;
- Any other interested bodies or individuals;
- In summary, they are the local community, decision-makers and scientists.

What are the needs of the users?
   Scientists need the following:
- Information in their line of research;
- Information on workshops, training, Universities, Scholarships, etc.;
- They should be trained/educated on the available and new technology;
- CIs should have equipment and training to educate scientists. There is need of new equipment/software from RDC depending on the evolution of technology.

Is there a need for the WIOBase CD-ROM if we create a Web site?
> There is a need to have both.

What should be the frequency of WIOBase updates?
> An annual update is necessary and a policy should be put down to clearly stipulate this. A questionnaire should accompany the CD to assess the performance of the software. Updating will be done based on the facts derived from the questionnaire.

Do we need a listserv and/or a Web site and who will maintain it?
> A listserv is actually needed and its maintenance should be arranged by the RDC.

How do we update WIOLib and whose responsibility is it?
> The CIs should provide a quarterly update to the RDC. The final update should be done at the end of the year. Cost of mailing should be incorporated into the CIs and RDC budgets.

How do we improve RECOSCIX-WIO ASFA inputs?
> There should be an incentive for the scientists to encourage them to do the abstracting for the inputs.

Improvements on contributions to WINDOW
- From the directory of scientists, identify the scientists in all the different fields, draw up a programme for them and ask them to contribute articles for the newsletter.
- Identify young scientists, e.g. technicians, research assistants, etc. and ask them to contribute something to *WINDOW.*
- Each CI should be represented in each issue. The CIs will be informed by mail and reminded of their contribution.
- WIO region members attending any symposium, workshop and writing a report should send a copy of the report to the newsletter.
- Identify NGOs in the region dealing in marine science and make *WINDOW* a forum for them to communicate.
- A column on events, interviews, reports, etc. should be introduced. Another column, e.g. OBITUARIES should be introduced though it might not run in all issues.
- The mailing list should be updated and enlarged.
- The body of the content columns should clearly reflect the target group of the newsletter.

Function of WINDOW
> Is to have a sound link between marine scientists, upcoming scientists and other individuals or activities dealing with the marine environment.

Do we need a paper version of WINDOW*?*
> A paper version of *WINDOW* is essential as not all individuals have computers. The electronic version is also essential.

Should RDC subscribe to paper versions of journals that are available in electronic format or should they go for electronic format?
> RDC should subscribe for both paper and electronic versions.
> The most frequently used journals to be tested in the electronic versions for about 6 months.

7.3 CAPACITY BUILDING: EQUIPMENT AND PERSONNEL AVAILABLE IN CIS AND RDC AND WHAT NEEDS TO BE DONE TO IMPROVE ON THEM.

Group members:

Edna Nyika	-	Tanzania	(Rapporteur)
Justine Magutu	-	Kenya	
John Bemiasa	-	Madagascar	
Noel Wan Sai Cheong	-	Mauritius	
Ana Maria Alfredo	-	Mozambique	
Samson Ochingo	-	LVEMP	(Chairman)

What are the capacity building requirements?
Training
- Training needs arise when there is a gap on what is known and unknown. Two types of training were identified (i) on the job training and (ii) off the job. The duration should be short term and quite well focused.
- For continuity of training, the Project Co-ordinator must insist that all trainees attending meetings should present detailed reports once they return home.

Internship
It was recommend that those who have been trained should get internship in order to have a real feel of the ground. However, participants should not take the training/internship period as a vacation.

Equipment
The machines and accessories to be provided should include scanners, printers, latest software and photocopiers.

How do we assist institutions that still do not have electronic catalogues?
- By identifying what they need and what technical personnel are available and can reach them.
- Encouraging CIs to collaborate with each other and to share common resources can save costs as well.

How do we retain trained staff?
By providing financial incentive.

Is there a need for software and format standardization?
Yes, there is need. This should be done for the purpose of compatibility.

7.4 WIOLIB STRUCTURE

The group that was appointed to come up with the WIOLib structure was composed of:

Janet Mwobobia	-	Kenya
Desiderius C. P. Masalu	-	Tanzania
Raphael Okeyo	-	Kenya
Asha Owano	-	Kenya

The group came up with the following fields for the WIOLib structure which, after deliberations and minor adjustments, were passed by the Workshop.

TITLE (ENG.)
ORIGINAL TITLE (NON-ENG)
AUTHOR(S)
CORPORATE AUTHORS
CONFERENCE INFORMATION
SERIES TITLE/INFORMATION (Abr.)
SOURCE (IMPRINT/COLLATION)
PUBLICATION YEAR
LANGUAGE OF TEXT; LANGUAGE OF SUMMARIES
PUBLICATION TYPE
ENVIRONMENT
ABSTRACT
DESCRIPTORS
CLASSIFICATION NO.
OCEAN ZONES
INPUT CENTER NO.
ACCESSION NO.

The following are the non-mandatory/optional fields:
AUTHOR AFFILIATION
ISBN/ISSN
REPORT NO

The Group compared the above structure with other commonly used formats:
WIOLib: 18 Fields
ASFA CD: 26 Fields
ASFISIS: 61 Fields

The software identified for use by the libraries should be able to perform the following tasks:

- Catalogue of library holding, borrowed, reserved and private collection in the institute (collaboration) for the purpose of update and maintenance;
- Searching performed by staff, by end users;
- Selective dissemination of information;
- Circulation control;
- Acquisition;
- Usage statistics.

8.   WORKSHOP RECOMMENDATIONS

The participants noted the achievements made by the RECOSCIX-WIO Project in the region, and expressed their appreciation to the Intergovernmental Oceanographic Commission (IOC) of UNESCO, the Government of Belgium through the "Limburgs Universitair Centrum" (LUC), and the Kenya Marine and Fisheries Research Institute (KMFRI) for the support that they have provide to the project.

Recognizing that the next phase of the project should strongly address the agenda of sustainability, future activities must be tailored into a transition phase that would entail the development of a regional information and data exchange network utilizing mainly the Internet. The participants therefore urged the IOC and other donors to provide support for the implementation of this transition phase.

Recognizing further the need for a similar service to freshwater scientists, the participants recommended that ways should be explored to either develop a freshwater component of the project, or formally incorporate freshwater into the project.

Recalling that the project had provided hardware, software and training to the co-operating institutions in the region, the participants noted that with the rapid change in technology most of this equipment is now outdated and should be replaced.

The participants stressed the need for training and retaining personnel to manage the library and information centres in the institutions participating in the project. The participants noted that though the training workshops and the MIST course introduced librarians to various subjects, there is a need for more in-depth training. However, since most of the libraries have limited staff, extended training away from the institutions would adversely affect their operations. Local training opportunities and distance learning programmes should therefore be considered to strengthen the capacity of the libraries.

The participants noted that the original objectives of RECOSCIX-WIO are still valid.

- provide marine scientists in the region with the necessary scientific information;
- enhance the use of indigenous scientific information in the region;
- promote and facilitate communication between the scientists, both intra- and inter-regionally;
- disseminate information on scientific research activities in the region.

The participants recommended the implementation of the following actions:

(i)   Setting up and or strengthening and electronic communication system for all CIs. This involves:

- dedicated and up-to-date equipment
- dedicated e-mail access
- adequate software
- dedicated staff
- development of a listserv and Web site

(ii)   Converting all the products and services previously developed by RECOSCIX-WIO Project into electronic form and making them available on RECOSCIX-WIO Web site;

(iii)   Document request and delivery should be done electronically where possible;

(iv)   With continued support from IOC, the publication of the paper version of the *WINDOW* Newsletter should continue. Scientists are urged to contribute articles regularly for publication.

(v)   Formal agreements should be made between RECOSCIX-WIO and CIs. Such agreements should include a work plan and a budget. Output targets should be clearly specified.

(vi)   The CIs should complete the development of their library catalogue using the WIOLib structure agreed on during the workshop.

(vii)   CIs will regularly send publications to KMFRI for inclusion into ASFA.

(viii)   Adequate provision should be made for training and/or workshops including internships for CIs.

Subsequently, the Work Plan and Budget outlined below was adopted by the participants.

WORK PLAN AND BUDGET

Activity	Unit cost US$	Cost for 7 CI's	YR 1	YR 2	YR 3	YR 4
Setting up and strengthening of Network Upgrade equipment (PCs, Scanner,)	2500	17500	17500	-	-	-
E-mail access	2000	14000	14000	14000	14000	14000
Ariel software	500	3500	3500	-	3500	-
Development/setup, listserv/Web site	3000		3000	-	3000	-
ASFA	2000	14000	14000	14000	14000	14000
Training WWW Publishing Information	500	3500	-	3500	-	3500
Distant learning, workshop/training	3000	21000	-	21000	-	21000
Travel grants, IAMSLIC, Internship	4000	28000	7000	7000	7000	7000
CI operational costs	2000	14000	14000	14000	14000	14000
Document delivery (contract LUC)	5000	-	5000	5000	5000	5000
WINDOW production						
WIOBASE production						
TOTALS			78000	78500	60500	78500

GRAND TOTAL: US$ 295500   TIME FRAME: 4 YEARS

9.   CLOSING CEREMONY

Mr. P. Pissierssens reiterated IOC's support for the RECOSCIX-WIO project. He regretted that librarians have often been neglected although they are contributing essential expertise for scientific research. Concerning RECOSCIX in the year 2000 and beyond, there will be a need for more effective services using new technologies. Donors and IOC can only provide funds. Success of the project depends on commitment from all partners. He paid tribute to the RDC staff for the good work they have done in the past 10 years. He noted that IOCINCWIO is one of the most active of the IOC regional bodies. The co-sponsorship of PACSICOM and the designation of an IOC secretariat staff to co-ordinate all activities related to Africa are a clear demonstration of IOC's concern for the development of marine sciences in the continent.

Finally, he hoped the participants would meet again after the next ten years to recount the achievements they would have made in data and information management.

Prof. L. Egghe, Co-director of RECOSCIX-WIO, noted that this might be the last time he is addressing the participants as Co-director of this project. He hoped that the participants would maintain their collaboration. RECOSCIX-WIO has come a long way since starting its functions by delivering and photocopying documents. Initially, the regional extension of the project was thought to be a very ambitious venture but after 10 years it has proved to be a reality. He hoped that in the near future, when all the CIs will be on the Internet, document delivery will be cheaper. He noted that the CIs participating in this meeting have shown a lot of enthusiasm and urged them to maintain this tempo that has revealed the value of the project. He concluded that, though LUC will not provide

financial support to the project, he will be practicing his teaching profession within the region at the University of Dar Es Salaam, Tanzania. He hoped that the University of Limburg would actively continue to participate in this region and also open new horizons in RECOSCIX-CEA.

Dr. E. Okemwa, the Co-director of RECOSCIX-WIO and the Director of KMFRI made the closing speech. RECOSCIX-WIO has made an impact in the region and many scientists have excelled in their research using its products and services. The initiative of this project has led to the birth of new projects such as ODINEA and ODINAFRICA. He noted that this was a rare occasion for scientists and librarians to sit together in the same forum and exchange ideas and experience. This enables scientists to appreciate new realms of science. He was happy to note that RECOSCIX-WIO is not ending but opening up new horizons. He wished the IOCEA Member States success in the development of the RECOSCIX-CEA.

He invited participants to the KMFRI open day, and an exhibition to mark the tenth anniversary of RECOSCIX-WIO to be held on 17 April 1999 at KMFRI.

In conclusion, he paid tribute to past managers of the project, especially Mr. Hezborn Onyango, and Mr. Peter Pissierssens who initiated the project. He also commended the RDC staff for the excellent work done. In closing he thanked all the participants for their contribution, and wished them all a safe journey home.

ANNEX I

**Workshop Welcome Address by Mr. Peter Pissierssens, Programme Specialist, Marine
Information Management, IOC (UNESCO)**

If we go back to the cradle of RECOSCIX-WIO all those years back in Arusha, Tanzania during
IOCINCWIO-II, then I think few of us present there could have imagined that RECOSCIX-WIO would
live this long.

Things were very different in the region in those days. Co-operation between the institutions and even
between the countries was not widespread. Indeed I recall that when the issue of including data
management in the objectives of the project was discussed, this suggestion was quickly dismissed. Data
were considered as state property and could not be shared outside the country. With some hesitation and
reservation, RECOSCIX-WIO was approved by the region. KMFRI offered to host the regional dispatch
centre which was kindly accepted by the region, despite some suspicion that the other countries in the
region would not benefit as much as the so-called host country.

We all know the rest of the history: IOC managed to identify some funds to start up the pilot project in
February 1989, KMFRI provided local staff and housing for the project, Belgium stepped in with major
funding as from 1992.

Has RECOSCIX-WIO fulfilled our expectations? Has RECOSCIX-WIO contributed to the
development of marine science capacity in the region? Has the project made mistakes? We will discuss
all these questions at length during the next 3 days.

However, I wish to share a few reflections with you before we start the workshop. If nothing else I feel
that RECOSCIX-WIO has contributed to bringing marine scientists in this region closer together and
has helped many scientists in other parts of the world to find Kenya, Madagascar, Mauritius,
Mozambique, Seychelles and Tanzania on the map. How often did I not hear the statement "Ooh I didn't
know they had marine science institutions in that country'. Thanks to *WINDOW*, RECOSCIX-WIO's
annual participation in IAMSLIC and other international events, north-south and south-south contacts
and many friendships were made.

When we started talking about introducing new technologies such as computers, CD-ROMs and the
Internet in the eighties many people thought this was a mistake. I think the region has proved these
people wrong. I am pleased to see the rapid development and adoption of these technologies in Africa. I
can assure you that in other parts of the world libraries of the same size as yours are often less
technology-minded. I am impressed by the interest shown during the past two days in library
automation and I am sure this experience will quickly be put to good use.

Too often librarians are seen as old ladies or old men in stuffy rooms full of books. They are not seen as
professionals performing an essential task in the scientific continuum. Of course we all know people
who think this way are very much mistaken. I am sure that you, as information professionals and
through sharing your know-how and experience in the RECOSCIX-WIO network will demonstrate that
you are in the forefront of information management.

RECOSCIX-WIO is not alone: as you know the IOCEA region requested IOC to assist with the
development of a parallel network. I am pleased to say that this project has finally started in 1998 and
we are welcoming Dr. Yacouba Sankare of RECOSCIX-CEA's RDC here today. However, the impact
of RECOSCIX-WIO as a network and a forum for the exchange of knowledge reaches beyond
information management. The ODINEA project which was started in this region in 1998 and which

focuses on marine data management is following the footsteps of RECOSCIX and ODINEA. The future ODINAFRICA-II intends to be a Pan-African capacity building project for data and information management. We will be discussing the proposal during this workshop this week.

Last but not least I want to say a few words about the RDC. If IOCINCWIO-II was the father of RECOSCIX-WIO then KMFRI must be seen as the mother. Few realize the efforts made by KMFRI in establishing and maintaining the RDC. When I say KMFRI I refer to both the Institution and the people: from the start an enthusiastic team has been created. KMFRI was able to not only maintain the team but even expand it. Of course some people have left the project during the past 10 years but they were always replaced by people with the same enthusiasm and drive.

I will end by expressing my hope that the IOC will be able to remain part of the RECOSCIX-WIO's life story for many years to come.

ANNEX II

Workshop Opening Speech by Dr. Ezekiel Okemwa, Co-director of RECOSCIX-WIO and the Director of KMFRI.

Ladies and gentlemen,

I would like to take this opportunity to welcome all of you to Mombasa.

Ten years ago the project on regional co-operation in scientific information exchange in the western Indian Ocean (RECOSCIX-WIO) was launched by the Intergovernmental Oceanographic Commission of UNESCO to provide information services to marine scientists in this region.

In the course of the next 2-3 days we are going to reflect on the activities of the project in the last ten years, its achievements and failures, so that by the end of the week, we will have defined the direction in which we want the project to move in the next millennium.

How did it all start?

Kenya and Belgium initiated a project aimed at developing marine research capacity in Kenya in 1984. This was the Kenya-Belgium project in marine sciences - KBP in short. The project was to be implemented by the Kenya marine and fisheries research institute (KMFRI) and the free university of Brussels (VUB).

At a very early stage it was realized that the KMFRI library was not sufficiently equipped to serve the information needs of the Kenyan and Belgian scientists who were working on this project. Unfortunately no provision had been made for provision of literature within the KBP project document.

A new project proposal was developed to cater for provision of literature including bibliographic search services and document delivery. The Limburgs Universitair Centre (LUC) was designated as the implementing agency for this project.

In 1987, UNESCO sponsored a mission to the countries of the region to assess the status of marine science libraries in the region. The report of this mission which outlined the requirements of these institutions, particularly in terms of information services and capacity building was submitted to the second session of IOCINCWIO meeting in Arusha in 1987. The report proposed the implementation of an information service similar to the one serving KBP in Mombasa to cater for marine scientists from the entire region. The session also invited KMFRI to host the regional dispatch centre.

IOCINCWIO-II approved the proposal and requested both IOC and the Government of Belgium to assist in its implementation. Subsequently in February 1989 IOC launched a two-year pilot phase of the RECOSCIX-WIO project. In addition to accepting to host the regional dispatch centre, KMFRI provided support staff, computer and office equipment. IOC provided an associate expert and funds for operational expenses. LUC extended the document delivery service, previously limited to KMFRI to other institutions in the region.

During the first pilot phase the following activities were initiated:

- Bibliographic search service using ASFA CD and dialog on-line;
- Document delivery service;
- The *WINDOW* (Western Indian Ocean Waters) newsletter;
- Equipment (PC's, printers etc) delivered to institutions in Madagascar and Seychelles;

- E-mail services initiated at RDC;
- Development of directory of marine scientists (WIODir).

The Government of Belgium accepted to fund the first operational from 1991-1995. To this end a memorandum of understanding was signed between the Kenya and Belgium governments through which the Flemish inter-university council (VLIR) took over funding of RECOSCIX-WIO. KMFRI and LUC were designated by their governments as the institutions to implement this regional project. The Flemish association for development co-operation and technical assistance (VVOB) provided an expert to be the manager of RECOSCIX-WIO.

In the first operational phase running from (1991-1995) the services and products introduced in the pilot phase were continued. In addition the following were also implemented:

- *WINDOW* French pages introduced;
- WIODir published in book form with UNEP support;
- Training course on use of microcomputers in Library management;
- Equipment (PC's and accessories) and software delivered to institutions in Kenya, Madagascar, Mauritius, Seychelles and Tanzania;
- Development of catalogue of holdings of marine science Institutions in the region (WIOLib) commences;
- Internship for librarians from CIs at the RDC;
- Training workshop on database development using ASFISIS.

The third session of IOCINCWIO meeting in Vacoas, Mauritius in 1992 acknowledged the important role RECOSCIX-WIO was playing in the networking of marine scientists and institutions in the region, and commended the project on this. IOCINCWIO-III further requested RECOSCIX to assist in accessing data from international data centres, and in the developing capacity for analysis and interpretation and archival of data.

In response to this request the Government of Belgium agreed to fund a second operational phase of the project which would concentrate on development of databases in easily accessible format.

The second operational phase, which commenced in 1996, will be ending next week. The highlights of this phase have been the:

- Development of database on marine species of eastern Africa (MASDEA) commences;
- Designation of RECOSCIX-WIO/KMFRI as an ASFA input centre;
- Launching of the Ocean Data and Information Network in Eastern Africa (ODINEA);
- Training course on data management;
- Publication of WIOBase, a CD with information on western Indian Ocean;
- Provision of support for Internet/E-mail access to co-operating institutions (CIs); and
- Provision of ASFA and NICS CD-ROMs provided to CIs.

Through these activities, RECOSCIX-WIO has endeavored to achieve the objectives for which it was set-up.

In the coming days we will expect you to go through each of these activities carefully and decide which ones were successful and which were not. We also invite you to propose what directions you would like to see the project follow.

While doing this, you should take into account the ODINAFRICA-II proposal, which will presently be submitted, to IOC for funding.

ANNEX III

REPORTS OF CO-OPERATING INSTITUTIONS

1) Joint East Africa Natural History Society and National Museums of Kenya Library (Kenya)

presented by Asha OWANO, Chief Librarian

The joint East Africa Natural History Society (EANHS) and National Museums of Kenya Library was established in 1910, by the members of the society and later merged with the Museum library under joint ownership. The library is a joint venture between the society and the National Museums of Kenya (NMK). It is a special library which is a constituent of a parent body which in itself is an information resource, and its role is complimentary.

Objective
The Library's objective is to develop and maintain a museum information resource centre, including all branch libraries of the Museum so as to support the Museum in the collection and identification of materials for conservation and cultural heritage, including research.

Scope
Subject coverage include Botany, Entomology, Herpetology, Mammalogy, ornithology, Osteology, Ethnography, Ichthyology, Biodiversity, Paleontology, etc.

Opening Hours
The library opens from 8.30 a.m. to 5.00 p.m. inclusive of lunch break, weekdays only. The Library remains closed on week-ends and Public Holidays.

Use Of The Library

The joint library is open for use by members of the museum Board of Governors, members of the East Africa Natural History Society, Kenya Museum Society and staff of the National Museums of Kenya. It is also open to *bona fide* researchers working temporarily at any of the museums and to librarians from established libraries which are recognized by the Kenya Library Association. Most users are students from the local universities, who are either members of the East Africa Natural History Society or the Kenya Museum Society.

Exchange
The library maintains a total of 250 exchange partners throughout the world, and also co-operates with libraries within the country, like RECOSCIX, ICIPE, ILRAD, University of Nairobi, Kenyatta University, Moi University, Egerton University, Jomo Kenya University of Agriculture and Technology, etc.

Exchange Publications
The joint library has six publications that are used for information exchange programme. These are Journal of East Africa Natural History, Horizons, East Africa Natural History Society Bulletin, Kenya Past and Present, National Museums of Kenya (NMK) Report and Mvita.

NMK acquired ORACLE 7. 1 which runs on SUN Microsystem (SUN 0S 4.1.3 but it is currently idle) for the creation of scientific databases. However, since it was difficult to control databases at

different levels, NMK has had departmental databases being created using different software, e.g. Foxbase, Dbase and CDS ISIS version 307.

Inter-Library Loans: The joint library has maintained a good relationship with other libraries countrywide and especially those around Nairobi. Documents that are not available in our library can be obtained through the inter-library loan programme.

Automation Of The Library

Computerization: The Library has two computers, a 486 donated by Kenya Museum Society, last year and an IBM Compatible 386 Computer which was acquired in 1993 through JICA co-operation with the national Museums of Kenya. The computer came complete with an Epson Printer and Key Board. The memory of the 386 computer has been upgraded by 2-MG. The database was created using version 3.07 of CDS/ISIS UNESCO Bibliographic Library Database software, acquired freely from ICRAF. Kenya Museum Society donated a 486 computer. Single user - cannot be integrated with other Databases through Internet/Intranet.

The First step in computerization was to introduce computer literacy to all staff. A week-end DOS course was organized. The librarian attended a two weeks course at UNEP. After the short training, a library database was created consisting of the following fields:

Tag	Name	Length	Type	Delimiters
10	Class/Reprint Number	25	X	
15	Location	20	A	
70	Author	150	X	R
24	Title	250	X	
35	Edition	10	X	
26	Imprint	50	X	abc
30	Pagination	25	X	abc
44	Series	60	X	
55	Sources	70	X	abc
69	Key Words	100	X	
20	Abstract	200	X	
50	Accession Number	15	X	

Data extraction format is for fields: 70, 24, 69, 15, 26 and 55. In field 70, most entry points are put including editors and other contributors.

Retrieval: The documents are in the process of being computerized using CDS/ISIS programme which has made retrieval easy as far as different access points are concerned. It is anticipated that readers will be able to access the information direct from their reader terminals which will be placed at different points within the library. Scientists/Researchers will be able to access the holdings catalogue from their laboratory terminals, once the Local Area Network (LAN) is put in place.

The information will be networked so that the users do not have to come to the library. For this, file marker is now needed. There will be support staff to assist the readers who do not know how to use the system on their own. The library started computerizing the collection, starting with the books, although not so much data has been input.

The library has so far computerized over 7.000 records mostly books. It is hoped that in another two months the retrospective data input for books will be complete, and readers will be able to search the library information resources from their terminals.

The library's main computer now has a CD-ROM Drive with multimedia Speakers. The CDs so far installed are CURRENT CONTENTS, but only up to February 1998; The PLANT FINDER Reference Library; and Library of Congress, ACCESSIONS LIST.

*Literature Searches***:** Researchers in need of articles or abstracts of articles that are unavailable in the library request for literature search facility. This is done for them through inter-library co-operation from the libraries of either International Livestock Research Institute (ILRI), International Centre for Insect Physiology and Ecology (ICIPE), United Nations Environment Programme (UNEP), RECOSCIX, etc. With the recent acquisition of Internet Services, few searches can be done for the library and other departments through the NMK computer department. Information on application forms for jobs, conferences, document requests *via* E-mail services are also done and delivered through this Department. The library hopes to have the facilities within the library and NMK's Local Area Network (LAN) project takes off.

NMK has a Web page on the Internet and the address is: http://www.museums.org.ke and the e-mail is: nmk@africaonline.co.ke.

Status of Information Management at NMK

Stock: The library has over 15,000 books arranged according to Dewey Decimal Classification Scheme 20th edition, 60,000 reprints classified according to a home made scheme and over 700 periodical titles arranged alphabetically by title and sometimes by the publisher. A Collection of Thesis is also being established although not comprehensive.

Development of the Library Catalogue

The Library is divided into three different sections, namely Books, Reprints and Periodicals. Each section has its own index to the collection as follows:

Book Section: The books are catalogued using the Anglo American Cataloguing Rules (AACR2). The library has a separate Card Catalogue for books. The Catalogue is situated at the library entrance. The arrangement is in three main sequences, i.e. Author, Title and Classified plus a subject index which is still being developed. The filing is done word by word for author and title sequence. Once all the data entry for books is done, sorting will be done either by author and title and a print out made available for the public. At the moment searches are done on request for what a reader can not find from the Card Catalogue. Useful indexes like subject bibliographies to the book collection have been prepared and put at the Issue Desk. Some are compiled on request.

Reprints section: Reprints are materials lifted from main publication, conference papers, or independent papers. AACR2 is used for cataloguing. There is a separate Card Catalogue for this collection and it is placed at the entrance of this collection. The Catalogue is arranged in two sequences, i.e. Author/Title filled word by word and Subject.

Periodicals: In this section journals are arranged alphabetically by title and sometimes by the publisher, e.g. East Africa Natural Society Journal. To use this collection, a strip index indicating the alphabet under which the journal is shelved is used. To show what the library (i.e. the main library, Institute of Primate Research and Herbarium Library) holds, the Library produces a List of Periodicals Holdings in NMK Library and circulates it to most libraries within the country. A 1998 revised list of Periodicals Holdings has already been circulated. A copy of the list, together with the Union List for Periodicals in Kenyan Libraries 1993 are placed at the Issue Desk for the public to use. These two

documents are in high demand. When a request is received from RECOSCIX the search starts from the two documents.

Participation of NMK in RECOSCIX-WIO activities

NMK library satisfies about 80% of all literature requests from RECOSCIX-WIO through photocopying services at an initial minimal fee of KShs. 5. In 1997, the RECOSCIX Co-Director, Prof. Egghe suggested that KShs. 50 should be paid as handling charges whenever a request is met by our library.

The delivery system is done through the post. This sounds rather slow and the idea of ARIEL sounds great in document delivery. The problem now is we need equipment, e.g. powerful computer scanner plus software of direct independent E-mail services. Payment has been on deposit basis and when it runs out we request for more.

The circulation of Contents Page to NMK scientists has been a very useful service from RECOSCIX. The page is received through the Office of Asst. Director, Centre for Biodiversity and is usually pinned on the General Library Notice Board.

Provision/use of WIOBase on CD-ROM to Ichthyology Department.
The Scientists using this database complement the work done, however they have noticed a few weaknesses with the database, e.g. the installation is complicated for non-computer specialist. When a keyword is requested, lists of references are available. However, each reference (with abstract) can be consulted and printed, but the whole series of reference concerning a specific keyword cannot be printed out. This is rather slow from one reference to another.

Future Endeavors: Is there a possibility to print out lists or selections of references? Updating policy on WIOBase should be on annual basis.

2) Institut Halieutique et des Sciences Marines (Madagascar)

presented by Mr. John Bemiasa, Information Manager

The story of the Institut Halieutique et des Sciences Marines (IHSM) brings us back to 1992 when three entity of activities were merged: the Marine Station, the Applied Oceanology and the Halieutic High Training Unit. Since then, the mission of this Institute has concentrated on training and research as applied to development. The Institute is training biologists, executives, and technicians working in fisheries companies and aquatic farms, development organizations and administrator. Since it has a laboratory, aquatic farms and a specialized library, the Institute periodically receives foreign trainees.

Principal Activities

Besides training, the main objective of the Institute is research which is focused on the following disciplines:

Fisheries and Marine Research Management
       Fish stock, crabs, lobster, trepangs, DCP and traditional fisheries

Aquaculture
       Artemia, fishes, crustaceans

Coastal and Marine environment
       Mangroves, coral reefs and lagoon, environmental impacts studies

Biotechnology and valorization
  Quality control and treatments of the products (fishes and trepangs), treatment of trash, production of biogas and extraction of phycocoloid.

Human Science
  Socio-economics of traditional fisheries

Present Situation

Since the creation of IHMS, many data have been collected in the country. Nevertheless no data centre was built to store these data. So, all the available data were temporarily stored in a library without a defined structure, and was hardly accessible by local or foreign users. Hoping to solve this problem with the help and co-ordination of the IOC (UNESCO), we intend to build a National Oceanography Data Centre (NODC). This will be able to store all these data so that any users can easily use them. To fulfill this goal, a catalog of the institutional or national existing marine resources must be created.

Status of Information Management

Two principal partners work with IHSM: UNESCO through IOC, the RECOSCIX-WIO and the CNRO (Centre National de Recherches Océanographiques) through a framework agreement between IHSM and CNRO.

Through UNESCO:
Through the ODINEA project, IOC (UNESCO) provides IHSM with material support in order to give the Institute the ability to set up a national Oceanographic Data Centre (NODC). Materials have been received by IHSM with some databases already available in CD-ROMs (Gebco97 atlas, Ocean atlas 1994, Odinea97 and 98 CD-ROM). However, administrative difficulties did not allow us to set up, on time, the Internet connection as planned.

Through RECOSCIX-WIO
From RECOSCIX-WIO, we have since 1994 periodically received catalogues and reviews:
Catalogue (WIOCurrent) permitted our librarian to search for the new scientific work over the world and this improves our library.

We also have through RECOSCIX-WIO an opportunity to receive the first version of the WIOBase CD-ROM, in which we can consult the WIOLib, WIODIR and some parts of *WINDOW* newsletter. Periodically, IHSM and most of our researchers receive *WINDOW* reviews through which we can consult publications produced in the region. Unfortunately, our researchers have not been sensitized to publish their papers in *WINDOW*.

Development of Library catalogue
Though the university has not allotted any budget for the library, this project has been voted with the UNESCO programme which allow the gain of 5% of the functioning budget.

The Library

Since its creation, IHSM has never been member of any documentation network existing in Madagascar or outside, but nowadays exchanges between foreign universities or institutions can be done.

Functioning modality (How the Library is functioning)
- Not automated, it is difficult for users to find a document without the help of the librarian who himself knows where the books are placed,
- Rare documents are not lent out,
- Any person who wants to frequent the library must present a student card or some equivalent,
- Reading in place is authorized.

Source of books
IHSM mainly receives documents by donation from outside. The following institutions, universities, libraries and projects are the main donors:
- Marine Station of Endoum - Marseille;
- The Library of Pierre Boiteau (for Biological documents);
- French Embassy in Madagascar;
- UNESCO and FAO programmes;
- ENSAR;
- University of LILLE;
- University of RIMOUSKI, Canada.

Project Recommendations And Conclusion

The Priorities
The library project proposal indicates the main needs of our library. The library will try to fulfill all the user requirements. However, there are areas of priority which will be the major tasks. The project to improve the library is now discussed within the IHSM, including the automation programme.

As recommendations, we suggest the following points:

Need of Training
The librarian needs training workshop on library management. This was started by RECOSCIX-WIO and should be continued for the new librarians.

Need for Equipment

Need for co-operation
Thanks to the IOC (UNESCO), the IHSM is now open to foreign institutions and able to set up a National Oceanographic Data Centre (NODC).

To conclude, we hope that in the future there will be more collaboration to improve our documentation and database centre by material donations as well as personnel training. On behalf of our scientists, students and administrators, we would like to thank RECOSCIX-WIO project for having helped us in our research.

3) Albion Fisheries Research Centre (Mauritius)

presented by Noel Wan Sai Cheong, Senior Technical Officer

Albion Fisheries Research Centre (AFRC) is the research arm of the Ministry of Fisheries and Co-operatives. Created in 1982, AFRC is actively involved in research programmes. Besides research activities, it also provides services such as delivery of fish import and export permits and consideration of Environmental Impact Assessment (EIA) reports for development activities on the Island.

AFRC is basically divided into four main divisions, namely:

- The Marine Parks and Research Services Division;
- The Marine Science (Environment) Division;
- The Aquaculture Division; and
- The Marine Resources Division.

An Information and Documentation Centre has been existing at AFRC since 1998. It basically provides information on the marine and freshwater sector with emphasis on fisheries, environment and oceanography. Some 10,000 documents exist in the Information/Document Centre.

We have been collaborating with RECOSCIX-WIO since 1989 when the project started. Some training has been provided to AFRC staff in order to run the former library as a Document Centre (DC). A PC computer, printer and RECOSCIX-WIO products (software, publications, CDs) were also received for the running of the DC by trained personnel.

Unfortunately, our contribution to the project has been poor over the last few years. The main reason has been the shifting priorities over projects and the high mobility of the personnel from one project to another.

However, in recognition of the importance of marine information exchange within the region we would like to renew this kind of co-operation for the coming new phase of the project. The Info/Doc centre would be able to handle it as the DC in Mauritius as long as adequate training and equipment are provided.

An Access-based programme has been developed for the process of library automation since 1998. It runs on Keywords basis and has features for library transitions. The programme has been placed in two Pentium PCs with a resource-sharing configuration. So far, some 10% of the existing document have already been processed.

The PCs are linked to two scanners with OCR facilities and a printer. Access to Internet and E-mail is also provided.

The Info/Doc Centre also offer on sale for a minimum price bathymetric charts of Mauritius, Rodrigues and the Fishing banks and Posters and guides of "Commercial Fishes of the Indian Ocean" (French Edition).

4) Instituto Nacional de Hidrografia e Navegação (INAHINA) (Mozambique)

Presented by Ana Maria Alfredo, Librarian

Good afternoon to all of you

I'll start by introducing myself. I am Ana Maria Alfredo, a librarian from Instituto Nacional de Hidrografia e Navegação (INAHINA). It's a great pleasure being here with you to share experience on this subject and I believe it will be fruitful for all of us.

In presenting the status of my country I must first note that we are in the very first step of implementing a library system, therefore, I would like to apologize for not having the expected information.

Mozambique Status

Up to now Mozambique has been represented in the RECOSCIX - WIO Project by IIP (fisheries Institute) and the Librarians trained on the two last workshops were also from that Institution.

According to the information I got there, the training courses were, it seems, very useful so they could get job elsewhere:

- Identify the existing material in the two libraries;
- Identify the needs of the users through a meeting with specialists from the marine sciences and other related areas;
- Stimulate feedback from scientists/users to improve library services, capitalizing on their regular international contacts.

It is better that the librarians know what kind of information is interesting for the marine community

- Publish and advertise the bibliographic holdings of the two libraries;
- Be linked to other RECOSCIX-WIO and corresponding institutional libraries.

We see this as the first step through close collaboration between the institutions, to merge the catalogues of the two libraries of IIP and INAHINA.

Assistance Appeal

As the two trained librarians (from IIP) left the institute, there is a need of training the new staff on database maintenance, electronic document delivery and information exchange. The software was used to create a library catalogue, but is now not in use since the computer broke down. (The repairing costs much more than purchasing a new one).

Library Health

The library is gradually reducing its duties because it cannot respond effectively to the users needs - there is no information updating (technical materials).
However, it runs. Very recently it has received funds from NORAD project to subscribe to journals and magazines (about 10 to 15 titles).

- It also publishes its own journal which contains mainly reports of cruises and a bibliographic catalogue (only available at their library).

- It is linked to a South African library with which it shared experiences including mutual visits.

- At present the new staff recruited looks only after the existing material - it needs specific library training.

Future Plans

It is intended that in the future IIP and INAHINA will represent Mozambique as one. To achieve this objective, we are drawing the following plans:

The present librarians at IIP were trained by two groups. Their colleagues who have now left the library, and also by those at INAHINA who attended an on-the-job training in a library in Lisbon. The training, however, did not cover automation. In short, that is the status of Mozambique. Maybe we can get some training in Asha's library at NMK.

5) Seychelles Fishing Authority (Seychelles)

presented by Mrs. Josette Confait, Documentalist

Fishing has traditionally played an important place in the life of the Seychellois people and the sector has played an important role in the nation's social and economic development.

The fisheries sector in Seychelles is diverse ranging from part-time fishing to highly organized fishing operations. Seychelles is also considered as a major centre for industrial tuna fishing in the region. The fact that we also host an important tuna organization requires that the country plays an important role in providing information through the Seychelles Fishing Authority (SFA) on fisheries and on tuna in particular and in the dissemination of this information.

SFA was created in 1984 by the Seychelles Fishing Authority (Establishment) Act. The Authority was created at a time of intense development especially in foreign industrial tuna fishing. It was created to develop the fishing industry to its fullest potential and to safeguard the resource base for sustainable development. The SFA is the executive arm of the Government of Seychelles in the fields of fisheries and marine resources; the Ministry of Agriculture and Marine Resources is responsible for policy directives in the fisheries related matters.

The function of SFA therefore includes:
- Promoting, organizing and developing fishing, fishing industries and fishing resources in Seychelles;
- Assisting in the formulation of the National Policy with respect to fishing, fishing industries and fishing resources and in the implementation of such policy;
- Conducting negotiations, organizing and participating in meetings, seminars and discussions with regard to fishing, fisheries, the establishment or operation of fishing industries, either at national or international level;
- Identify the manpower training requirements of Seychelles with regard to the fishery and fishing industry;

As a whole, SFA is an organization with management, planning, development, scientific and training functions.

SFA participates in many regional and international meetings. In view of SFA's national responsibility for the management and development of the fisheries sector and its high level of regional and international co-operation, there are important implications for the Documentation Centre in providing the resources needed and the information required.

The Documentation Centre

The Documentation Centre was created in 1989 with multiple objectives of:
- Creating a holding materials related to fisheries and marine resources in the Seychelles, the Indian Ocean Region and internationally;
- Managing, preserving and retrieving all such information as and when required for assisting in the progress of research development or studies;
- Encouraging the inter-regional exchange of all fisheries and marine related literature and information between experts, SFA staff and any other overseas fisheries institutions or bodies;

- Preserving books, materials and information for future generations;
- Managing and distributing all SFA's publications.

The Documentation Centre which now falls under the Secretariat of the Authority has a collection covering a wide range of subjects including fisheries, aquaculture, marine research and expeditions, legislation, processing of products, oceanography, fisheries statistics, marine resources, fisheries technology, etc. The Centre is open to everyone interested in fisheries and marine resources with its principal users being the staff of SFA.

The Documentation Centre has a holding of about 3000 documents, which includes reports, monographs, catalogues, periodicals series, films, maps, etc. A large number of the Centre's holding are reports acquired from the Food and Agricultural Organization (FAO). Most of our periodicals are acquired through an exchange programme with other organizations. The Centre for financial reasons faces the problem of insufficient essential journals.

Facilities
The Documentation Centre is air-conditioned and has a photocopy machine, fax machine, a computer with a capacity of 1.2 GB and access to a Laser Printer. Access to the Internet and e-mail is also available.

Staff
The Centre has one staff and the level of activity in the Documentation Centre is high, not only among internal staff but also with a regular stream of external visitors.

Users
The main objective of our information services is to support the scientific, technical and management activities of the organization. The primary user of the Documentation Centre is the SFA staff. A total of 99 staff is employed of whom 27 are in Research Section and 22 with the Resource and Operation Section. These two sections are the primary users of the Centre. Of the total staff, 8 are fisheries biologists.

The external users that the Documentation Centre serves are normally the same organizations and fisheries bodies with whom the SFA staff collaborates. There are also various Government departments and other organizations in the Seychelles working with fisheries or related subjects. External professionals or visiting experts and consultants to SFA in connection with meetings, research and development activities also uses the Centre for specific information. The largest category of external visitors is however school children Polytechnic students and teachers. Above all the Centre is open to all those interested in fisheries and related subjects.

Information Service
Services provided by the Documentation Centre include:

- Access to the subject collection and retrieval of documents;
- Circulation of journals;
- Binding and photocopy services;
- Production and circulation of a quarterly list of new acquisitions;
- Processing of articles and inter-library loan requests;
- Ordering of publications;
- Literature searchers of bibliographic database such as SFA catalogue ASFA CD-ROM whereby requests are sent to RECOSCIX;
- Internet-searching.

Management and Distribution of SFA Publications
It is the responsibility of the Documentation Centre to manage and distribute all publications published by SFA either locally or to other exchange partners internationally. They are distributed free of charge or through exchange programmes or on arrangements. Distribution is done to a total of a hundred and seventy (170) recipients worldwide. A copy, as per the Seychelles legislation, is sent to the National Archives. Apparently SFA is the biggest contributor of current publications to the archives. As a whole it publishes between 15 to 20 reports per year.

Electronic Library Management System
Computerization of library catalogue started in 1991 using the CD/ISIS software provided free by UNESCO. The data structure used was the Microcomputer-Based Bibliographic Information Systems (MIBIS). Though not very user friendly, it met our needs then. We started by selecting literature of direct relevance to the Seychelles. To-date about 95% of such literature has been inputted. In 1995 following a workshop organized by RECOSCIX on 'Bibliographic Database Management', it was decided to use a new database structure. The ASFISIS was proposed. Already the SFA Documentation Centre had around 900 records inputted into the MIBIS structure.

This did not speed up things, as the conversion was not a full-proof venture, no other solution was available. Therefore all the records had to be manually edited where necessary. To-date, not much has been done with regards to the editing due to a lack of human resources.

Records are continuously being inputted into the ASFISIS database but again at a very slow pace. However, we have just started obtaining records by downloading from ASFA CD-ROM whereby very little editing is required. From the start of the computerization process back in 1991 up to now, different factors have also slowed down the process. The backlog of work that has accumulated during the two-year absence of the Documentation Assistant is substantial.

However, we are looking into the possibility of speeding up our database input by clerical support on a permanent basis, which should take place very soon. Hopefully we shall be able to provide on a more regular basis data to RECOSCIX, a task which up to now we have not been able to achieve.

Automation
The computer in the Documentation Centre is not only for information retrieval and cataloguing but also for a range of other functions relating to the management and administration of the services which includes:

- Recording of publications received;
- Loans system;
- Recording of periodicals on circulation specifically to the staff members;
- Mailing label database;
- Word processing and spreadsheets;
- Report editing;
- Publishing of bibliography and current awareness bulletins;
- Electronic mails;
- Access to compact disc (CD-ROM);
- Internet use.

Information Resources
Our collection is built on a wide range of fisheries related subjects. The holdings are built mainly of serials (Appendix 2). The collection includes the publications of international organizations concerned with fisheries and the marine environment such as FAO, UNEP, ICCAT, IAATC, SPC, etc. The unique part being the collection on the Seychelles Fisheries and to a lesser extent other countries of the region. On average a total of 200 documents are received per year. As mentioned earlier little funding is allocated for new acquisitions and therefore the organization greatly depends on donations or through our exchange programme.

We received around forty periodicals and again a great majority is obtained through our exchange programme (Appendix 3).

We have as electronic resource the ASFA CD-ROM from 1978 to 1998. The WIOBASE that was installed was later removed as it turned out that the database was not searchable individually. It was later discovered that the version had not been tested on the Novell network which we are using.

We also have the 1997 version of FISHBASE and also other CD-ROMs such as the Commission de l'Océan Indien (COI) OCEAN DATA and other OCEANOGRAPHIC CDs. All were provided free of charge from different sources.

Internet Access
The Seychelles Fishing Authority was among the first organizations in the country to have Internet access. The ORSTOM personnel working in close collaboration with SFA provided this. At that time there was no local service provider and it could be said that almost nobody from SFA itself was well versed in such technology and therefore it was not much used apart from occasionally sending e-mails. The service was discontinued after the departure of the ORSTOM Scientists.

In 1997, we were given funding by IOCINCWIO for Internet services. To-date, every scientist in the organization is connected. Access is provided via a local provider though it is not very effective at times. Those who have access do their own information searches. The Documentation Centre carries out searches for other staff without access and for visitors requiring information.

Co-operation
Co-operation amongst local Documentation Centres is rather informal though there has been a national database linking some centres. The joint database is then supplied on diskette and SFA uses such database to search for material held in other centres. This database is maintained by the Departmental of Environment, which is also a member of RECOSCIX-WIO.

SFA regional and international activities include co-operation with the following organizations:
- Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean Region (RECOSCIX-WIO);
- Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM) now called L'Institut de Recherche pour le Développement (IRD);
- Intergovernmental Oceanographic Commission (IOC) of UNESCO;
- Food and Agricultural Organization (FAO);
- Marine Research Assessment Group (MRAG) based in London;
- Japan International Co-operation Agency (JICA);
- Shoals of Capricorn (partly used in Seychelles for a period of two years);
- Commission de I'Océan Indien (COI);
- Indian Ocean Tuna Commission (IOTC) which has been based in Seychelles since 1998;
- European Union (EU);

- The International Association of Aquatic and Marine Science Libraries and Information Centres (IAMSLIC).

Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean Region (RECOSCIX-WIO)

Our co-operation with RECOSCIX-WIO project is our most significant directly links to information collection and dissemination. This co-operation has benefited scientists within the region specifically in SFA. SFA became a member of the network in 1989. The project provided the SFA Documentation Centre with computer equipment for documentation use in 1991 after which UNESCO provided the bibliographic software CD/ISIS. In August, a workshop was organized by RECOSCIX with joint collaboration with IOC/KMFRI. The workshop entitled 'Microcomputer-based Marine Library Information Management' was also attended by SFA. Following the workshop, there was more awareness of the project and of its role in the region. It was therefore, after the said workshop that we really started building our electronic database in an orderly manner. As mentioned above, we started in 1991. However, since so much was gained from the workshop editing of the existing database was inevitable but then again the process of inputting progressed at a very slow pace. Inevitably, data had to be sent to RECOSCIX-WIO.

SFA continues to benefit from the project. In 1994 new equipment was again donated to our Documentation Centre as the existing one was being phased out.

1995 saw a second workshop being organized as new development was taking place within the context of the project. The workshop was entitled 'Bibliographic Database Management'. SFA was again invited to participate. During the workshop RECOSCIX was designated as the regional input centre for ASFA. However, as ASFA requires records to be abstracted it has somehow been a bit of a disappointment as scientists are reluctant to do abstracting of previously published documents. Currently SFA has a holding of around 800/900 publications of what we may call 'grey literature'. Quite a number of such holdings already exist in the SFA database.

WIOLib: SFA Documentation Centre has in the past provided records for inclusion into the WIOLib database. To-date, it is not very clear as to what extent this database has progressed.

Recently it was said that records provided by SFA have not been merged with those of other institutions because there are some duplication. This is a rather complex issue. Appended with this report is a diskette containing some records to be added to the existing database.

The document delivery services provided for by RECOSCIX has been a rather slow process whereby some documents arrived long after the scientific work has been completed. It is nevertheless true to say that scientists sometimes request documents at short notices between projects. However, SFA still has about a hundred documents outstanding.

A Chart shows our request from 1994 to 1997. No statistics are available yet for 1998. It is to be noted that 1997 has been the year when most documents were requested.

The WIOBase provided for by RECOSCIX has not been installed as mentioned above, due to the incompatibility of our Novell network. This means it only possible to search *via* the Internet. We continue to receive WIOCurrent on a regular basis, which is passed on to scientists and thereafter retained for future reference.

Conclusion

RECOSCIX is one of the very few information networks covering fisheries and other related subjects in the region. SFA benefited in terms of computer equipment, software and supply of documents through the network.

However, in order for SFA's Documentation Centre to fully carry out its mandate and keep pace with developments, it needs to be better equipped, staffed and supported by senior management staff.

RECOSCIX has the potential for more effective collaboration and resource sharing, the co-operating institutions also need to play a role in the decision making process. In Seychelles, the two Co-operating Institutions are SFA and the Ministry of Environment.

Though the Ministry of Environment has been designated as the focal point for RECOSCIX, to date it has been less active than SFA. With the rapid development of fishing or fishing related activities the need for more information for scientists, government and also the private sector has been increasing.

RECOSCIX should be commended for its achievement in collecting and disseminating information for the benefit of scientists in the region. The Seychelles Fishing Authority would like to express its interest in the continuation of the RECOSCIX project. We offer our support for this project which serves a very useful purpose in the Western Indian Ocean region.

Appendix 1

List of Journals and Serials

FAO Fisheries Reports
FAO Identification Sheets
FAO Fisheries Circular
FAO Yearbook
FAO Fisheries Catalogue
FAO Technical Guidelines for Responsible Fisheries
Food and Agriculture Legislation
FAO Legislation Study
FAO Training Series
FAO Fishing Manuals
Indian Ocean Fishery Commission
ASFA Aquaculture Abstracts
SWIOP Documents
IPTP Publications
ICCAT Data Records
ICCAT Reports
ICCAT Collective Volume of Scientific papers
UNEP Regional Seas
Canadian Journal
Australian Journal of Marine and Freshwater
  Research
South Pacific Commission
US Fishery Bulletin
UNESCO Reports in Marine Science
UNESCO Technical Papers in Marine Science
GESAMP Reports and Studies
Bay of Bengal Programme
CYBIUM
IATTC Bulletin
Reviews in Fish Biology and Fisheries

CIFA Technical Paper
International J. of Mar. and Coastal law
Cahier ORSTOM Service Océanographie
International Journal of Marine Biology and
  Oceanography
Journal Ivoirien d'Océanologie et de
  Limnologie
South African Association for Marine
Biological Research
Progressive Fish Culturist
Aquaculture Development and Co-ordination
  Programme
EIFAC Technical Paper
CIFA Technical paper
IATTC Annual Report
Development of Fisheries in Areas of the
  Red Sea and Gulf of Aden
IOC Technical Series
IOC Reports of Governing and Major
  Subsidiary Bodies
IOC Training Course Reports
IOC Manuals and Guides
IOC Workshop Reports
IOC Annual Reports Series
IOC Reports of Meeting of Experts and
  Equivalent Bodies
ASFA Marine Biotechnology Abstracts
ASFA Biological Sciences and Living
  Resources

Appendix 2

List of Periodicals

Professional Fisherman
Fishing News International
Forum Fisheries Agency
Infofish International
Pêche Maritime
National Fisherman
Official Gazette
Statistical Bulletin
IAMSLIC Newsletter
Le Marin
Bay of Bengal News
World Fishing
EC Fisheries Bulletin
ORSTOM Actualité
FFA News Digest
The Fish Inspector
Fishbyte
Regional Notes
Fishery Journal

Cistid Newsletter
Globefish Highligts
Marine Fisheries Information Science
Globefish Trade News
Equinoxe
ICCAT Newsletter
IMS Newsletter
Pearl Oyster
Indian Ocean Network
FAO Aquaculture Newsletter
Infopêche
La Lettre ORSTOM
Le Courrier
The Lobster Newsletter
Tuna Newsletter
Notre Planète
WIO Current
Out of the Shell
Our Planet
WINDOW: RECOSCIX Newsletter
Fishing Boat World

Appendix 3

List of reports published by the Seychelles Fishing Authority in 1998:

Nageon de Lestang, J. (1998). *Management of Shark Fisheries in Seychelles*

Boulle, D.; Azemia, R. (1998*). Seychelles Artisanal Fisheries Statistics for 1997*

Marguerite, M. (1998). *The Industrial Tuna Fishing activity in the Western Indian Ocean: Impact on the Economy of Seychelles*

Seychelles Fishing Authority. (1998). *Seychelles Fishing Authority Annual Report 1997*

Seychelles Fishing Authority. (1998). *Seychelles Tuna Bulletin 4th quarter 1997*

Seychelles Fishing Authority. (1998). *Seychelles Fisheries Monthly Bulletin* (January - December 1998)

Mees, C.C., Shotton, R. & Marguerite, M. (1998). *An inshore fisheries management strategy for Seychelles*
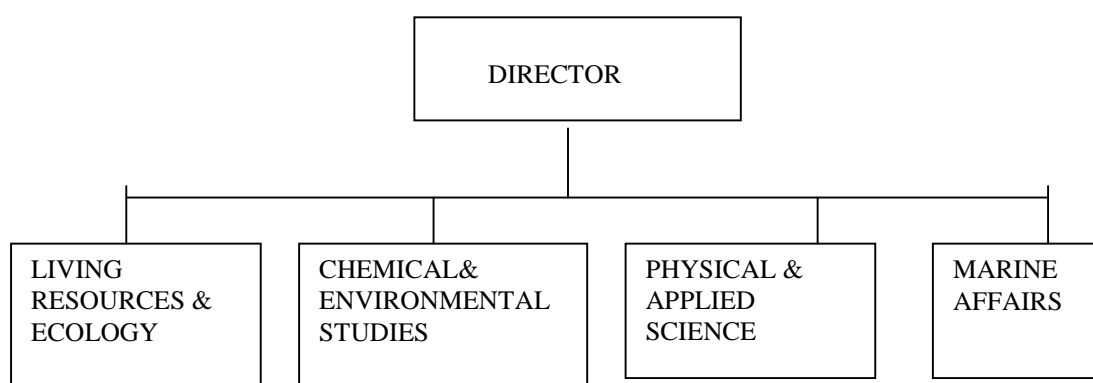
6) Institute Of Marine Sciences (IMS) (United Republic of Tanzania)

presented by Ms Edna Nyika, University of Dar Es Salaam, Librarian

The Institute of Marine Sciences, Zanzibar was established on 1 July 1979 by a resolution of the University of Dar Es Salaam Council. The main objective of the Institute is to undertake research and training in all aspects of Marine Sciences.

The Institutes research sections are as shows in the chart below:

Table 1: Organization Chart

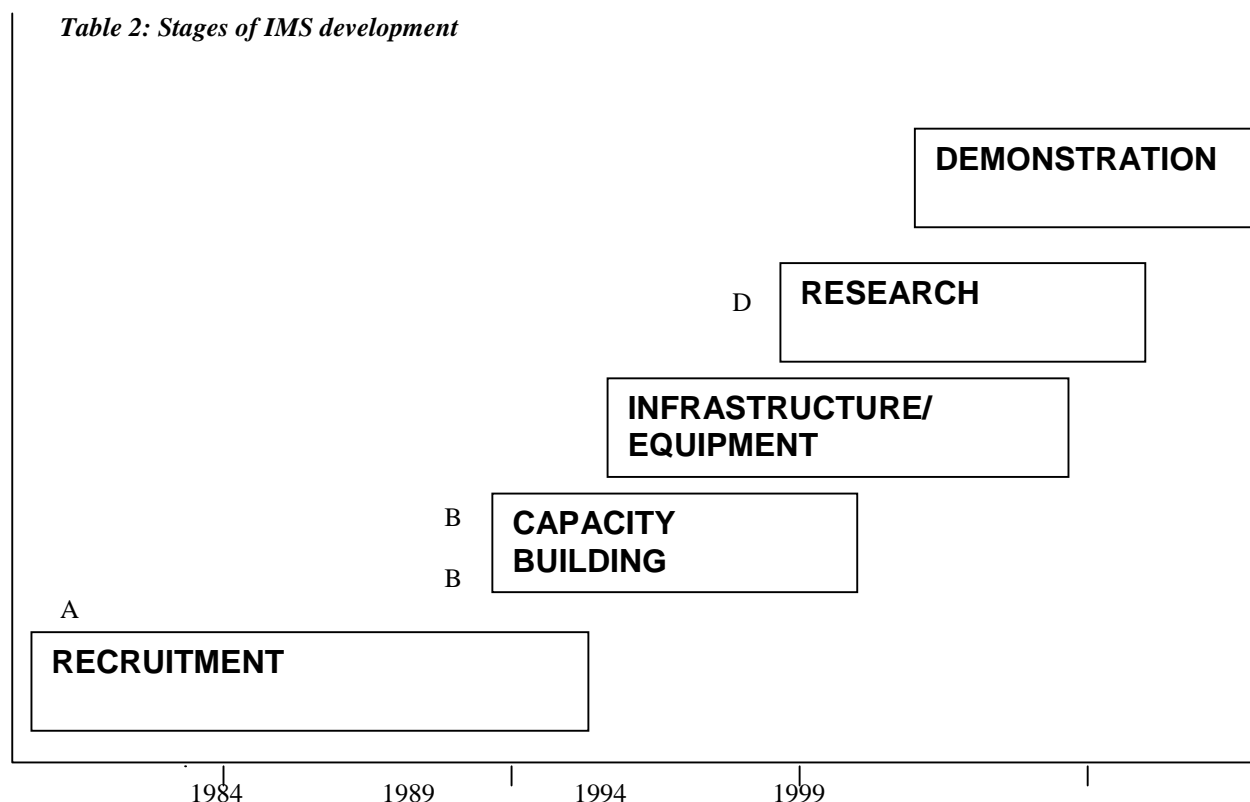The research priorities of the Institute are grouped into four domains as follows.

a) Living resources and Ecology - Includes fisheries, biological oceanography, marine botany and ecology.
b) Chemical and Environmental Marine Sciences - Includes chemical oceanography and marine pollution studies.
c) Physical and Applied Marine Science - Includes physical oceanography, marine geology and ocean engineering.
d) Marine affairs - Includes marine affairs, resources economic, and management sociological studies.

The development of IMS research activities have been in five stages. The first stage was recruitment, most of the researchers were recruited between 1979 and 1989 and had, at that time, first degrees or had just finished there first-degree studies. The next stage was capacity building; researchers were sent to different universities for graduate studies. This stage covered a period of ten years (1984-1994). To-date the institute have trained more than to the Ph.D. level. It is expected that more staff will be trained, even though most of the newly recruited staff either are Ph.D. candidates or already have Ph.D. During the period of 1989 to date the institute has invested much on infrastructure/equipment. Laboratory equipment and computers are being purchased in order to facilitate experimental sampling and data analysis. With all these development in terms of capacity building and equipment availability research activities are conducted at a high stage at the IMS. Demonstration of our research findings is our last stage and in this matter the community is always informed of what is happening at the IMS through the local media.

During its establishment, the Institute had research staff, by then there was no postgraduate students. At its tenth anniversary the Institute had 17 researchers and still no postgraduate students. Since its establishment the Institute had a well-equipped library with all popular marine science journals. The Institute's budget reflected to library needs. 10 popular journals were subscribed each year. As time passed by the Institute's budget for running the library declined tremendously. The library had to

depend on donation and exchange programmes that could not meet the information needs of researchers.

Table 2: Stages of IMS development

Status of Information Management before RECOSCIX-WIO

Information Management at the Institute of Marine Sciences has been changing as time passes by. The Institute's library inherited all publications that were deposited by EAMFRO (East African Marine and Fisheries Research Organization); this includes, research reports, books, reprints, journals and directories. This information was catalogued and classified using Dewey Decimal Classification however after being taken by the University of Dar Es Salaam we changed the system to Library of Congress. The availability of scientific information by scientists in the early 80's was reasonable. The library received a good amount of money from the government to subscribe to popular journals and to buy books. Scientists could consult most of the popular marine science journals either by getting them at the Institute's library or by getting photocopies from the University main library in Dar Es Salaam. As the economic situation worsened the amount of funds allotted for the library declined year after year. The Institute could only subscribe to three titles of journals (*Ambio, Journal of Marine Biology, Journal of Limnology and Oceanography*) this led to the fall of research performance at the Institute. As a solution to this problem the Institute had to get Information from various institutions through exchange programmes or donation.

Current Situation

The establishment of RECOSCIX-WIO by IOCINCWIO in 1989, came as a rescuer to our information access problem. Scientists have been able to request documents that are not available at the Institute from the RDC. Also for the library to build its collection we have encouraged researchers to deposit their research result at the Institute's library. These reports are listed in the WIOLib database. Listing these reports in WIOLib has some benefits. Most scientists in the region will be able to know what kinds of studies have been done at IMS. Also the results can be used by other

scientists as a beginning point for their work, as in science where one ends, that will be the other person's starting point.

The database is also accessible to all scientists and students both local and visiting as they can browse it at our OPAC (Open Public Access) positioned in the library. This OPAC is networked with other computers in the computer room so that it is possible for the scientists to access the database from the computer room.

Table 3: Status Prior RECOSCIX-WIO

YEAR	NO. OF RESEARCHERS	JOURNAL SUBSCRIPTION Titles	SOURCE OF FUNDS GOVERNMENT Tshs.
1979	7		2,500,000
1980	8	13	2,300,000
1981	5	9	2,300,000
1982	5	9	2,300,000
1983	6	9	700,000
1984	7	9	600,000
1985	6	9	-
1986	8	9	500,000
1987	12	6	500,000
1988	16	6	-

With the improvement on information access there have been,

- Increased research activities. There has been an improvement in research performance; the problem of research duplication has been controlled. Scientists have been able to read about similar works conducted in other areas of the region. Due to this development, many donors have been attracted to introduce marine science programmes at the Institute. Since 1990 we have had many programmes going on at the Institute. Through these programmes researchers have published about 15 articles a year in different popular journals and many reports have been produced in collaboration with visiting scientists from different countries. Most of these reports are deposited in the Institutes library.

- Increased number of researchers and students. There has been an increase in number of scientists and students of different levels, i.e. graduates and undergraduates.

- Increased collaboration within and outside the country. Several research programmes have been introduced and researches on different fields are being conducted in collaboration with other researchers (bilateral or regional). Also through WIODir researchers have been able to get known by other scientists in the world. Scientists have received invitations to go and give lectures at other universities in the region. Collaboration between researchers in different research programmes has been introduced by scientists working in a similar field.

- Low government funding to research activities. On contrary there have been low funding from the government, the Institute is looking for ways to be self-sustaining otherwise we have to depend whole on donor funded programmes which is dangerous.

Table 4 depicts the situation at the IMS in the past 10 years, i.e. during the existence of RECOSCIX-WIO. It shows the total number of research officers and those who have attained M.Sc and Ph.D. degrees, the number of journals subscribed and amount of funding received from the government and from donors.

Sources of Acquiring Literature
The main sources of literature acquisition at the IMS library currently come from:

- Collaborative research activities (Bilateral and regional);
- Book donation (Ranful book aid, Book aid, both companies have contributed so much in collection development);
- RECOSCIX - WIO.

Table 4: The situation at the IMS in the past ten years

YEAR	RESEARCH	MSC	PHD	J.SUB	GOVT.	DONORS $
1989	16			3		4352
1990	17	5	3	3		4352
1991	18	5	3	3		4352
1992	18	7	4	3		4352
1993	18	11	5	3		4500
1994	17	15	5	3		4500
1995	17	15	4	3		5000
1996	17	18	4	3		5000
1997	17	18	6	3		5000
1998	17	18	6	3		5000

(Source IMS Annual report 1980-1998)

Other Related Activities

Other related activities at the IMS at the moment include:

- Production of annotated bibliography. The Institute was contracted by UNEP to produce an annotated bibliography on Coastal and Marine Environmental Problems in the Western Indian Ocean Region;
- Computerization of the library services;
- ODINEA;
- Coastal and marine resources database;
- Directory of coastal and marine scientists working in Tanzania; this list will also be used to update a WIODir data.

Problems

Every performance must have some shortfalls. In this case IMS performance in data entry faced some problems. The Institute had problems with ASFISIS programme for almost eight months. The programme was not responding to data entry commands. It skipped some of the entries or repeated them several times. It also couldn't update. We called the RDC for technical help, which we got but still the problem persisted. We were left in suspense as we didn't know whether it was a programme's problem or the machine had too little memory to hold the data (386). We decided to call the RDC for another help this time we were lucky as the Technical manager managed to rectify the problem.

We expect the machine and the programme will work perfectly as we intend to finish data entry by Dec. 1999. We would also suggest that new machines be bought for the co-operating libraries. The machine that was bought in 1992 can not handle all the data especially in libraries that receive a lot of reprints and reports.

7) Kenya Marine & Fisheries Research Institute (Kenya)

presented by Ms Janet Mwobobia, Senior Librarian

The Institute was founded to take over the functions of the former East African Marine Fisheries Research Organization (EAMFRO) and the East African Freshwater Fisheries Research Organization (EAFFRO) whose functions ceased when the East African Community (EAC) collapsed in June, 1977. The Institute is a government organization under the authority of the Ministry of Research, Technical Training and Technology. It is administered by a Board of Management constituted under the Science and Technology (Amendment) Act of 1979.

Research mandate

The research mandate of KMFRI is defined by article No. 4 of the science and Technology Act of 1979. The Institute is empowered to carry out research in Marine and Freshwater Fisheries, Aquatic biology, Aquaculture, Environmental Chemistry, Ecological, Geological and Hydrological studies, as well as Chemical and Physical Oceanography. More specifically, the role of KMFRI include:

(a)   Research on fish population dynamics and general water ecology, including identification of commercially and ecologically important species, their distribution and stock assessment;

(b)   Collecting and disseminating scientific information of fisheries resources which will form the basis for their utilization;

(c)   Studying and isolating suitable fish species for culture both in marine and freshwater, and develop or adopt rearing technology and procedures;

(d)   Establishing a marine and freshwater collection to be used for research and training purposes;

(e)   Carrying out studies on other marine and freshwater resources including algae and minerals;

(f)   Offering its facilities for training for personnel;

(g)   Monitoring pollution in fresh and marine waters;

(h)   Study chemical and physical processes identified as important to aquatic productivity;

(i)   Carry out socio-economic research on topic related to fisheries environment and other aquatic resources.

Library Systems

KMFRI Library system is composed of eight libraries with diverse collections. Included in the system is the headquarter library, Mombasa, which serves as central Library but stocks materials relevant to marine sciences. All the other libraries provide information relevant to freshwater sciences.

The KMFRI Library has been more fortunate than most libraries in the region. In the early eighties, the library subscribed to 100 journal titles. However, as the library's buying power diminished from 1984, we became dependent on donor funds for book purchases. From 1985 onwards, the library started receiving photocopies of documents from "Limburgs Universitair Centrum" (LUC) under the umbrella of the Kenya-Belgium Project in Marine Sciences sponsored by the Belgium Government. Therefore, scientists had no excuse for lack of information for research and studies.

Coverage
The library aims to cover the whole of marine and freshwater sciences, including aquaculture, aquatic botany, fisheries, limnology, marine biology, marine geology, oceanography (biological, chemical and physical), pollution control, coastal zone management and conservation, fish processing and preservation, natural products and socio-economics.

Users
The Major purpose of the library is to serve the users, therefore the user population and their research interests are essential factors in planning. The main users are the scientific and technical staff of the Institute, though the services are extended to management and administrative staff. Visiting scientists who are attached to the external aided projects, polytechnic studies, undergraduate students and postgraduate researchers attached to the Institute from our local universities, lecturers, etc. also make considerable use of the library. KMFRI has a population of over about 100 Scientists and 160 laboratory technicians and technologists.

Staffing
The whole library network has 5 Librarians, 5 Library Assistants, 6 Clerical Officers and 2 Computer Operators and 1 Typist. Their job descriptions are varied but they are flexible and able to switch from one job to another as need arises, while working as a team.

Acquisitions
KMFRI has no acquisition policy. The publications have been acquired directly from the publishers.

The library has experienced some problems in its acquisition process. Lack of funds, inflationary pressures and high cost of scientific literature have been the major constraints. However, alternative methods have been used to procure various publications.

Firstly, gifts and exchange of programme with both regional and international organizations.

Secondly, the library is designated as depository and national focal point of FAO, IOC, UNESCO, UNEP, IUCN, WMO, thereby receiving their publications free of charge.

Thirdly, earnest appeal for book donations was made to the British Council and the library benefited from their ODA Book presentation programme.

Publications mostly acquired are reference materials, books, monographs, theses, conference proceedings, reports, preprints, reprints, abstracts, journals, and pamphlets.

The collection
Selection of publications for the stock of the library is closely related to the interests and needs of the users and is within the framework of the KMFRI mission.

Selection of publications is done only when funds are made available by donors. Information sources are monitored on the availability of newly published materials. These include catalogue of publisher, book trade - bibliographies, reviews announcements and advertisements in scientific journals. Library users are a valuable information resource and are encouraged to provide references of relevant newly published materials.

The Book stock stands at 4,000 Volumes, 7,000 reprints, and 5,000 volumes of back issues of periodicals from 220 closed and active tittles. Current periodicals subscriptions are 70 of which 10 tittles are subscribed by RECOSCIX-WIO Project. While periodicals are unclassified and arranged

alphabetically by tittle, with cardex as the key to locating the holding, all books are catalogued using Anglo-American Cataloguing Rules and Cataloguing in Publication (CIP) data are also used. Classification is carried out using Dewey Decimal Classification (DDC) Scheme. Records for books are filed in the catalogue located in the Mombasa Library and in the WIOLib database together with the reprints. In 1996, the KMFRI Library holdings and RDC holdings were reorganized and merged together.

Library services
- Acquisitions (records of publications received)
- Loans (records of borrowers)
- Serials (Check-in periodicals)
- Cataloguing (Preparation of catalogue cards)
- Storage and retrieval of materials
- Indexing and data-inputs
- Classifying of books and shelf maintenance
- Reference service
- Provision of document requests

Information Services
Information services are provided jointly by the library and RECOSCIX-WIO projects to the scientists of KMFRI network. These include marine and freshwater scientists. It should be noted also that KMFRI and RECOSCIX-WIO are synonymous. This is because the project regional Co-operation in Scientific Information Exchange in the Western Indian Ocean (RECOSCIX-WIO) is located at KMFRI and operates jointly with the library.

Information services consists of:
- Current awareness service (WIO CURRENT);
- Literature searches (QUERY HANDLING);
- Provision of scientific documents (Document delivery);
- WIOLib (The computerized catalogue of the library holdings of the region) searched through Intranet and WIOBASE;
- *WINDOW* newsletter distributed to all the institute scientists in the mailing list;
- Procurement of books and periodicals;
- E-mail and Internet services facilities communication between the scientists in the region;
- Training of Library Staff;
- Provision of equipment and software.

Automation
In order to face the challenge through the use of computers, KMFRI library with the support of RECOSCIX-WIO has computerized its library holdings using ASFISIS software. The first database was created using MIBIS Structure. The database created using MIBIS was converted to ASFISIS when it was introduced in 1995. CD-ROM technology is available in the library. Currently, there are two computers in the library providing the following services:

- Data entry in the WIOLib database
- ASFA inputs
- Word processing
- E-mail facilities
- ASFA CD-ROM searches
- Open Public Access (OPAC) through intranet
- LAN (Local Area Networking)

ASFA Input
KMFRI was accepted as an ASFA (Aquatic Sciences and Fisheries Abstracts) input centre in an ASFA Advisory Meeting held in Tianjin, China in October 1994. It is the only input centre in Africa and hence, it has become a regional input centre for the Western Indian Ocean (WIO) region in order to cover a wider geographical area. So far 195 records have been submitted to Cambridge Scientific Abstracts (CSA) for inclusion in the ASFA CD-ROM.

Way Forward
The creation of institutional and regional information and communication infrastructure is both a challenge and an opportunity to accelerate development in the spheres of the information provision. A key strategy is that of pooling resources together. Co-operative efforts can be useful at each link of the information among similar national institution to:

- the establishment and maintenance of regional journals;
- joint productions of CD-ROMs;
- joint training programmes.

The challenge is therefore, for the information professionals in the region to plug ourselves into the information super highway and exploit the relevant technologies to make information available to the user in a faster and reliable manner. Through networking, we will be able to manage the massive information explosion. Co-operation is no longer a choice, it is a necessity.

In conclusion KMFRI congratulates RECOSCOX-WIO as it celebrates its 10 years of successful service to the region. KMFRI is pleased to be associated with RECOSCIX and appreciates information activities it has and is still doing for the region.

ANNEX IV

Regional Co-operation in Scientific Information Exchange in the Central Eastern Atlantic (RECOSCIX-CEA)

Mr. Yacouba Sankare, Project Co-ordinator RECOSCIX-CEA

Mr. Sankare presented the institutional set-up of the Centre for Oceanographic Research (CRO), Côte d'Ivoire. He also provided information on the development of the RECOSCIX-CEA project. This project which was launched in 1993 comprises 16 institutions derived from 15 IOC Member States: Angola, Benin, Cameroon, Cape Verde, Congo, Côte d'Ivoire, Gabon, Ghana, Guinea, Guinea Bissau, Mauritania, Morocco, Nigeria, Senegal, and Togo. The pilot phase of this project was from 1994-1998.

The RECOSCIX-CEA project plans to produce a directory of marine scientists in the region, a brochure, a newsletter, a directory of co-operating libraries and a CD on data derived from activities of CRO. The activities undertaken include query handling and input of ASFA database. Training opportunities in India and Burkina Faso have been provided to some project staff.

The working plan for this year, 1999, will involve gathering information, responding to invitations and making contacts with similar projects such as RECOSCIX-WIO. It also schedules the establishing of the CEADIR (the regional equivalent of WIODir), the publication of a newsletter, the attendance to some training courses and the organization of a RECOSCIX-CEA Workshop.

For all these, he looks forward for collaboration and guidance from RECOSCIX-WIO.

So far, the main problem envisaged will be that of the language barrier as the region has three official languages of communication English, French and Portuguese.

ANNEX V

INTERNATIONAL ASSOCIATION OF AQUATIC AND MARINE SCIENCE LIBRARIES AND INFORMATION CENTRES (IAMSLIC)

Mrs. Martha Pretorius

Mrs. Martha Pretorius, from the Water Research Commission of South Africa, who is also the regional representative for Africa for the International Association of Aquatic and Marine Science Libraries and Information Centres (IAMSLIC), highlighted the activities of IAMSLIC and its possible linkages to RECOSCIX-WIO project.

Who and what is IAMSLIC?
International Association of Aquatic and Marine Sciences Libraries and Information Centres IAMSLIC is an association of individuals and organizations interested in aquatic and marine information sciences. The association provides a forum for exchange and exploration of ideas and issues of mutual concern.

IAMSLIC Regional Groups:
- Europe Association of Aquatic Sciences Libraries and Information Centres (EURASLIC)
- South Pacific
- Africa
- Cyamus (west coast of North America)
- Southeastern Association of IAMSLIC Libraries (SAIL, Southeast Atlantic states, Gulf coast and Caribbean)

IAMSLIC Members in Africa
- 24 members
- 16 with fax numbers
- 13 with E-mail addresses

Main regions:
- Northwest Africa (10)
- East Africa (6)
- South Africa (7)
- Seychelles (1)

Based on the survey she conducted via E-mail and fax, she received the following comments and recommendation to the questions she asked.

Questions asked
- Is there a place in Africa for two very similar organizations?
- IAMSLIC and RECOSCIX have marine focus. Is there a need for a freshwater initiative?
- Should IAMSLIC focus on sub-regional activities (e.g. English/French or North/South)?

It was not very easy to receive response to these because of various communication problems:
- Communication problems

- Not all E-mails successful
- Two fax messages failed

Results

- Total of 13 people contacted (56% of Africa membership
- Response received from eight people (35% of Africa membership 61% of people contacted)

Comments received

QUESTION	Yes	No	Recommendation
Two organizations	3	4	• RECOSCIX could affiliate with IAMSLIC • Organizations differ enough to be mutually supportive • Organizations should have regular contact • Separate activities along regular contact • RECOSCIX has vital role in document request and information delivery
Freshwater initiative	6	1	• Huge need for freshwater focus in Africa • IAMSLIC already covers freshwater info-expand and use as basis • Incorporate freshwater into marine information environment
Sub-regions	3	3	• Arrange workshop to discuss • Lack of communication links harms initiative

ANNEX VI

PRE-WORKSHOP COURSE FOR LIBRARIANS
12-13 April 1999

The short training course was held to introduce librarians of the Co-operating Institutions to developments in electronic library database management, electronic document delivery and also to provide them with a forum to discuss some of the problems they have been having with the ASFISIS software.

Mr. Mika Odido, the RECOSCIX-WIO Project Co-ordinator welcomed the participants to the training course and requested them to introduce themselves. He apologized to the French speaking colleagues that the workshop would be conducted solely in the English language. He reiterated that library staff in the region should provide information to scientists of what is currently available. The scientists can not be effectively assisted if they are not aware of what is at their disposal.

A survey was made on the software used by the different libraries. And the response was:

National Museums of Kenya (NMK)	- CDS/ISIS
University of Nairobi (UoN)	- CDS/ISIS
Seychelles Fishing Authority (SFA)	- CDS/ISIS
Institute of Marine Science (IMS)	- ISIS/MIBIS
Instituto Nacional de Hidrografia e Navegaçăo (INAHINA)	-ISIS
Lake Victoria Environment Monitoring Programme (LVEMP)	- CDS/ASFISIS
Kenya Marine and Fisheries Research Institute (KMFRI)	- CDS/ISIS, ASFISIS

These pieces of software are mainly used for library databases, Circulation Control, and improvement on their searches. He concluded by asking the question, "How will library automation help in making information exchange more effective?"

Prof. Egbert de Smet of the University of Antwerp (Belgium) provided an overview of the ASFIS system, ASFA and the ASFISIS software. He reminded the participants that RECOSCIX-WIO is an input centre for ASFA. He indicated that there are plans to produce a *WINDOWS* version of CDS/ISIS.

Mr. Peter Pissierssens introduced the Filemaker software and demonstrated its possible use for developing library databases.

Mr. Samuel Ng'ete introduced the ARIEL software used for electronic document delivery and demonstrated it use.

The afternoon and the second day were used for demonstration of the software used for library databases and electronic document delivery. The topics covered were:

- Installation of ASFISIS
- Exercises of the ASFISIS
- Installation of FILEMAKER
- Exercises on FILEMAKER
- Installation of ARIEL Software (Electronic Document Delivery)
- Exercises on ARIEL

The participants were impressed by the possibilities offered by the software.
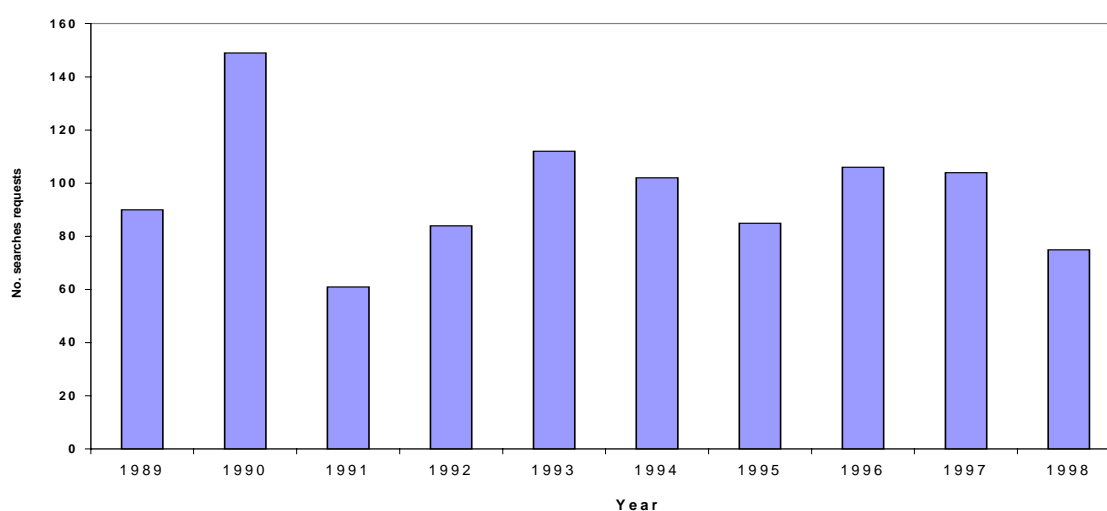
ANNEX VII

RECOSCIX-WIO Service Statistics 1989-1999
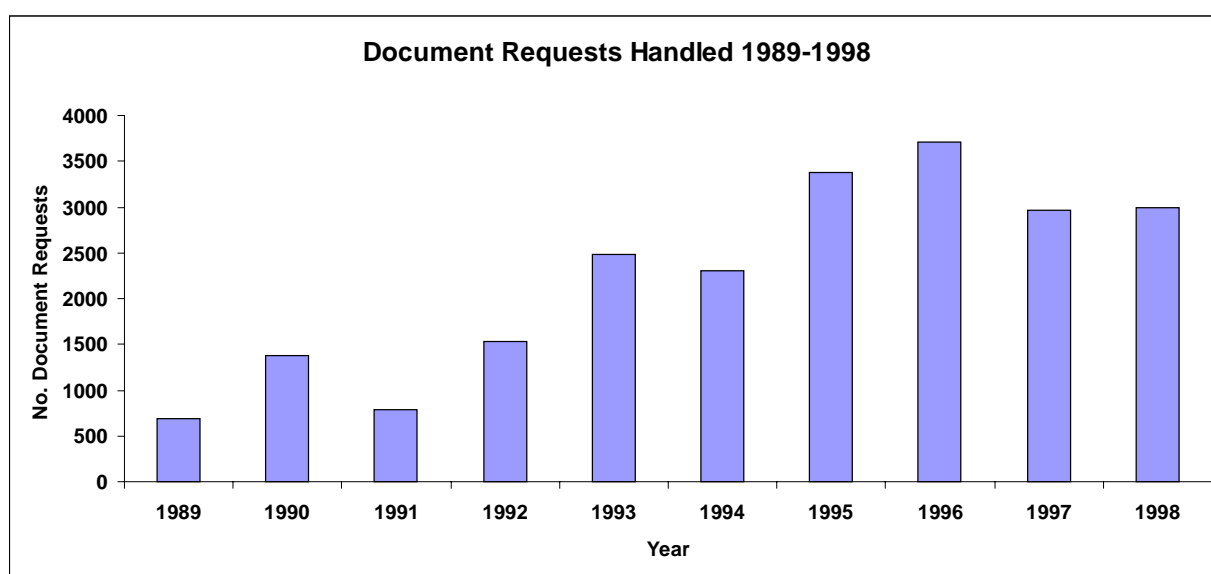
1- Query Handling Statistics

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998
No. Requests	149	61	84	112	102	85	106	104	75
No. references	12,575	5,150	6,430	11,598	15,857	13,695	10,286	8314	6800
References/ requests	84.4	84.43	76.55	103.55	155.46	161.12	97.4	79.94	90.7

Literature searches requests 1989-1998

2- Document Delivery Statistics

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
689	1386	785	1537	2476	2310	3379	3714	2964	2987

ANNEX VIII

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ANNEX IX

LIST OF ACRONYMS

ASFA	Aquatic Sciences and Fisheries Abstracts
CD-ROM	Compact Disc with a Read-Only Memory
Cis	Co-operating Institutions
CLs	Co-operating Libraries
DNA	Designated National Agency
GLODIR	Global Director of Marine (and Freshwater) Professionals
IAMSLIC	International Association of Aquatic and Marine Science Libraries and Information Centres
IHSM	Institut Halieutique et des Sciences Marines, Madagascar
IIP	Instituto de Investigaçao Pesqueira, Mozambique
INAHINA	Instituto Nacional de Hidrografia e Navegação, Mozambique
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINCWIO	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean
IODE	International Oceanographic Data and Information Exchange/IOC Committee
KMFRI	Kenya Marine and Fisheries Research Institute
LUC	Limburgs Universitair Centrum, Belgium
MASDEA	Marine Species Database for Eastern Africa
MEDI	Marine Environmental Data Information Referral System/IOC
NMK	National Museums of Kenya
NOAA	National Oceanic and Atmospheric Administration, USA
NODC	National Oceanographic Data Centre
ODINAFRICA	Ocean Data and Information Network for Africa/IODE
ODINEA	Ocean Data and Information Network for Eastern Africa/IODE
PACSICOM	Pan African Conference on Sustainable Integrated Coastal Management
RDC	Regional Dispatch Centre
RECOSCIX-CEA	Regional Co-operation in Scientific Information Exchange in the Central Eastern Atlantic/IOCEA
RECOSCIX-WIO	Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean
SAREC	Swedish Agency for Research Co-operation with Developing Countries
Sida	Swedish International Development Authority
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VLIR	Flemish Inter-University Council
WINDOW	Western Indian Ocean Waters Newsletter
WIODir	Western Indian Ocean Directory of Marine Science Institutions and Scientists
WIOLib	Western Indian Ocean Library Holdings Database
WIOMSA	Western Indian Ocean Marine Science Association