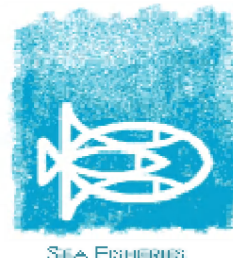


Intergovernmental Oceanographic Commission
Workshop Report No. 164



IOC-Sida-Flanders-MCM Third Workshop on Ocean Data Management in the IOCINCWIO Region (ODINEA project)

Organized in cooperation with:
Chief Directorate for Marine & Coastal Management of South Africa
(former Sea Fisheries Research Institute)

Cape Town, South Africa
29 November–11 December 1999

UNESCO

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 - 4. SEYCHELLES FISHING AUTHORITY
 - 5. CHIEF DIRECTORATE: MARINE & COASTAL MANAGEMENT, SOUTH AFRICA
 - 6. INSTITUTE OF MARINE SCIENCES, TANZANIA
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1. INTRODUCTION AND OBJECTIVES

The third regional workshop on Ocean Data Management for the IOCINCWIO region was held at the Marine and Coastal Management Department (former Sea Fisheries Research Institute) in Cape Town, South Africa from 29 November to 10 December 1999. The objectives of the workshop, which was organized within the framework of the Ocean Data and Information Network in Eastern Africa (ODINEA) project funded by IOC, Sida and Flanders were: (i) review the progress made in development of NODCs and DNAs in the IOCINCWIO region, (ii) provide in-depth data management training, (iii) develop work plans for ODINEA for the year 2000.

The first workshop held in Mombasa, Kenya in 1997 was designed to provide training on the fundamentals of PC operations with standard computer utilities and Microsoft programmes (Excel, Access and QuickBasic). In addition to further exploration of these programmes, the participants were introduced to other programmes for in-depth quality control and analysis of data as well as new technologies for data dissemination during the second workshop also held in Cape Town in 1998 (IOC Workshop Report No. 154).

By the end of 1998, all the participating institutions had received computer equipment and software to enable them to start the development of their data centres. Most of them were also provided with some seed money for operational expenses in early 1999. This workshop therefore provides an opportunity to assess the development of the centres, identify hitches or constraint that arose during the course of the year, and suggest remedial measures that need to be taken to ensure that the data centres are operational.

2. PARTICIPANTS

Participants attended the workshop from Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa and Tanzania. Only two of the participants present during this session did not attend the second session in 1998 (i.e. participant from Madagascar who had missed the session due to travel difficulties and an additional participant from the host institution). Invited resource persons from Australia, United States of America, Kenya and IOC provided lectures.

3. COURSE PROGRAMME

3.1 OPENING CEREMONY

The Deputy Director of Marine & Coastal Management Department Dr Andrew Payne, on behalf of the Director-General Dr Mayekisho, opened the workshop. In his opening remarks Dr Payne re-iterated his institute's continued support for the development of the ODINEA project. He was gratified by the confidence the group demonstrated in the institute by requesting them to host the workshop again when it became apparent that it was not going to be possible to hold it at the originally planned venue. He once again welcomed the participants to Cape Town and wished them a successful workshop.

The representative of the Flanders Government, Dr Rudy Herman re-affirmed his government's commitment to the development of the Ocean Data and Information Network in Africa. He expressed the hope that the objectives, which were set at the beginning of the project, will be achieved.

The regional ODINEA coordinator Mr Mika Odido noted that the IOCINCWIO had recognized the importance of oceanographic data and information management right from its first session in 1982. The setting up of the RECOSCIX-WIO network, and the successful implementation of its objectives encouraged the Member States to start on the development of ODINEA. IOCINCWIO has emphasized the importance of acquiring, processing, analyzing and interpreting data collected within global

experiments like TOGA and WOCE so that the results can be used within the region. The data centres set up in the region will therefore have to seriously address this need.

3.2. REVIEW OF ACTIVITIES OF NATIONAL CENTRES IN 1999

The main objectives of the first phase of ODINEA were (i) capacity building, (ii) official establishment of DNAs/NODCs, and (iii) the setting up of national meta-databases. The participants gave presentations on the development status of their respective centres (Annex III).

The participants gave presentations on the development status of their respective centres. Following the presentations, the participants identified some of the constraints, which hampered progress in the various data centres and made the following recommendations for addressing them:

- The centres should aim at giving useful service to scientists by availing catalogues of datasets available, actual data, and tools for analyzing data. Where the data is not available, they should be able to guide the users to where they can get the data.
- In order to gain the confidence of the scientists the centres must convince them that their data is secure. Having and following a data policy that respects the wishes of the originator of data can do this.
- The centre should archive the data in the original format so as to provide originators with back up. Regular back-ups of the complete holdings of the centre should be made and kept off-site.
- The centres should quality control the data and inform originators of data of any problems.
- The institutions hosting the data centres should consider employing full-time managers. Where this is not possible, then the data-management work should contribute to the advancement of those working in the data centres.
- In order to keep track of the activities of the centre, a log of all data/information received and requests for data/information must be maintained. This can also be used to demonstrate the importance of the service.
- The centres should build a customer base and a constituency by advertising available data and services. They must always keep in mind who their end user is and lobby for their support.
- In order to strengthen links with other organizations, the centres should:
 - Develop and cultivate working relations;
 - Develop joint data-management programmes;
 - Assist in developing institutional databases;
 - Assist in training institution data liaison personnel.
- The data centre staff should communicate regularly with other centres in order to check data, and data sources. Regular use should be made of the ODINEA listserv.
- The data centres should develop formal links with national coastal management committees, and show how they fit in national and international programmes.

3.3 LECTURES AND PRACTICALS

3.3.1 Developing databases and publishing them on the web using FileMaker

The first lesson was on FileMaker basics and covered: (i) working with modes, (ii) creation of a simple FileMaker database, and (iii) formatting fields to display lists of predefined choices.

In the second lesson the participants were introduced to the development of relational databases (in FileMaker). Topics covered: included match fields, creating relationships and simplification of data entry by use of related tables.

In the third lesson the participants had hands-on training on the use of FileMaker connection assistant to create a dynamic database (web publishing). They also created format (HTML) files via Claris Home Page.

The participants were given the following exercises to do:

Exercise 1: Creation of a simple database using a few fields in the Cruise Database from the class CD-ROM.

Exercise 2: Creation of a simple relationship between the three tables in the cruise database viz: (i) Cruise table, (ii) Stations (iii) Observations

Exercise 3: Creation of a dynamic version of "CRUISE DATABASE", i.e. makes it possible for users to search, add new records, etc. via the web.

3.3.2 Introduction to JavaScript

The participants installed the Java development kit Java 2 SDK v1.2.2 (available at: http://java.sun.com/products/jdk/1.2/jdk1_2_2-001-win.exe)

They went through the Java Programming Cycle:

- Write the source code using any editor.
- Save the code as *<programme name>. JAVA*
- Compile the Intermediate code by typing **JAVAC *<programme name>. Java*** at the Command Prompt creating a new file *<programme name>. Class* that contains the intermediate code that will run on any platform.

The participants then practiced running this as an applet (in a browser), or as an application.

They were then introduced to JavaScript and explored its strengths and weaknesses compared to Java.

3.3.3 Building Websites

The participants were introduced to website authoring using Claris HomePage. This software was chosen because of:

- The inbuilt templates which enable the building of basic sites within minutes;
- The inbuilt FileMaker Connection Assistant which enables you to create HTML pages (forms) required to search, edit, add, delete records in your FileMaker databases;
- The possibility to use the Web Companion webserver, part of FileMaker for testing and for your Intranet.

They practiced developing a website for an NODC using Claris Home Page, availing the website on an Intranet and uploading it to a webserver. They also learnt how to customize databases, and avail FileMaker databases over an Intranet and the Internet.

3.3.4 IODE Resource Kit

The participants explored the data and tools available in the IODE Resource Kit. The resource kit has three modules:

Module 1

This module is the Oceanographic Data Centre-in-a-box Handbook and describes the IODE system in addition to providing training tools for data and information management.

The module includes the *IOC Ocean Data Classroom*, which is an intensive classroom workshop in the use, management, and analysis of common data formats in marine science, together with a survey of some of the principal software programmes needed to manipulate/analyze these data. A carefully selected set of sample datafiles is also provided for the workshop. All of the formats, programmes, and datafiles used here are linked to the literature and to appropriate World Wide Web sites for further study. Using the schematic diagrams as basic training materials, the Ocean Data Classroom begins with a brief history of the concept. Next, some classical datasets will be studied within fairly simple graphing and quality control routines. Then the Workshop will proceed through some very interesting and easy data conversions and manipulations, leading to fairly sophisticated syntheses with state-of-the-art binary analysis routines.

Module 2

This module, which is also called the IODE Reference Centre, provides a comprehensive library of information, data and software resources related to Oceanographic Data and Information Management. The Reference centre comprises three chapters:

Chapter 1: Electronic Library (Manuals, Guides and other reference documents)

Chapter 2: Virtual Library (Relevant WWW sites)

Chapter 3: The Toolbox (useful software resources)

Module 3

This is the IODE Ocean Data Publications Index. Due to the large size of the Module 1 and Module 2 materials (and especially to the large number of files, >7000) this entire index has been moved to the accompanying Data CD for the IOCINCWIO region.

The collection of ocean data contains extracted climatological data from many datasets published on CD-ROMs (and a few others downloaded from the Internet. In nearly all cases, only monthly, seasonal, or annual mean climatological fields were used. Exceptions to this practice include the Pathfinder satellite data (the decade from 1990-1999 is included), and hydrographic station data files (all available data were included). This means that many useful collections, which contain valuable synoptic data but no climatological files, were not used. These unused datasets are still cited here to aid the user.

Because comprehensive marine resource management programmes require many types of data from adjacent coastal areas and from related disciplines, great latitude was taken in selecting the files (e.g. soils and vegetation are included, but only at gross scales for broad assessment purposes).

When practicable, global datasets have been subsetting to provide only the data within the IOCINCWIO region, nominally taken to extend from 20° E to 70° E, and from 10° N to -50° S, shown on the Home Page. In other cases, complete global datafiles are provided along with extraction software published by the providers (although these programmes often do not work very well). All included datafiles are accompanied by documentation that should be sufficient for the programmer-user to write extraction programmes, or to load the data into browser programmes for viewing and/or subsetting.

4. DATA POLICIES

The participants reviewed data exchange policies at established centres like AODC, ICES and the WOCE and compared these to the situation prevailing locally.

The majority of institutions in the region did not have a policy on access to data. In many cases access is through individual scientists who have collected the data, except in instances when the data has been collected within the framework of multi-disciplinary projects in which several scientists are participating.

It was agreed that each of the centres would try to develop a data exchange policy and a mission statement during the coming year.

5. ODINEA-GODAR LINKAGES

The activities of the GODAR project were presented. The archiving of data has been poor in many of the institutions in the region. This has led to loss of useful information, which had been collected at high costs. The data centres in the region should seek, process and archive all available data collected from the region. This includes those stored in data centres out of the region.

The participant also had an overview of the activities of the US-NODC, their data policies, and the products and services that they provide.

6. WORK PLANS AND BUDGETS FOR 2000

The budgets in the following table were discussed and agreed. These were based on the National Work Plans and Budgets, which are given in Annex IV.

The following will be expected from the participants in the coming year:

1. Mission statement
2. Policy statement
3. Website
4. Metadata directory
5. Data report 1999
6. Annual report 1999
7. Quarterly reports 2000 (15 April 2000, 15 July 2000, 15 October 2000, 15 January 2001), including statistics of usage of services
8. Products, especially those developed from TOGA datasets, and WOD98

In the coming phase of the project, the target will be to set up a national data archive, set up national mechanism for management of data flow, develop and disseminate data and information products.

PROPOSED BUDGETS FOR 2000

Below are the proposed budgets for 2000. Detailed work plans and breakdown of proposed Expenditure for each of the centres is provided in the annex for national reports

	Tanzania	South Africa	Seychelles	Mozambique	Mauritius	Madagascar	Kenya	Regional	Allocation	Balance
Infrastructure support	3500	5600	3800	3200	3250	6800	4000	5000	13000	-13950
Operational expenses	9188	2000	2000	1500	3600	5100	9200	2000	24000	-7088
Internship NODC	6000			6000	6000	6000			16000	-2000
Internet Access	5000	200	2500	3000		2000	4000	1000	36000	22300
Participation in ASFA input							1300		9000	7700
Provision of ASFA to NODC	3000		3000		3400	3000	4000		27000	10600
Local Travel/per diem				1500						
Metadata Publications				1500						
Thematic Chart production				2000						
Purchase of data				1500						
Consultancy/Contracts				2500						
Over-time expenses				2500						
MEDI conversion								1000		
CruiseDB conversion								1000		
Software								2000		
Total	26688	7800	11300	25200	16250	22900	22500	12000	125000	17562
Workshop									30000	
Mission Flemish Coord									3000	
PLANNED GRAND TOTAL									158000	

GRAND TOTAL 119438
BALANCE 3856

ANNEX I

WORKSHOP PROGRAMME

	MAIN AGENDA ITEM	PERSON RESPONSIBLE	COMMENTS
Monday Nov 29	Opening session Presentation of national progress reports & discussions on national meta-databases using MEDI	SFRI (tba); IOC (PP)/Odido	Presentations expected by Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania
Tuesday, Nov 30	Development of meta-database retrieval system using intranet/internet for serving users	Reed/Angwenyi/Pissierssens	Demo; technical training; self study (possibly with conversion of Access to FileMaker)
Wednesday, Dec 1	Building an NODC data archive using RDBMS (Access and/or FileMaker; Oracle)	Reed/Angwenyi/Pissierssens	Demo; technical training; self study
Thursday, Dec 2	ODINEA and GODAR; Quality Control of marine data at the NODC- Ocean Climate Lab	Gelfeld	Description of GODAR project, GODAR products How to participate in GODAR (QC); practical aspects of receiving, checking, and archiving data from numerous sources
Friday, Dec 3	National data policies; national arrangements for data archiving (/w examples) Workplans for 2000	Brown, Gelfeld, Reed, PP, Brundrit, Odido	General discussions on what should be the role of the data centre, who should it serve and how can we serve (round table)
Saturday, Dec 4	NA-Weekend		
Sunday, Dec 5	NA-Weekend		
Monday, Dec 6	IODE Resource Kit	Brown/Reed/Pissierssens/Angwenyi	Introduction of the Kit Installation self study
Tuesday, Dec 7	Introduction to JAVA, XML	Reed/Angwenyi	Lecture: Javascript, Java applets, tools to build them Self study
Wednesday, Dec 8	Building websites; website database ("dynamic") interfaces	Reed/Pissierssens	Full installation of Claris Homepage, FileMaker 4.1 and integration of javascripts/applets with sample databases
Thursday, Dec 9	Resource Kit: Introduction to IODE Data Centre Module	Brown/Reed/Pissierssens	Data CD, How to work with data and programmes. Road Maps
Friday, Dec 10	RECOSCIX-WIO data and information; ODINAFRICA-II status report. Final Workplans & Budgets for 2000	Odido/Pissierssens	

ANNEX II

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ANNEX III

NATIONAL REPORTS

1. KENYA MARINE & FISHERIES RESEARCH INSTITUTE

1. *Name of Data Centre*

The Kenya National Oceanographic Data Centre

2. *National IODE Co-ordinator*

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3. *Data Centre Address*

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4. *Data Centre URL: (planned)*

5. *IODE Data Centre Designation Date:*

The Kenya National Oceanographic Data Centre was designated an IODE Data Centre in 1997.

6. *Data Centre Description*

The Kenya National Oceanographic Data Centre (KeNODC) was established in January 1997 and became operational shortly thereafter.

The Kenya National Oceanographic Data Centre undertakes to carry out management of information to enhance use of data in planning and management of Kenya's coastal resources, in line with National policies of the country, while contributing also to shared aspirations of International initiatives.

Presently KeNODC operates with a staff of four persons, two scientists and one support staff. In addition the Centre is setting up scientific liaison offices as a link with various programmes and also to incorporate specialized skills from a number of disciplines.

7. *Brief History*

KeNODC is operating within the mandate of Kenya Marine and Fisheries Research Institute (KMFRI). KMFRI is a government agency set up to carry out studies in Kenya's aquatic areas for use in proper management of aquatic resources.

KeNODC is presently provided with a furnished office space housing both the personnel and equipment. KMFRI is providing both the salaries of the said personnel.

8. *Roles and Responsibilities of the Data Centre*

The Data Centre has been in existence for a short time. The resources are still geared towards meeting national demands for data management.

9. *Data Centre Projects and Activities during the year 1999*

(i) **Survey of data sources**

Objective: Provide comprehensive description of existing data and information on marine and coastal environment of Kenya for reference by interested parties.

Outputs: The KeNODC designed survey questionnaires to help in describing these data sets and a number of visits have been accomplished in covering National institutions and individual researchers.

Financial support: IOC-UNESCO/Government of Kenya

(ii) **Implementation of computerized meta-data**

Objective: Avail information efficiently on existing data and information on marine and coastal environment held by local institutions and other datasets received at the KeNODC arising from the World Data Centres, RNODCs and other data management programmes.

Output: The KeNODC has now developed a meta database. The database is implemented in Ms-Access'97.

A review was done of the MEDI Data Directory as well as the Marine and Coastal Data Directory of Australia (Blue Pages) Version 1.0, as a basis of this work.

The structure of the data directory consist of two (2) tables, containing the actual data-sets, and seven (7) tables containing pick list for key words for associated information.

The directory tables are:

DataInfo	table of information about a data set
Contacts	table of information about contacts for data set

The Supporting Tables are:

Equipment	List of Equipment
Habitat	List of Habitats
Parameter	List of Parameters
Restrict	Possible Restrictions
Taxonomy	List of taxonomic groups
Themes	List of themes
Types	Type of data

The Centre is intending to print the first KeNODC data reference directory by the end of November 1999.

Financial support: IOC-UNESCO/Government of Kenya

(iii) Training/Workshops/Conference

The Data Centre benefited from the Ocean Data Management training programmes organized by IOC-UNESCO in Cape Town in December 1998.

Harrison Ong'anda and Clive Angwenyi would be attending the follow-up workshop being held in Cape Town in December 1999.

Clive Angwenyi attended an internship at the Australian AODC in August-September 1999.

Financial support: IOC-UNESCO/Government of Kenya

10. Data Centre Products and Services Developed and/or Made Available during the year 1999

1. Coastal Resource Database implemented containing over 30 GIS map coverages on the following broad areas; physical environment, biological resources, minerals, cultural and recreation, and socio-economy. The database made available in October 1995.
2. Eastern Africa Atlas of Coastal Resources published through the UNEP EAF/14 "Eastern African Coastal and Marine Environment Database and Atlas" project. Made available to coastal managers in July 1998.
3. Marine and Coastal Data Directory of Kenya. Final copy to be produced by end of 1999.

11. Comments

The data centre hope to expand its activities:

Two proposals have been developed for implementation in the Year 2000:

- The Aquatic Environmental Pollution Data Bank
Objective: Establish a comprehensive coast aquatic environmental data bank according to scientific criteria that will make the database both easily accessible and user-tailored.
- Data archiving and quality control at KeNODC
Objectives: Receiving marine and coastal data from scientists.
Performing quality control and reporting results directly to data collectors as part of the quality assurance. Archiving data and disseminating it on request.

KeNODC also proposes to mobilize resources to conduct workshops and other awareness products with the following objectives:

Objective: Present coastal data management activities being undertaken by various national institutions and respective products, to enhance their use and minimize on duplication; by conducting a National Data Management Workshop.

Objective: Enhance access of KeNODC products by developing dynamic web pages to be hosted on available home pages.

Objective: Maintain visibility of the Data Centre by produced items bearing prints/logo relating to the data centre and its activities (fact sheets, newsletters, pens, t-shirts, etc.).

2. INSTITUT HALIEUTIQUE ET DES SCIENCES MARINES (IHSM) MADAGASCAR

(Prepared by John BEMIASA, Information Manager)

1. Name of Data Centre

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2. National IODE Coordinator

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3. Data Centre Address:

Tel/Fax.: (261 20) 94 435 52
E-mail: ihsm@syfed.refer.mg

4. Data Centre URL:

none

5. IODE Data Centre designation date:

1999 (proposal)

6. Data Centre description:

Born in 1992 out of the three entities (Marine Station, Department of Applied Oceanology and the Department of Fisheries High Training), the IHSM has the task of training and Applied Research on Development. Attached to the University of Toliara, the Ministry of University studies (MINESUP). It is equipped with laboratories, aquaculture farm, specialized library. Thus, it regularly receives foreign trainees. We have built in its premises a house for the implementation of our NODC. Composed of 35 members (national and international residents), the IHSM only has 04 people for the ODINEA and RECOSCIX-WIO projects.

7. Brief History:

Within the frame of the Integrated Management Programme of Coastal and Marine areas, the UNESCO-IOC has undertaken to create a network of exchange of ocean data and information among countries of IOC, especially countries of East Africa and Indian Ocean. A training workshop was organized in that respect in Mombasa (Kenya) from 1st to 11th December 1997, in which the following countries had taken part (Kenya, Madagascar, Mozambique, Seychelles, South Africa and Tanzania).

At the end of the training, some computer equipments were given to participating countries. Then, they convened during this session the countries which were represented there had the task of setting up a National Oceanographic Data Centre (NODC).

As an institution member of IOC/IODE network, the IHSM through its Direction is completely in favour of the setting up of this NODC. So the Direction of the IHSM had consecrated some rooms in the premises for this centre.

8. *Roles and responsibilities of the Data Centre:*

The centre is in charge of:

- national inventory of relative data in oceanographic research fields;
- cataloging and inputting of these data;
- distributing of these data to the users;
- its participation in the IODE, either by giving information via RDC or to the requesting services.

9. *Data Centre Projects & Activities during the year :*

For the year 1999 and 2000, the IHSM has been planning to fulfill the following programmes (see the chart in the Appendix).

SCHEME OF WORK 1999

The following chart sums up the scheme of work for this year.

Fulfillment planning for the year 1999

Date	Activities
Oct. 98-March 99	Inventory and cataloging of available data within IHSM.
April-May 99	Setting up telephone line for the NODC, Internet/E-mail connexion.
June 99	Rehabilitation of the house.
July 99-Sept. 99	Inventory of available data in other local institutions CNRO, ONE, METEO, ...)
Oct. 99	Input and update of the data
Nov.-Dec. 99	Data input and ODINEA Workshop (Cape Town)

FULLFILMENT

• **October 98-March 99: Inventory and cataloging of available data within IHSM.**

These data are stored in the library as articles, reports, thesis, etc. This lapse of time has allowed us to inventory these data and then create a metadata catalog (Format ACCESS). All together, we could register some 1500 titles of articles, reports, thesis and newspapers in the library of the Institute.

• **April 99-May 99: Setting up telephone line for the NODC (Internet, E-mail, fax connexion).**

In spite of some administrative difficulties we have met, we could set up in time the telephone links, which allows us to enter in network and thus facilitate the flux and the exchanges of information to other fellow institutions.

This period has also seen the contribution of the IHSM to the celebration of 10th anniversary of RECOSCIX-WIO project (1989-1999) which was held at Mombasa (Kenya, 12-17 April 1999). This meeting has allowed us to acquire new formulations and orientations on methodologies of information management, mainly for the library of our institute.

• **June 99-Sept. 99: Inventory and input of available data in other national institutions (CNRO, ONE-EMC, METEO).**

Since the beginning of the month of June 99, we have focused our activity on inventory and input of the data. The inventory of the data in other institutions has allowed us to identify the type of data as well as the format in which these data are stored.

CNRO¹: type ASFISIS. The convention of work, which has recently been signed between both institutions, will give easy access to these data that we will hopefully get by the end of this year.

METEO²: type Temperature, rainfall parameters, atmospheric humidity, wind parameters (speed, direction). These data were stored vulnerably, written on paper instead of magnetic supports. Nevertheless, access to these data is free for the public institutions as the case of IHSM.

ONE-EMC³: unknown for the moment.

In fact, the access to these coastal environment data seem to be difficult and thus require a long administrative process.

As it was convened during the celebration of the 10th anniversary of the RECOSCIX-WIO, we are in charge of the input on ASFISIS software of data of the library, in order to make up for our delay compared with other fellow countries, and to be able to convert them in a readable file through FILMAKER software.

Up to now, we could input on ASFISIS 800 titles (articles, newspapers, thesis, etc.) out of 1500 mentioned above among which few hundred are national. There's still a lot to do about it.

• **Oct. 99-Nov 99: Input and data updating**

BUDGETING

The UNESCO-IOC has given an amount of US\$ 7.500 for our centre this year. This amount of money is for the activities of the centre including the communication bills (telephone, Internet, fax and e-mail), visits of other national institutions (CNRO, ONE and METEO) and article for the office (cf. Chart below).

Chart showing the centre's expenditure

Num	Nature of expenditure	Amount (US \$)
01	Telephone equipment	210.54
02	Office supplies	1 760.56
03	Communication (telephone, Internet, E-mail, Fax)	950.31
04	Maintenance computer material	540.90
TOTAL		2.31

¹ CNRO: Centre National pour la Recherche Océanographique

² METEO: Centre Météorologique

³ ONE-EMC: Office National pour l'Environnement-Environnement Marin et Côtier

10. *Data Centre Products and Services available:*

The following products were available to the centre during this year:

PRODUCTS	QUANTITY	SUPPORT	REMARKS
1. WIOBASE 1.0	02	CD-ROM	Not frequently used
2. TOGA DATA	06	CD-ROMs	Not compatible with
3. ATLAS OF OCEAN SECTIONS	01	CD-ROM	Win98
1.0	01	CD-ROM	
4. GEBCO97	01	CD-ROM	Problem with Win98
5. BILKO MODULE 7 FOR	01	CD-ROM	Frequently used
WINDOWS			Frequently used
6. WORLD OCEAN ATLAS 1994	04	CD-ROMs	
7. ADVANCED TRAINING	02	CD-ROMs	Frequently used
OPPORT. IN THE ACP	01	CD-ROM	Not frequently used
COUNTRIES (ed. 1 & 2)	01	CD-ROM	Frequently used
8. ASFA CDs(1997-1999/03 & /06)	03	CD-ROM	Frequently used
9. CAPETOWN WORKSHOP	01	CD-ROM	Frequently used
WORKING FILES	03	Newsletter	Frequently used
10. MOMBASA WORKSHOP	04	Newsletter	
WORKING FILES	03	Newsletter	
11. SPOT IMAGES KJ 163-397	02	Newsletter	
12. FILEMAKER PRO 4.1	02	Newsletter	
13. International WOCE Newsletter	01	Newsletter	
14. GLOBEC International Newsletter	03	Newsletter	
15. CLIVAR Newsletter	02	Newsletter	
16. U.S. JGOFS NEWS	01	CD-ROM	
17. GEWEX NEWS	01	CD-ROM	Frequently used
18. EARTH SYSTEM MONITOR			Frequently used
19. WINDOW			
20. WIOMSA NEWSBRIEF			
21. ASFISIS SOFTWARE			
22. IOMEGA ZIP DRIVE			

11. *Comments:*

Facing the immensity of the tasks we faced the lack of equipment and staff available up to now in the service of our centre, we were forced to modify some steps of the calendar proposed during the fulfillment. Therefore, we judge necessary that:

- Firstly, the staff of our centre should be reinforced in member so that we can be more efficient in accomplishing our tasks;
- Secondly, the inadequacy of computer equipment and accessories should be rapidly settled during the launch of the second phase of ODINEA project.

Appendix

1. Devis de fonctionnement du centre (1999-2000)

DESIGNATION	COUT(US\$)	
	1999	2000
1. Acquisition des données		
• Collecte des données disponibles à l'IHSM	-	-
• Collecte des données dans des autres institutions locales	600	600
• Création de catalogue des données recueillies	-	-
• Contribution à l'ASFA	-	2 500
2. Communication		
• Mise en place d'une ligne téléphonique		-
• Internet/E-mail	300	600
• Téléphone	300	300
• Fax	300	200
• Formation des personnels du centre	100	250
• Visite des autres institutions nationales	250	-
• Publications des données	-	500
	250	
3. Infrastructure et autres dépenses		
• PC et accessoires (déjà acquis)		
♣ <i>Indemnité du personnel du centre (2)</i>	-	-
♣ <i>Réhabilitation d'un bâtiment</i>	3 600	3 600
♣ <i>Fournitures mobilières</i>	1 548	-
• Fournitures consommables	2 287	-
♣ <i>Moyens de locomotion</i>	300	600
• Achat de logiciels	500	-
• Achat des CD de Base de données Océaniques	2 000	2 000
	2 000	2 000
	-	-
SOUS-TOTAL (1)	14 335	13 150
TVA	2 867	2 630
(20%).....		
SOUS-TOTAL (2)	17 202	15 780
IMPREVUS (10%)	1 720	1 578
TOTAL GENERAL	18 922	17 358

Arrêté le présent devis à la somme de dix huit mille neuf cent vingt deux USD pour l'année 1999 et dix sept mille trois cent cinquante huit USD pour l'année 2000.

2. Planning d'exécution pour l'année 1999

Date	Activités
Oct. 98-Mars 99	Inventaire et mis en catalogue des données existantes au sein de l'IHSM
Avril-Mai99	Mise en place de la ligne téléphonique pour le NODC, connection Internet/E-mail
Juin99	Réhabilitation du bâtiment
Juil.99-Sept99	Inventaire des données existantes au sein des autres institutions locales (CNRO, ONE, METEO, ...)
Oct.99	Saisie des données et mise à jour
Nov.-Déc.99	ODINEA Workshop (Le Cap)

Note:

- : Contribution de l'UNESCO-IOC
- ♣ : Contribution de l'IH.SM

3. UNIVERSITY OF MAURITIUS

1999 has been a year relatively embedded with activities related to the ODINEA project. Major progress has been made in terms of metadata collection and input in the MEDI software. However, the subject that makes the limelight is the Mauritian NODC. The latter has officially been set up in April 1999 at the University of Mauritius. But due to some 'inconsistencies' in co-ordination, the data centre has not yet benefited from the support offered by IOC.

NODC SET UP

As per the draft for plan of activities that was scheduled for this year, the major target was to set up an NODC for Mauritius. Rightly so, this was the very first activity, which I undertook. As I mentioned in the draft plan, the University of Mauritius was the ideal place for the setting up of the NODC for various obvious reasons. Since the local co-ordinator was not available for some time, this process was somewhat delayed. Nevertheless, in April 1999 the Senate at its 402nd session approved the setting up of NODC at the University of Mauritius. It was also understood that, under the agreement made, facilities such as office space, Internet facilities will be provided by the University.

However the official letter to IOC was not sent till August 1999. It is indeed very unfortunate that the budget for Mauritius, which was already prepared, was not allocated because of this delay. Despite this ambiguous situation, I managed to carry on with the activities scheduled as per the draft plan. It is evident that some of the activities could not be performed due to lack of funds.

CONTROVERSIAL SITUATION

On the 10th of October a meeting on the National Climate Committee Working Group on Coastal Zone was organized by the Mauritius Meteorological Services, in which Dr Bhikajee was invited. Due to some unforeseen circumstances, the latter could not attend the meeting and I was invited to replace him. In this meeting, chaired by Mr. Ragoonaden of the Meteorological Station, the ODINEA project was the main topic of discussion. Surprisingly again, plan was being made to set up an NODC at Meteorological Station, Vacoas. The chairperson to validate the set up of an NODC at Meteorological Station put various reasons forward. As the situation stands it appears that the Meteorological Station does not consider the NODC set up at the University as official.

ACTIVITIES AS AT 1999

As per planned, the major part of the activities scheduled was covered. However, due to the pending situation of the NODC set up and a greater commitment to the office duties, the activities were on go-slow. Most of the activities were being carried on Saturdays and off-hours.

In the last year's metadata report, most of the information related to oceanographic data in Mauritius was already collected. Hence, this year's activity constituted mainly, updating of these metadata and some archiving of data.

(i) Input of METADATA in the MEDI Software

The MEDI software has indeed been a very reliable and facilitating tool for metadata input. It has enabled the input of metadata within a short period of time. It is worth noting that in some cases, all the fields were not filled accordingly due to lack of relevant information. This is because the metadata provided by the institutions concerned are usually in form of final year report and bulletins. In these reports or bulletins, details like: 'clients', 'equipment used', 'sampling method', 'parameter description', 'start and end date' of project and the like are not mentioned.

It has already been planned, as future activities, to look for the missing information from the institution concerned.

(ii) Web page creation

The creation of a web page started lately but lot of progress has been made since then. The web page will be complete by the end of January 2000.

(iii) Getting acquainted to the ODINEA 98

The software from the ODINEA 98 CD was downloaded onto the hard disk and they were put into practice whenever time permitted so as to become more familiarized with. However, quite a few of them are not operational, namely, 3DEM60, Arc Explorer 1.1, Difent 1.8, Gloss 2.1, HDF Browser 1.3, PC Grads 1.7 (Beta 9), Nasa View 1.2, Net CDF to HDF converter, Sea level programme and Seltopo. Please note that some of this software was already non-functional when the CD was handed over at the end of last year's workshop and a request was also made for another copy.

OTHER ACTIVITIES

(iv) Metadata Mining for Further Updating

Before starting the real data mining work, it is important to find at least some information about them. Hence, as time permits, various scientific magazines, bulletins and publications, both local and international were scanned and mined for data.

There are also a series of projects related to oceanography, which are going to be launched in early 2000. Some of these projects will be carried out by the University academics; others will include collaboration with ministries and external agencies; the Albion Fisheries Research Centre, and the Mauritius Institute of Oceanography. Hence, more prospects of data. A list of these projects will be prepared and made available as soon as it gets ready.

(v) Mauritius Institute of Oceanography (MIO)

Research in the marine sector in Mauritius is bound to take a new turn with the setting up of the Mauritius Institute of Oceanography this year. This institution will be undertaking research projects in the oceanographic field and will, in the meantime, act as a co-ordinating body. It is still at the staff-skills-develop stage. The MIO will be working under the aegis of the Mauritius Research Council and will be funded mainly by the Government. In a nutshell, the Mauritius Institute Oceanography will prove to be an important source of data to our NODC.

NB: During the NCC working group meeting, members of the MIO were also invited; hence, they were made aware of the setting of an NODC.

FINAL WORDS

As things stand, there is a little misunderstanding between Mauritius Meteorological Station and University of Mauritius about the NODC official set up. It will hopefully be solved out soon. A better coordination is required. Otherwise, the wheels of activities are already set in motion and, hopefully, the little misunderstanding will be dissipated soon. Some of the activities stated in the draft plan have not been worked out due to the above problem and, consequently, the unavailability of funds. These activities will evidently be accomplished as soon as the above matters are solved.

4. INSTITUTO NACIONAL DE HIDROGRAFIA E NAVEGAÇÃO (INAHINA) MOZAMBIQUE

1. *Name of Data Centre*

Centro Nacional de Dados Oceanográficos - CENADO

2. *National IODE Coordinator*

Name: Albano Ângelo Madanda Gove
Address: Instituto Nacional de Hidrografia e Navegação - INAHINA
P.O. Box 2089 - Maputo

Tel: 258 01 430186/8
Fax: 258 01 430185
E-mail: Gove@inahina.uem.mz

3. *Data Centre Address*

Av. Karl Marx, No.153, Room 903 - Maputo
Tel: 258 01 430186/8
E-mail: sitoe@inahina.uem.mz

Secondary Data Centre:

Name: Instituto de Investigação Pesqueira - IIP
Address: Av. Mao Tse - Tung, No. 389 - Maputo
Tel: 258 01 490536/490307
Fax: 258 01 492112
E-mail: Nica@magumba.uem.mz

4. *Data Centre URL: (planned)*

5. *IODE Data Centre Designation Date:*

In process of establishment

6. *Data Centre Description*

The National Oceanographic Data Centre in Mozambique has been functioning from the last two years under coordination of INAHINA.

CENADO is one of the technical organs of the National Oceanographic Commission under the Comissão Nacional da Unesco, responsible for ensuring the participation of the National Institutions in the development of the National Oceanographic database.

7. *Brief History*

During the workshop about Ocean Data Management, held in Maputo, on 29 May 1998, with participation of different institutions, it was stressed the need of setting up the Mozambican NODC. INAHINA was elected the Institution to host and coordinate the future NODC.

8. *Roles and Responsibilities of the Data Centre and*
9. *Data Centre Projects and Activities during the year 1999*

1. Establishment of the NODC

Objective:

- Design of the proposal for setting up the NODC
- Address and discuss the proposal at different levels
- Formalization of NODC

Outputs: The Proposal of Articles of CENADO was distributed to different institutions for appreciation and comments; the institutions have been sending back their comments on it, which will be included in the final Proposal to be presented in an inter-institutional workshop planned for the beginning of the year 2000.

2. Inventory of information about data in the institutions

Objective: Build up a comprehensive description of existing data and information on marine and coastal environment of Mozambique, including historical data, which in some institutions are archived in hard copy format.

Outputs: CENADO designed survey questionnaires to help in describing these data sets and a number of visits have been accomplished in covering National institutions and individual researchers.

Financial support: IOC-UNESCO/INAHINA/IIP.

3. Implementation of computerized meta-database and Numerical Data Base

Objective: Avail information efficiently on existing data and information on marine and coastal environment held by different institutions.

Output: CENADO has now developed a meta-database. The database is implemented in Ms-Access'97. This Data Centre holds the following metadata set:

- Meteorological
- Geological
- Biological
- Tidal
- Fisheries
- Physical Oceanography

Part of the Numerical Data Base, is being implemented at INAHINA and IIP.

Financial support: IOC-UNESCO/INAHINA/IIP.

4. Library Organization

Objective:

- Linking the activities of RECOSCIX
- Inventory of literature holdings
- Design of library database
- Training of the library staff.

Outputs: The inventory of literature holdings was finished. The process of cataloguing and implementation of the database is still going on. One Librarian had participated in a training course held in Mombassa and in local specific job training.

Financial support: IOC-UNESCO/INAHINA/IIP.

5. Web Design and Maintenance

Objective: Use of web site as support for publicizing the activities of NODC. Distribute specific information by web.

Output: Part of the web site has already been designed. The web site will be published next year.

Financial support: INAHINA.

6. Training/Workshops/Conference

The Data Centre benefited from the Ocean Data Management training programmes organized by IOC-UNESCO in Cape Town in December 1997/8.

António Olívio Siteo and Verónica Dove would be attending the following-up ODINEA workshop being held in Cape Town in December 1999.

Ana Maria Alfredo (librarian from INAHINA) attended a RECOSCIX training course in Mombassa and another one for librarian in Maputo.

Financial support: IOC-UNESCO/INAHINA

10. Comments

The Data Centre in Mozambique is in an initial phase. The main activities that have been carried out are related to organizational aspects in order to build the necessary body and consolidate the setting up of NODC. However, the activities that were not well accomplished in the current year, will be taken as priorities in the next year. It is relevant to note that for the year 2000 an increase in the NODC activities was planned in order to start offering services to the oceanographic data and information users. Using the data from different sources, we have planned to introduce the production of thematic charts for different purposes.

5. SEYCHELLES FISHING AUTHORITY (SFA)*(Prepared by Rondolph Payet, National Co-ordinator, ODINEA/IODE programme)***1. Centre Name**

Seychelles Oceanographic Centre

2. National IODE Co-ordinator:

Name: Rondolph J. Payet
 Address: Seychelles Fishing Authority
 Fishing Port, Victoria, P. O. Box 449, Mahé

Tel: 248 22 45 97
 Fax: 248 22 45 08
 E-mail: sfasez@Seychelles.net / rpayet@hotmail.com

1. Data Centre Address

Tel: 248 22 45 97
 Fax: 248 22 45 08
 E-mail: sfasez@Seychelles.net / rpayet@hotmail.com

4. Data Centre URL: None**5. Designation Date: 1997 (Designated National agency for Oceanographic Data)****6. Data Centre Description**

The Seychelles Oceanographic Centre (SOC) –Designated Agency for Oceanographic Data- was established in 1997 under the umbrella of the Seychelles Fishing Authority in accordance with the IODE-ODINAFRICA project objectives.

In 1999 SFA realized that a Data Centre in itself could not ensure the development of oceanographic research in Seychelles. Presently there are plans to develop an oceanographic section within SFA. This Unit will complement the Data centre with ecosystem (biological, physical and chemical process in the marine environment) monitoring and research. This section will add more weight to the function and recognition of the centre.

Objectives of the Centre

The Seychelles Oceanographic Centre will fulfil the role of a Marine data bank; carry out national services in oceanography data dissemination and exchange. It will also carry marine environment monitoring in relation to its influence on the ecosystem. The centre will also maintain close relations with other DNA's NODC's and WODCs in marine related data.

Activities of 1999**Table 1: Status of activities Programmed for 1999**

		Implementation	Status
Activity 1	Data Mining/cataloguing/Archiving	Ongoing	Ongoing
Activity 2	Data Catalogue	Yes	Ongoing
Activity 3	Website	No completed	Postponed to next year

Activity 1: Data mining/cataloguing/archiving

*Data Acquisition***Tides Data: Pointe Larue Airport, Lat: 04-40 S, Lon: 055 – 32 E**

Monthly - 1993-1998

Daily - 1993-1998

Format - Ascii

Location: SFA

Russian Cruise Data in Seychelles Region*Bottle Data:*

Currents

Biological

Year: 1970 to 1980

Nansen data: 25719 Bytes

MBT data: 27288 Bytes

Format: NODC P3 format

Location: SFA

Seismic data:

23,150 Km lines

Year: 1973 to 1991

Format: Tape/Sepia

Location: Seychelles National Oil Company (SNOC)

Aeromagnetic

27,911 Km

Year: 1992

Format: Tape

Location: SNOC

Geochemistry - Tar Ball

Year: 1993 to 1999

Format: reports

Location: SNOC

Oil related Reports

In-house copies from 1976 to 1997: Seychelles National Oil Company.

Activity 2: Data Mining

Data Types	Formats	Location	Requested	Status
Marine Pollution data	Paper text/digital Spreadsheet	Ministry of Environment & Transport	Yes	Not Received
Physical Oceanography	Ascii/SD2/Digital	Shoals of Capricorn/MOET/MET	Partially	Not Received
Biological	Paper text/digital	SFA/MOET	Yes	Partial
Geophysical	Digital	Seychelles National Oil Company	Yes	Partial data received
Sedimentology		MOET	No request made	

This was the most difficult exercise, as constant reminders have to be sent. Due to high staff turnover it has been difficult to ascertain where the data is kept or it is available. This has been a slow process and reminders were sent quarterly. It is important to point out that the institutions seem to consider it as a favour rather than a national effort in archiving and cataloguing marine data. We have tried to sensitize the institutions on the importance of keeping track of marine related data.

1. Archiving

The data are situated on the main computer of the Data Centre with back ups. However, the centre awaits the CD- Writer to archive all the available data.

2. Data Catalogue/information leaflet

Due to the limited data available we have instead produce a brochure indicating the function, purpose of the centre in terms of national interest. The leaflets have been distributed to all the major Ministries. Feedback seems to be favourable.

3. Web-site development

This has not been completed particularly because the web site is best released in unison with the hosting agency: the Seychelles Fishing Authority.

4. Metadata database

The Seychelles Oceanographic Centre continued its activity to update it metadata database. So far there are 50 entries.

5. Funding

The major funding and coordinating agency for the ODINEA project has been the IOC of UNESCO and The Government of Flanders. The counterpart funding of IOC amounted to approximately 7,000 U\$ and from SFA amounted to approximately 10,000 U\$. There might be small discrepancies between this report and the expenditure report, mainly due to that latter not finalized yet.

6. Conclusion

We have completed 75 % of the work programme scheduled for year 1999. It has not been without difficulties and data mining has been the most difficult task to undertake. Though Seychelles is a small country administratively it is relatively slow.

Finally, the SFA wish to express it appreciation to IOC of UNESCO and the Government of Flanders for supporting the programme

6. CHIEF DIRECTORATE: MARINE AND COASTAL MANAGEMENT SOUTH AFRICA

*(Prepared by Marcel van den Berg, Chief Oceanographic technician
Chief Directorate: Marine and Coastal Management
23rd November 1999)*

Department of Environmental Affairs and Tourism
Chief Directorate: Marine and Coastal Management
Private Bag X2, Roggebaai 8012
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Tel: 27 21 402 39 11
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Website: <http://www.gov.za/sfri/sfri.htm>

Brief background on Secondary Data Centre for South Africa:

The Chief Directorate: Marine and Coastal Management became part of the ODINEA-project at the end of 1997 and have been identified as a Secondary Data Centre for South Africa during the 2 workshops held on data management (Mombasa, Kenya 1997 and Cape Town, South Africa 1998). The recognized NODC for Southern Africa is SADCO (Southern Africa Data Centre for Oceanography) and the Chief Directorate: Marine and Coastal Management has been submitting oceanographic data to SADCO on a regular basis. The oceanographic/environmental data collected by the research component of the Chief Directorate: Marine and Coastal Management is vast and includes discrete bottle data, CTD data (discrete and continuous), ocean current data, long term sea surface temperature monitoring data, temperature profiling time-series data, satellite imagery and wind data. At the moment only discrete bottle and CTD (discrete and recently continuous) data is submitted to SADCO. The Chief Directorate: Marine and Coastal Management is able to contribute to the ODINEA, and overall to the ODINAFRICA projects by firstly creating a meta-database, that consists of all the various oceanographic related data collected and then to extend this meta-database, at a later stage, to include all the biological data collected within the directorate.

Planned Activities for 1999

1. Produce a Meta-database for all oceanographic/environmental data collected by Sea Fisheries along the lines of the MEDI Pilot Project.
2. Produce Data CD's from data collected within a National Marine Park on the South African south coast.
3. Produce Data CD's from CTD- data collected during research cruises.
4. Establish a committee comprising of all the different biological research components within the Chief Directorate: Marine and Coastal Management to initiate the establishment and inclusion of a meta-database for biological data collected within Chief Directorate with the established oceanographic meta-database.
5. Establish methodology for the verification, quality control and archiving of data.
6. Continue with the process of quality control of oceanographic data collected.
7. Continue with the preparation of oceanographic data for submission to SADCO.

Progress Report - 1999

1. The new Oceanographic Meta-database is continuously being updated using the agreed upon format described in the Blue Pages of the Australian Oceanographic Data Centre and using the Microsoft ACCESS designed MEDI Pilot Project presented to the participating countries in the ODINEA programme at the 1998 workshop held in Cape Town, South Africa. The data is being updated on a continuous basis and it was hoped to have all the oceanographic data available within the Directorate captured onto this database by the end of 1999, but due to a computer malfunction (hard drive crash) during the second half of the year, some of the data entered has been lost. Back-up procedures are in place for all oceanographic data collected and archived within the Directorate and no valuable oceanographic data was lost, but the metadata files were located within a directories that are not backed-up on a regular basis. Attempts are now being made to re-capture all the metadata information lost, back onto the database. Due to the lost of metadata this process will only be completed by the beginning of 2000.
2. At the end of August 1999 the first version of a data CD-ROM, was produced in-house, containing all oceanographic data collected by the environmental research component within the Chief Directorate: Marine and Coastal Management. The data was collected within one of South Africa's Marine Protected Areas on the southeast coast of South Africa, Tsitsikamma National Marine Park. This Data CD-ROM includes current meter data, temperature profile time-series data, Sea Surface Temperature (SST) data, Oceanographic/Hydrographic time-series and transect data and weather data from dial-in weather station. The data CD-ROM was produced after request from researchers working within the National Marine Park for more easy access to the data. It was decided to produce the data CD-ROM, in the format of a web page, as not all researchers and organizations have access to the Internet. It is also planned to place the data onto the Chief Directorate's homepage at the beginning of 2000, to enable the data to be viewed by a greater spectrum of the scientific community. On a six monthly basis new versions of the data CD-ROM will also be produced in limited numbers for interested people without access to the Internet. (A copy of the data CD-ROM will be presented to all participating countries within the ODINEA programme at the next workshop to be held in Cape Town, South Africa during December 1999).
3. At present oceanographic data is also being analyzed and worked up to produce 3 new data series CD-ROM's, also to be published on the Directorate's homepage during 2000. The 3 data sets are:
 - CTD data collected at random stations and set transects along the South African west and east coast during research cruises. This data CD-ROM will include continuous CTD data, bottle CTD data and nutrient data obtained from bottle samples collected. The format will be such that the data can be imported into oceanographic software packages like Surfer and Ocean Data View.
 - Oceanographic data collected under the South African Climate Change and Squid Programme. This data consists mainly of data collected from coastal bays on the southeast coast of South Africa as part of an on-going research project studying climate and environmental changes and the effect it has on the squid fisheries (and other important fisheries) in South Africa. The data will include current measurements, temperature profiles, SST measurements, wave-height data, turbidity data and weather data.
 - Current data collected for a series of current meters that was deployed on the shelf edge in the Agulhas Current that flows on the southeast coast of South Africa.
4. The Department of Environmental Affairs and Tourism went through a re-structuring process that was implemented during April 1999. The old Sea Fisheries and Sea Fisheries Research Institute were amalgamated and renamed to the Chief Directorate: Marine and Coastal Management. The resulting re-structuring process, with the shifting of personnel within the new Chief Directorate, has affected the establishment of a committee of all relevant researchers for the creation of a complete meta-database for the Chief Directorate. The envisaged meta-database is to include all the oceanographic data collected as well as the biological data collected by the Chief Directorate. Although it was planned to re-initiate the process at the beginning of January 2000 a meeting was held on the 8th of September 1999 with all the relevant researchers and people managing the

various datasets within the Chief Directorate. At the meeting the importance of establishing a meta-database for the Chief Directorate and the rest of the scientific community was agreed upon and it was agreed to establish a committee or working group to create and oversee this meta-database, comprising off a smaller group of people that attended the initial meeting. Mr. Ashley Naidoo (adnaidoo@sfri.wcape.gov.za) was appointed as co-ordinator for this project. The aim is to start this project at the beginning of 2000.

5. The process for the establishment of set methodologies for the verification, quality control and archiving of data within the Chief Directorate: Marine and Coastal Management is still continuing through out the year. Two in-house manuals were produced for use during research cruises on the collection and initial post-processing of CTD data collected, whilst still at sea. These two manuals mainly assist with the software used for acquiring and processing CTD data. Information still need to be obtained about standard formats and methodologies as defined by the IODE to enable us to complete this task and linking it to the standards set for the ODINEA and ODINAFRICA-II projects.
6. The process of quality control of oceanographic data collected during research cruises and projects is a continuing process. Work for 1999 has involved the verification of 22 sets of bottle data, including nutrient samples, collected during research cruises completed in 1998 and 1999; the verification of 37 sets of continuous CTD data, including continuous measurements for turbidity and chlorophyll. Data analysis and quality control has also been preformed of data sets collected for other projects. This data includes sea surface temperature measurements for 12 locations around the South African coast (includes both west and south-east coasts) and weather station data from 5 locations around South African coast, which forms part of a Long-term Monitoring project. As was mentioned in section 2 of the progress report, data analysis has also been preformed on data collected in our national marine parks. This data has been analyzed to a state where the data was published on a data CD-ROM. Other data, including wave height, turbidity data and meteorological data (collected from lighthouses around the country), collected for other on-going projects, have also been captured and analyzed.
7. With the process of quality control of oceanographic data continuing through out the year as described in section 6, the data that has been worked on is ready for submission to South Africa's main Data Centre, SADCO. To date 15 sets of bottle data and 26 sets of CTD data have been re-formatted to SADCO standards for submission.
8. *General:*
 - A lot of time has been spent on the extraction of specific data from our in-house database upon request from researchers. This process involves the extraction of data sets and then completing specific analysis (e.g.: averaging data into set squares) as per request.
 - Time has also been spent on the locating of older data that appear on our in-house meta-databases, but not on the in-house oceanographic database, with some success. In the past data that was collected used to be kept and analyzed by individuals and there was no system in place for the archiving of data in a central location.
 - Was involved with the preparations and participation as trainer in training cruises which forms part of the BENEFIT (Benguela Environment Fisheries Interaction & Training) programme. The regional marine science and training programme involves mainly three member states of the Southern African Development Community (SADC), namely Angola, Namibia and South Africa. Other countries like Mozambique and Kenya (part of ODINEA group) were also invited to participate in the training programme, with Charles Magori and Gerald Mwatha (KMFRI), Kenya and Veronica Dove, Mozambique participating in the training cruises as trainees.
 - Time has also been spent on field-station where oceanographic instrumentation was recovered, the data downloaded and re-deployed for certain Long-term Monitoring projects. Also participated in 3 research cruises where CTD data was collected for biological projects.

7. INSTITUTE OF MARINE SCIENCES, UNIVERSITY OF DAR ES SALAAM - TANZANIA

(Prepared by: *Dr. Desiderius CP MASALU, and Mr. Christopher MUHANDO*
Institute of Marine Sciences
University of Dar Es Salaam
Zanzibar, TANZANIA
November 1999)

1. *Name of Data Centre:*

Institute of Marine Sciences, University of Dar Es Salaam

2. *National IODE Coordinator:*

Name: Dr. Desiderius CP MASALU

Address: Institute of Marine Sciences
University of Dar Es Salaam,
P. O. Box 668, Zanzibar

Tel: 255 54 23 07 41/23 21 28

Fax: 255 54 23 30 50

E-mail: masalu@zims.udsm.ac.tz

2. *Data Centre Address (if Different from 1)*

Institute of Marine Sciences
University of Dar Es Salaam,
P. O. Box 668, Zanzibar

Tel: 255 54 23 07 41/23 21 28

Fax: 255 54 23 30 50

E-mail: masalu@zims.udsm.ac.tz

4. *Data Centre URL:*

5. *IODE Data Centre Designation Date:*

1996

6. *Data Centre Description:*

The Institute of Marine Sciences has a total of 18 Research staff and nine Technicians in different fields of marine sciences. To facilitate its activities, the Institute has four departments: the Living Resources and Ecology, the Chemical and Environmental Marine Sciences, the Physical and Applied Marine Sciences and the Marine Affairs Department. The Marine Affairs department is an interdisciplinary section involving aspects of the uses and impacts of human activities, awareness and management of coastal resources and environment including establishment of marine protected areas. IMS has a Video production unit, a Library and a GIS database on coastal resources. Currently, the NODC and ODINEA activities fall under Marine Affairs department. Two members of staff and one technician are involved directly with the daily activities of ODINEA.

7. *Brief History:*

The Institute of Marine Sciences (IMS) is part of the University of Dar Es Salaam. It was established on July 1st, 1979 and is based in Zanzibar. The objectives of its establishment were to undertake research in all aspects of marine sciences, to provide postgraduate training and later undergraduate training in accordance with the national manpower requirements and to providing advisory and consultancy services in marine affairs. IMS has been involved in coastal zone management programmes at national level as well as at regional level.

IMS was nominated as to be the Designated National Agency (DNA) for Tanzania in 1996, taking over from the Ministry of Natural Resources and Tourism. Since then, efforts are being done to lay foundations for the establishment of a full National Oceanographic Data Centre (NODC) for Tanzania. These efforts are being coordinated under the ODINEA (Oceanographic Data and Information Network for East Africa) project activities. One of the major initial efforts, among others, is the establishment of a functional coastal and marine resource and environmental meta-database at IMS.

8. *Roles and Responsibilities of the Data Centre:*

The mission of the Centre is to acquire oceanographic data and information from all sources in Tanzania primarily about our ocean. The Centre will also acquire relevant data and information from other different sources. The Centre does quality control to ensure the reliability of received data and information. However, currently the Centre maintains mainly a meta-database with pointers to data and information sources. The Centre provide the following as minimum:

- Receiving data and information, performing quality control, archiving, and disseminating it on request.
- Participating in the development of data and information management plans and establishing systems to support major experiments, monitoring systems, fisheries advisory systems, etc. For example, the Centre collaborates closely with the Scientific and Technical Work Group (STWG) of the Tanzania Coastal Management Partnership (TCMP), Fisheries Department, and Environment Department, etc.
- Copies of all or part of its data and information holdings in the original format.
- Inventories of its holdings for easy search and selection by users. The list of inventories can be easily viewed on the meta-database.
- Referral of user to sources of additional information and data or other national and international sources for oceanographic data and information.
- Participates in international oceanographic data and information exchange.
- Assisting in the development of data and information exchange standards and procedures. The Centre was active in the writing of ODINAFRICA proposal and has expressed its views on several issues about data standard to be used by ODINEA.

9. *Data Centre Projects and Activities during the Intersessional Period:*

Because ODINEA project has just started, one of the major activities is to publicize the project as much as possible to different professionals and groups of people, including decision-makers. This is important if the project and its aims are to be accepted and supported by the public. Publicizing the project creates a dialogue between the public from different fora and project co-coordinators. This brings in inputs on how to improve the project activities and the design of the meta-database.

In line with the objectives of ODINEA project (documented elsewhere) and the approach mentioned above, various activities were undertaken from the beginning of this year to-date. These are listed here in summary:

- Because ODINEA project is based at IMS, we informed the Director of IMS, through the usual IMS management process the developments of the Cape Town (South Africa) workshop that was held in December last year at the Sea Fisheries Research Institute.
- Publicizing ODINEA and the meta-database. In the year 1999 we were able to visit Mtwara, Lindi, Tanga, Mafia, and Dar Es Salaam and talked with natural resources officers and other officials to inform and explain them about the ODINEA project and demonstrate our meta-database. During these visits we were able to visit 15 coastal districts out of 23.
- Also we visited other projects and/or programmes, e.g. the Mafia Marine Park, the Tanzania Coastal Management Partnership (TCMP) of the National Environmental Management Council (NEMC) for the same purposes.
- In May 1999 we presented the project before the IMS Research Committee.
- In July 1999 we presented a paper about the project during the scientific meeting to commemorate 20 years Anniversary of IMS.
- On 19th August 1999 we visited the Fisheries Division and the Division of Environment of Zanzibar to inform them about ODINEA. At each division we held a meeting with the staff members and demonstrated to them our meta-database.
- From August 29th and September 2nd we were in Dar es Salaam on an ODINEA mission. We visited TCMP, the Fisheries Department, the University of Dar Es Salaam and the Tanzania Commission for Science and Technology (COSTECH) and installed several copies of the meta-database to some of these institutions.
- From September 20th to 22nd 1999 we took part in a TCMP meeting titled “The TCMP Retreat and Local ICM Programmes Meeting” that was held in Dar es Salaam. During this meeting we presented a paper about ODINEA and highlighted the ICM priority accorded to ICM in ODINAFRICA-2. We received a very positive response from the audience. The meeting was a very important and most suitable forum to publicize ODINEA because it drew participants from all local ICM programmes and projects in Tanzania. A note from the meeting is that, most ICM programmes operate on an experience basis of their staff. There is no proper method of keeping data and information though this is important for the ICMs. Definitely ODINEA has a role to play here.

Development/improvement of our meta-database:

As a result of publicizing ODINEA and the meta-database we have been receiving many suggestions and ideas on improving the database. Consequently, we have modified various tables and forms of the database to reflect the ideas and suggestions received from various people whenever we find them meaningful or helpful. This has helped a lot in improving our meta-database.

We have continued with the exercise of acquiring data and information from scientists and institutions. Many scientists have registered in the database and have provided their CVs in which they indicate their areas of specialization and research, and thus data and information they hold.

To facilitate accurate, rapid and less costly data acquisition and entry, during our visit to Dar es Salaam we nominated several people to help us with acquisition and entry of data and relevant information from their departments/institutions into our database. These people are from: TCMP – one person, Fisheries Department – two persons (one specifically for marine protected areas), and Department of Zoology and Marine Biology of the University of Dar Es Salaam – one person. To facilitate this, we installed copies of the database at TCMP (one copy), Fisheries Department (two copies), and University of Dar Es Salaam (one copy). The selected people will enter the data and information about their departments and whatever they are aware of. From time to time we will visit them to copy whatever they have, verify it and update our database. The updated database will then be installed to these people again, and the cycle will continue. We may need to set a time for updating the database every year before distribution to scientists and relevant clients is done.

The current status of the meta-database is summarized in Table 1. It is worthwhile to point out that several maps of coastal resources have been incorporated in the database and the number of marine

scientists enrolled have increased, and most of them have provided detailed CVs showing what they are doing, and data and information they hold.

During 1999, we have had several interactions with other projects/programmes. This is very important as a way of publicizing ODINEA but also as a way for ODINEA to understand what its client's want/need. These projects and/or programmes donated some of the data and information in our database.

Data Centre Products and Services Developed and/or Made Available During the Intersessional Period:

The Centre has so far not been able to produce many products because of the limitation of funds and staff. However, it has managed to provide services to its clients in several ways. The products and services produced/provided or under development by the Centre are:

- Maps of Coastal Resources and Marine Protected Areas of Tanzania. These can be viewed and printed from the meta-database.
- National archives of oceanographic data and information.
- Information about marine and coastal scientists in Tanzania.
- Inventory of its data and information holdings and information about other data and information sources.
- Copies of its data and information to requesting clients.

The centre also acts as a referral Centre for other national and international oceanographic data and information, and as a link between scientists at local, regional and international level.

Problems:

ODINEA is still new and not well perceived in Tanzania, therefore more sensitization need to continue.

Many institutions and departments do not have a system of cataloguing reports produced on their behalf or those produced by their staff. Our visit awakened most of them and they have promised to establish proper record keeping of all reports.

Some scientists are not ready/happy to share their data and/or information with others, sometimes for no good reasons.

Accessibility to some of the coastal districts, e.g. Kilwa, Mkulanga and Rufiji is very poor (especially during the rain season) due to bad roads. At times one needs a charter plane to access them.

Future Activities/Plans:

We plan to continue with more sensitization campaigns by visiting the different places and institutions, and also to produce brochures about ODINEA and our meta-database.

Hold dialogue with the government on establishment of a full NODC.

Organize training workshop on data and information collection, archiving, etc.

Establish a logbook of services provided daily in order to know the number of active clients and the type of data and information most wanted.

Concluding Summary

The ODINEA project is increasingly becoming known in Tanzania. Many marine and coastal scientists and relevant institutions are now aware of ODINEA project and its objectives. The project continues to be accepted by the public, which guarantees a better future. The Government of Tanzania is also committed and supportive to the activities and objectives of ODINEA and therefore has extended full support to the ODINAFRICA-II project that will succeed ODINEA.

We hope that scientists as well as the public will make use of the project to increase efficiency in their work, management of resources, and decision-making. However, it is important to mention that some more sensitization and awareness campaign still need to continue to increase and solidify the confidence and awareness of the public about the need and importance of managing oceanographic data at a national level, which will eventually lead to the establishment of a National Oceanographic Data Centre. As the project becomes more and more well publicized, appreciated and accepted, the next step is to officially request the government to look into the possibility of establishing a National Oceanographic Data Centre to supervise ODINEA activities.

Table 1: The number of entries for different themes in the meta-database.

	Theme	Entries	Comments
1	Marine Scientists and Managers	43	200 Reports and Publications
2	Institutions	25	
3	Marine Protected Areas (MPAs)	18	
4	Projects and Programmes	13	
5	Coastal Districts basic information	13	
6	Available Datasets at IMS	14	
7	Available documentation	12	
8	Software	6	

ANNEX IV

WORK PLANS AND BUDGETS YEAR 2000

1. KENYA MARINE AND FISHERIES RESEACH INSTITUTE
(Kenya National Oceanographic Data Centre)

1.1 WORK PLAN

[illegible]

1.2 BUDGETS FOR 2000

ITEM	AMOUNT (US\$)
Infrastructure Support	
1 lap-top computer and software	3,000
Cd-Writer for the new dell	500
UPS for the new dell	500
Operational Expenses	
Office consumables – US\$1,000	
Communication expenses – US\$1,500	9,200
Local transport for survey of data US\$700	
Hosting of Steering committee US\$1,500	
Updating and printing of data directory US\$1,000	
Equipment maintenance US\$1,000	
Staff overtime expenses US\$2,500	
Data management training	
ODINEA 2000	
Internet access support	
Hosting of ODINEA Website US\$2,000	
Hosting of KeNODC website US\$2,000	4,000
Development of data and information products	
Participation in ASFA input	1,300
Provision of ASFA to KeNODC	4,000
TOTAL	22500

2. INSTITUT HALIEUTIQUE ET DES SCIENCES MARINES (IHSM) - MADAGASCAR

2.1 WORK PLAN

What output and results expected ?

- NODC setting up
- Library automation
- Web site for the centre
- Equipment supplies
- Trained staff on collecting/inputting data for the NODC
- Achievement of users' needs.

What type of data ?

- Biological data
- Fisheries data
- Coastal data (reefs, mangroves)
- Oceanographic data
- Freshwater data (Fisheries, aquaculture)
- Environmental data
- Meteorological data

Who are the users?

- National scientists
- National students
- Visitors (foreign searchers)
- Decision-makers.

Chief Directorate: Marine and Coastal Management, South Africa

	ACTIVITIES	TIMING									
		J	F	M	A	M	J	J	A	S	O
I	Setting up NODC										
	- Proposal designation date.....										
II	- Local data holding inventories (continued)										
	- National data inventories (continued)										
	- Metadata catalog conversion (1).....										
	- ASFISIS input (Library).....										
	- Data input (metadata catalog).....										
	- Home page & web site hosting.....										
	- Users sensitization.....										
	- Collect/input data staff training										
III	SUPPORTS										
	- Articles for office.....										
	- Software & database CDs.....										
	- Staff internship (1p).....										
	- Communication (Internet,Telephone, ...)										
	- Scanner.....										
	- CD copier										
	- Computer										
	- Computer maintenance.....										
	- Internship/inland (Madagascar).....										
	- Staff overtime remuneration.....										
		TOTAL (US\$)									

(1): Conversion to FILEMAKER or MEDI structure.

3. UNIVERSITY OF MAURITIUS

3.1 BUDGET FOR YEAR 2000

ACTIVITY	AMOUNT (US \$)	U.O.M CONTRIBUTION
1.Development of and assistance to NODC		
*Infrastructure support		Office space, equipment & accessories provided
- Laptop	3000	
- Scanner	250	
*Operational expenses		
- CD-writer	250	
- Recordable CDs	200	
- Ink cartridges (5 Black, 3 color)	350	
- Stationery	150	
- Norton anti virus software	150	
- Web page hosting	2000	
- Travelling	500	
- Telephone, fax & Internet facilities		3000
*Internship NODC staff	6000	
Development of data & information products		
*Provision of ASFA to NODC	3400	
Total	16250	

4. SEYCHELLES FISHING AUTHORITY (SFA)

4.1 WORK-PLAN FOR YEAR 2000





Objective:

To strengthen the capabilities of the Seychelles DNA in Coastal and Ocean Data Management

Targeted Activities for 2000

1. Continue to build the Seychelles Metadata database.
2. Continue to sensitize other institutions in data management and the importance of metadata and data archiving.
3. Develop the Seychelles DNA web-site in the background.
4. Deliver Quarterly report to ODINEA/IOC
5. Develop an information and objectives pack for the Data Center

Time-frame of activities

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1												
2												
3												
4			•			•			•			•
5												

Implementation of activities may vary within the above time frame.

4.2 BUDGET PROPOSAL: 2000

	Activities	IOC	SFA
1	Operational Expenses		
	Internet	2500 U\$	3000U\$
	Communications <ul style="list-style-type: none"> • Telephone • Fax 		1000 U\$
	Consumables (Ink, cartridges, CD's, Zip T tapes etc.)	700 U\$	700U\$
	Publication of data/pamphlets	500 U\$	
	Purchase of Software <ul style="list-style-type: none"> • Marine related software • ASFA 	600 U\$ 3000U\$	1500 U\$
	Acquisition of data	200 U\$	
	Sub-Total	7500U\$	6200U\$
2	Infrastructure Support		
	External RW CD-ROM (SCSI)	600 U\$	
	SCSI/Ethernet/network card/cables	800 U\$	
	Scanner	500U\$	
	Printer	600U\$	
	Laptop accessories	300 U\$	
	Upgrading backup software		5000 U\$
	Upgrading (memory, windows NT)	600 U\$	1000 U\$
	Proxy Server		5000 U\$
3	Other Expenses		
	<ul style="list-style-type: none"> • Office space/furniture • Overtime/subcontract for data input 	400U\$	2500U\$
	Sub-Total	3800U\$	13500U\$
	Grand Total	11300U\$	19700U\$

5. CHIEF DIRECTORATE: MARINE AND COASTAL MANAGEMENT, SOUTH AFRICA

5.1 WORK-PLAN 2000

Responsible Institute Chief Directorate: Marine and Coastal Management,
South Africa

Financial year: 2000/2001

Financing: Internal Funding (77%); External Funding (23%)

Introduction:

The Chief Directorate: Marine and Coastal Management (ex Sea Fisheries) became part of the ODINEA-project at the end of 1997 and has been identified as a Secondary Data Center for South Africa. The recognized NODC for Southern Africa is SADCO (Southern Africa Data Center for Oceanography). The oceanographic/environmental data collected by the research component of the Chief Directorate: Marine and Coastal Management is vast and includes discrete bottle data, CTD data (discrete and continuous), ocean current data, long term sea surface temperature monitoring data, satellite imagery and wind data. At the moment only discrete bottle and CTD (discrete and recently continuous) data is submitted to SADCO. The Directorate: Marine and Coastal Management is able to contribute to the ODINEA, and overall to the ONIAFRICA (I & II) projects by firstly creating a meta-database, that consists of all the various oceanographic related data collected and then to extend this meta-database to include all the biological data collected within the department.

• **Objectives:**

- The main objective is to create a detailed meta-database of all the oceanographic and biological data collected within the Chief Directorate: Marine and Coastal Management.
- To ensure an effective flow of information/data between the different research components within the Chief Directorate and outside organizations and projects.
- To establish guidelines and rules in the methodology used in the verification, quality control and archiving of data collected by the Chief Directorate: Marine and Coastal Management.

• **Planned Activities for 2000/2001**

- Continue with the expansion of the meta-database for all oceanographic/environmental data collected by the Chief Directorate: Marine and Coastal Management along the formats established during the ODINEA training workshops.
- Assist with the establishment of a meta-database for biological data collected within the Chief Directorate: Marine and Coastal Management.
- Extracting data from international datasets received during ODINEA workshops and from other sources, pertaining to South African coast, and incorporating this data into existing data archives and meta-database.
- Capturing of oceanographic data found to be only available on hardcopy.
- Publish data collected under certain programs and projects on CD-ROM and on the Chief Directorate's homepage.
- Continue with the process of establishing methodology for the verification, quality control and archiving of oceanographic data collected within the Chief Directorate: Marine and Coastal Management.
- Continue with the process of quality control of oceanographic data collected.
- Continue with the preparation of oceanographic data for submission to SADCO.

5.2 BUDGET 2000/2001

	Activity	IOC	Chief Directorate: MCM
1.	Operational Expenses		
	Communication: • Telephone • FAX • Internet/E-mail ⁴	200 US	2000 US
	Training • Data verifying and manipulation • Specialized software training		1500 US
	Consumables (ink cartridges, disks, CD's, etc.)	1000 US	800 US
	Software : • Specialized marine software and upgrades	1000 US	1200US
	Local Travel (Collection of data from various field stations.)		5000 US
2.	Equipment Expenses (Infrastructure)		
	Accessories : • Desktop Scanner ⁵ • Additional Memory for Laptop PC ⁶ • Ethernet Card for Laptop PC ⁷ • Laptop PC ⁸	1500 US 400 US 200 US 3500 US	
3.	Other Expenses		
	Staff • Data Manager (@1145U\$/month) • Office space & furniture		13740 US 2000 US
	TOTAL	7 800 US	26 240 US

⁴ Internet/e-mail access for use with laptop PC (purchased 1999) when on field stations and away from the office - the money is to be used as full payment to service provider for access. Telephone time will be paid by Chief Directorate: Marine and Coastal Management.

⁵ The desktop scanner is to be used to scan and archive old datasets that only exist on hardcopy and archive old documents and photo's. The scanner to be able to scan normal prints, slides and negatives and be used with Optical Character Recognition software to create editable text from converted printed documents.

⁶ The 64MB memory available on the laptop PC (purchased in 1999) to be upgraded to 128MB to enable more efficient working and multi-tasking.

⁷ The ethernet card is to enable the laptop PC (purchased in 1999) to be linked to the network at the Chief Directorate: Marine and Coastal Management.

⁸ Laptop PC to be used by Data Manager Assistant for assisting with the capture of data and meta-data onto databases and the setting up of an biological parameter meta-database.

Time Schedule of planned activities:

Activity	J a n	F e b	M a r	A p r	M a y	J u n	J u l	A u g	S e p	O c t	N o v	D e c
Oceanographic Meta-Data	•	•	•	•	•	•						
Biological Meta – Data	•	•	•	•	•	•	•	•	•	•	•	•
Extraction of Data from Data CD-ROMS	•	•	•	•								
Capturing of hard-copy only data	•	•	•	•	•	•						
Publishing CD-ROM sets and web-pages	•	•	•	•								
Methodology manuals	•	•	•									
Quality control of data collected	•	•	•	•	•	•	•	•	•	•	•	•
Preparation of Data for submission to SADCO	•	•	•	•	•	•	•	•	•	•	•	•

6. INSTITUTE OF MARINE SCIENCES, TANZANIA

6.1 WORK-PLAN FOR YEAR 2000

The Institute of Marine Sciences (IMS) which is part of the University of Dar Es Salaam was nominated to be a Designated National Agency (DNA) for Tanzania on all matters pertaining to National Oceanographic data in 1996. Consequently IMS has been participating in ODINEA since 1997. For the past year of 1999, the DNA had two major objectives:

- (a) to establish a functional meta-database
- (b) to publicize ODINEA to researchers and the public in general including decision-makers.

The two objectives were implemented fairly well, and for this year of 2000 it is important that we continued to solidify and improve on the achievements that have been obtained. Therefore, the major objectives for the year 2000 are:

- (a) Continue with the collection of data and information for inclusion in the meta-database.
- (b) Continue with the efforts of publicizing ODINEA and the meta-database and we also plan to produce brochures and create a Web page.
- (c) To start official dialogue with the government on the establishment of a full National Oceanographic Data Centre (NODC) for Tanzania at IMS.
- (d) Continue with in-house training in data entry and other themes related to activities of the NODC.

Planned activities (2000)

In line with the objectives for this year, several activities (Table 1) are planned for the year 2000. The budget for the implementation of these activities is presented in Table 2.

Table 1: Activities for the year 2000

	Activity	Duration
1	Maintenance and reformatting of Meta-database (MS-ACCESS to FILEMAKER)	Jan – Dec 2000
2	Development of a Web page for the NODC	Jan - April, 2000
3	Collection of relevant data and information from various researchers, Government Institutions, NGOs, Parastatals etc	Jan, 2000- Dec, 2000
4	Data entry, quality control,	Jan - Dec, 2000
5	Preparations towards the establishment of an NODC at IMS (including a seminar?, proposal write-up etc)	May – Dec, 2000
6	In-house training (MSc student and IMS staff)	Jan,– Dec, 2000
7	Internship to other Oceanographic data centers	Sep, 2000
8	Production and publication of summaries and publication of Database	June - Dec, 2000

Table 2: Budget for year 2000

	ACTIVITY	COST	S-TOTAL
1	Operational expenses		9,188
	a) Collection of data and information from Coastal districts, Research and training institutions, Parastatals, NGOs, etc. (country wise))	1,000	
	b) Compilation, verification and entry of data	1,000	
	c) Travel to coastal districts (Mtwara, Tanga, Dar-Es-Salaam and Lindi)		
	Mtwara - Per diem (3days x 2 people @ US \$ 80)	480	
	- Travel (2 people @ US \$ 150)	300	
	Tanga - Per diem (3days x 2 people @ US \$ 80)	480	
	- Travel (2 people @ US \$ 60)	120	
	Dar-Es-Salaam - Per diem (6days x 2 people @ US \$ 149)	1,788	
	- Travel (2 trips x 2 people @ US \$ 60)	240	
	Lindi - Per diem (3days x 2 people @ US \$ 80)	480	
	- Travel (2 people @ US \$ 150)	300	
	d) Communication (Telephone, fax , stamps, etc).	500	
	e) Customer Services and Support	500	
	f) In house training	500	
	g) Preparation for the establishment of an NODC	500	
	h) Overtime and creation of Web page for ODINEA	1,000	
2	Infrastructure support (Equipment and Supplies)		3,500
	- Intelligent mouse and network hub (8 ports)	600	
	- Stationery (Printing papers, notebooks, files, stapler, punch, envelopes, etc)	1,000	
	- Ink Cartridges	200	
	- Recorderable CDs (20 @ US\$10)	200	
	- Software (e.g., Norton Utilities & Anti-virus, Surfer, CuteFTP, etc.)	1,500	
3	Internet access support	5,000	5,000
5	Provision of ASFA to NODCs	3,000	3,000
6	Internships to an NODC (1 person for 2 months)	6,000	6,000
	Grand Total	26,688	26,688

ROAD MAPS

The following “roadmaps” have been selected to demonstrate how the various programmes, datasets, and formats are related.

1. Key-enter raw data; perform quality control; submit the data to an IODE data centre.
2. Convert spreadsheet data to relational database format; use queries to export desired data.
3. Key-enter data for Ocean Data View; import digital archive data into Ocean Data View.
4. Key-enter data for Java Ocean Atlas; import digital archive data into Java Ocean Atlas.
5. Import ocean climatology (**not real data**) into ODB1 and into Ocean Data View.
6. Convert and extract ICES spreadsheet data to a format that can be used by SURFER; grid and contour data extracts with SURFER.
7. Prepare data for gridding with Ocean Data View (Version 4.0.13 and later).
8. Exporting data from the relational database programme to ODB1, Ocean Data View and Java Ocean Atlas (in their respective spreadsheet formats).
9. Prepare contoured bathymetry charts of any part of the IOCINCWIO Region, using the new global 2-minute bathy/topo archive.
10. Managing and analyzing binary and ASCII gridded data with HDF Browser; creating HDF files with HDF Browser.
11. Managing and analyzing HDF data with HDF Viewer.
12. Managing and analyzing scientific data sets (gridded data) with WebWinds.
13. Converting GIF and JPG data images to HDF, for management and analysis in WebWinds.
14. Obtaining NetCDF climatological files and converting them to HDF for management and analysis in WebWinds.

ANNEX V

LIST OF ACRONYMS

AODC	Australian Oceanographic Data Centre
ASFA	Aquatic Sciences & Fisheries Abstracts/FAO-IOC-UN
BENEFIT	Benguela Environment Fisheries Interaction & Training
CD-ROM	Compact Disc with a Read-Only Memory
CNRO	Centre National pour la Recherche Océanographique, Madagascar
COSTECH	Commission for Science and Technology, Tanzania
DNA	Designated National Agency
GIS	Geographic Information System
GLOSS	Global Sea-Level Observing System
ICAM	Integrated Coastal Area Management
IHSM	Institut Halieutique et des Sciences Marines, Madagascar
IIP	Instituto de Investigação Pesqueira, Mozambique
INAHINA	Instituto Nacional de Hidrografia e Navegação, Mozambique
IMS	Institute of Marine Sciences, Tanzania
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
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
MCM	Marine and Coastal Management (former Sea Fisheries Research Institute), South Africa
MEDI	Marine Environmental Data Information Referral System/IOC
METEO	Centre Météorologique, Madagascar
NEMC	National Environmental Management Council, Tanzania
NODC	National Oceanographic Data Centre
ODINAFRICA	Ocean Data and Information Network for Africa/IODE
ODINEA	Ocean Data and Information Network for Eastern Africa/IODE
ODV	Ocean Data View
ONE-EMC	Office National pour l'Environnement-Environnement Marin et Côtier, Madagascar
OODBMS	Object Oriented Database Management Systems
ORDBMS	Object Relational Database Management Systems
PACSICOM	Pan African Conference on Sustainable Integrated Coastal Management
RDBMS	Relational Database Management Systems
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
SADCO	South African Data Centre for Oceanography
SFA	Seychelles Fishing Authority
Sida	Swedish International Development Authority
SOC	Seychelles Oceanographic Centre
TCMP	Tanzania Coastal Management Partnership
UNESCO	United Nations Educational, Scientific and Cultural Organization
WOD	World Ocean Database
WODC	World Ocean Database Centre
WWW	World Wide Web