

Intergovernmental Oceanographic Commission
Workshop Report No. 179

IOC-Flanders Second ODINAFRICA-II Planning and Review Workshop

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UNESCO

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1. OPENING

The second ODINAFRICA II planning workshop was held at the Mbagathi Campus of the Kenya College for Communications Technology, Nairobi, Kenya from 14-17 November 2001 and attended by ODINAFRICA National Co-ordinators from: Benin, Cameroon, Comoros, Cote d'Ivoire, Ghana, Guinea, Kenya, Madagascar, Mauritania, Mauritius, Mozambique, Nigeria, Senegal, Seychelles, South Africa, United Republic of Tanzania, Togo and Tunisia. There were also invited experts from Belgium and United States of America who have been providing capacity building support for the data and information management components of the project (List of Participants in Annex I). The participants reviewed the implementation status of the project and adopted the work plan and budget for the year 2002. The Director of Kenya's National Environment Secretariat, Dr. B. K'Omudho officially opened the meeting on behalf of the Minister for Environment, the Hon. Noah Katana Ngala.

Welcoming the participants, Dr. Johnson Kazungu, the Director of Kenya Marine and Fisheries Research Institute, expressed Kenya's pleasure in hosting the workshop. He recalled that Kenya has been actively involved in the development of ODINAFRICA and its preceding projects (RECOSCIX-WIO and ODINEA). Dr. Kazungu outlined KMFRI's plan to establish a regional marine information centre, which will offer conference facilities in addition to housing the ODINAFRICA Information Services Centre.

On behalf of Dr. Patricio Bernal, Assistant Director-General of UNESCO and Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO, the Head of Ocean Services at IOC, Mr. Peter Pissierssens welcomed the participants and thanked the Government of Kenya for its kind hosting of this ODINAFRICA Review and Planning Workshop. Mr. Pissierssens emphasized that the ODINAFRICA project is an extremely important undertaking for the IOC as it represents a new direction in the IOC's Capacity Building strategy. Whereas capacity building activities in the past were mostly limited to occasional national or regional training courses, or to donations of equipment, the ODINAFRICA project uses a new strategy, which is based on linking training, equipment and operational support. The ODINAFRICA is a project implemented by Africa for Africa. All products and services such as the ODINAFRICA website, the directories, the data catalogues and many more are developed and maintained in participating Member States. He assured the participants that all IOC Member States are looking forward to the success of ODINAFRICA. Another region, namely the Caribbean and South American region have already started preparations for the establishment of their ODIN network that will be named ODINCARSA (full text of speech in Annex II).

While inviting Dr. K'Omudho to officially open the workshop and deliver the minister's speech, the Director of UNESCO Nairobi Office, Dr. Paul Vitta, re-affirmed UNESCO's commitment to the development of science and technology in Africa. He welcomed the participants to the workshop on behalf of the Director-General, Dr. Koichiro Matsuura and wished them a successful meeting.

In his opening speech, the Minister for Environment, the Hon. Noah Katana Ngala pointed out that the relatively low level of computerization of marine science institutions in Africa has hampered their contribution to the use of the enormous opportunities which information technology provides for addressing the problems of poverty, inequality and environmental degradation. He hoped that the development of an "Ocean Data and Information Network for Africa" would address this problem and assist the institutions with tools to enable them to source information for their research work, and to disseminate information necessary for the sustainable use of the marine environment and resources for development. While expressing his appreciation to UNESCO-IOC and the Government of Flanders-Belgium for the support that they have provided for implementation of the ODINAFRICA network, Mr. Ngala asked the participants to already start thinking of the period beyond the four-year project period (2001-2004) so as to ensure that the network that has been established in ODINAFRICA forms the basis of a lasting alliance of marine science institutions that can exchange experiences. He reiterated Kenya's commitment to the implementation of the programmes of the Intergovernmental Oceanographic Commission of UNESCO and other UNESCO programmes, and said that in spite of the

difficult economic situation prevailing in the country, KMFRI will continue availing its facilities and staff for the service of the project, and marine scientists in the whole of Africa (full text of speech in Annex II).

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF AGENDA

The participants considered and adopted the Agenda and Timetable for the meeting.

2.2 ELECTION OF CHAIRMAN

The Technical Secretary for the session, Mr. Mika Odido then invited nominations for the Chairman of the session. The representative of Cameroon, recalling the active role that Kenya has played in the development of the ODINAFRICA project proposed Mr. Harrison Ong'anda as the Chairman for the session. The proposal was seconded by Cote d'Ivoire. The participants unanimously elected Mr. Ong'anda as Chairman for the session.

2.3 CONDUCT OF SESSION, TIMETABLE AND DOCUMENTATION

The Technical Secretary for the session introduced the Timetable, the documentation and the conduct of session, referring to the Provisional Agenda (Doc. IOC/ODINAFRICA-II/1), the Provisional Timetable (Doc. IOC/ODINAFRICA-II/2), and the Provisional List of Documents (Doc. IOC/ODINAFRICA-II/3). He also apologized for the fact that it was not possible to translate all documents since some of the reports were submitted late. He pointed out that though the Summary Report will be available for adoption in English only, the final report for the session would be published in both English and French.

3. REVIEW OF ODINAFRICA IMPLEMENTATION STATUS

3.1 WORK PLAN FOR 2001

Mr. Peter Pissierssens recalled the ODINAFRICA Work Plan for 2001 as was recommended by the co-ordinators at their meeting in January 2001 in Mombasa, Kenya (see Annex III). The work plan was based on the decisions of the first ODINAFRICA planning workshop (Dakar, Senegal, 2-5 May 2000) but reviewed in view of the delayed arrival of funds in late 2001. He pointed out that though it had been envisaged that the project would commence in May 2000, it was not until August that the funds were transferred to UNESCO. Due to the already tight schedule planned for the second half of the year, including the Sixteen Session of IODE and the final workshop for the Ocean Data and Information Network for Eastern Africa (ODINEA), it was not possible to start the implementation of planned activities. During the year 2001, a total of about US\$571,000 was used out of an envisaged US\$942,000, which were initially budgeted for 2000 and 2001. Mr. Pissierssens also informed the meeting about the approval of the UNESCO Knowledge Portal project that will provide funds for, *inter alia*, the development of an African Ocean Portal during 2002-2003.

3.2 IOCEA REGIONAL REPORT

The Regional Co-ordinator for IOCEA, Dr. Sekou Cisse outlined activities that had been implemented in the region. National Co-ordination workshops to assist in the identification of institutions to host the National Oceanographic Data and Information Centres were held in Benin, Cameroon, Mauritania, Senegal and Togo. Tunisia also held a national workshop using funds availed

by the institution hosting the national oceanographic data and information centre. The first training course for Marine Data Management was held in Casablanca, Morocco from 30 March - 13 April 2001 and attended by data managers from Cameroon, Benin, Ghana, Guinea, Mauritania, Morocco, Nigeria, Senegal, Togo and Tunisia. Cote d'Ivoire and Gabon were not able to send participants to the training course. The first training course on Marine Information Management was held in Cape Town, South Africa (29 October - 9 November 2001). It was attended by participants from Ghana, Guinea, Kenya, Madagascar, Mauritania, Mauritius, Morocco, Mozambique, Nigeria, Senegal, Seychelles, South Africa, Tanzania, Togo and Tunisia. Benin and Cameroon were not able to attend due to travel or visa problems. Cote d'Ivoire also did not participate in the workshop due to reasons discussed below. The workshop report is available as IOC Workshop Report No.???

Computer equipment and peripherals were delivered to all participating Member States from the region except for Cote d'Ivoire and Gabon. This matter will be resolved in 2002. Funds for operational expenses were provided to Benin, Cameroon, Guinea, Mauritania, Nigeria, Tunisia and Togo. The work plans and budgets from Ghana were received too late to process the contract. None of the countries requested funds for development of meta databases and the development of products and services, as well as public awareness, as it was felt that priority was needed to be given to the establishment of the data and information centres on a solid basis and on creating awareness.

Due to administrative problems experienced at the CRO in Cote d'Ivoire, the institute has not been able to participate in the project in 2001. As CRO should have been the Informatics Services Centre for the IOCEA region but could not assume this role in 2001, the co-ordinators had, with the approval of the Chairman of IOCEA, put in place transitory arrangements to provide information services for all the countries from the ODINAFRICA Information Services Centre located at the Kenya Marine and Fisheries Research Institute, Mombasa, Kenya. It was noted with appreciation that the administrative problems had now been resolved thus enabling full participation of Cote d'Ivoire in the project.

The delays in delivery of equipment and transfer of funds to the institutions seriously hampered the implementation of the project. The participants urged UNESCO to find ways to minimize such delays in future. The full report is added as Annex IV.

CONCLUSION

Despite delays caused by a variety of reasons, NODCs had now been formally established in 2001 in 6 countries in the IOCEA region. Furthermore, national informal networks had been created between stakeholders through the national workshops. Equipment, training and operational support had been provided to nearly all participating countries.

3.3 IOCINCWIO REGIONAL REPORT

The Regional Co-ordinator for IOCINCWIO, Mr. Mika Odido, reported on project activities implemented in the IOCINCWIO region. National co-ordination workshops were held in Comoros and Mauritius. Comoros, a new IOC Member State, designated CNDRS as the National Oceanographic Data and Information Centre.

Contracts for operational expenses and development of data archives have been processed for data centres in Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa and Tanzania. In the case of South Africa there were delays unintentional problems related to receiving external support funds. This was finally resolved and the contract is now being processed. There were also delays in processing contracts for Comoros due to delays in submitting of the work plan and budgets by CNDKS, and inclusion of unclear items in the budget. The amount unspent under this item was as

follows: Madagascar (US\$ 400), Mauritius (US\$ 2,100), Seychelles (US\$ 2,400) and South Africa (US\$ 4,700).

Information centre equipment and software were delivered to the centres in Comoros, Kenya, Madagascar, Mauritius, Seychelles, South Africa and Tanzania. Comoros in addition, received equipment for its data centre. South Africa identified the Directorate of Marine and Coastal Management as the information centre. The situation regarding the continued participation of Instituto Investgacao Pesqueira (IIP) as the information centre in Mozambique remains unclear. In the meantime, the Instituto Nacional da Hidrografia e Navegacao (INAHINA) that is already the National Oceanographic Data Centre (CENADO), will take on the responsibilities of the information centre. In view of the uncertainty in 2001, delivery of equipment to the Mozambique information centre was therefore deferred pending further consultation.

Contracts for development of data/information products and publicity/public awareness were processed for Kenya, Madagascar, Mauritius, Mozambique and Tanzania. Activities implemented within the framework of these contracts include: publication of brochures, information sheets, data summaries, calendars; organization of and meetings/seminars; lectures to educational institutions; and consultation visits to key government officials.

The Kenyan NODC was contracted to update of the African Publications database AFRIPUB, as part of their product development activity. This database contains bibliographic information on aquatic science and fisheries documents published in/about Africa. An additional 1,500 records are expected by end-November 2001. The CENADO was contracted to undertake two studies: i) evolution of the bottom topography of the Zambezi river delta, and ii) seasonal variation of currents, sea levels, salinity and other hydrographic parameters along the Mozambican coast. The amount unspent under this item was: Madagascar (US\$ 400), Mauritius (US\$ 1,800), Seychelles (US\$ 3,600), and South Africa (US\$ 3,600). The full report is added as Annex V.

CONCLUSION

Thanks to the previously implemented ODINEA project, the implementation of ODINAFRICA in the IOCINCWIO region has gone extremely smoothly. A few minor issues that hampered implementation in Comoros, Mozambique and South Africa will be resolved shortly.

3.4 ODINAFRICA INFORMATION SERVICES CENTRE REPORT

The report of the ODINAFRICA Information Services Centre is presented in Annex VI. The services previously provided by the RECOSCIX-WIO and RECOSCIX-CEA projects through their regional dispatch centres located at KMFRI, Mombasa and CRO Abidjan respectively were taken over by the ODINAFRICA project. The RECOSCIX projects terminated in 1999. As already explained under 3.2, due to administrative problems experienced in Côte d'Ivoire, the Chairman of IOCEA agreed with the proposal of the co-ordinators to move the information services previously offered by RECOSCIX-CEA from CRO to KMFRI as a temporary measure.

The participants considered the products and services offered by the centre. In order to improve the project services, the participants recommended that the possibility of accessing full text journals on-line be explored, and the use of electronic document delivery be initiated. However, the Internet bandwidth at the centres will be an issue that needs to be investigated at both the regional and national levels.

The participants congratulated the web team for the good work done but noted the slow progress in translation of the site to French. More substantive contribution are also required from participating Member States, including reports, brochures, photographs, etc. Participants were

requested to assist in the translation of the website and the Newsletter WINDOW, and strongly urged to send articles for publication.

Other products currently maintained at the ODINAFRICA Information Services Centre include (i) the directory of Marine (and freshwater) Professionals in Africa (AFRIDIR), (ii) database of marine science publications from/about Africa (AFRIPUB), and (iii) the merged catalogue of holdings of marine science libraries and information centres in Africa (AFRILIB).

The participants welcomed the return of Côte d'Ivoire to the project and considered its role of regional information service centre for the IOCEA region, a task it had been implementing during the RECOSCIX-CEA project for some time. The National Co-ordinator of Côte d'Ivoire reiterated his institution's offer to host the Centre. The participants accepted the kind offer of Côte d'Ivoire and decided to restore funds allocated in the budget for the operation of the Centre. It was further agreed that responsibility for the AFRIDIR, AFRIPUB and other relevant regional information tools would henceforth be shared between the ODINAFRICA Information Services Centres in IOCINCWIO and IOCEA. The full report is added as Annex VI.

3.5 ODINAFRICA NATIONAL REPORTS

The ODINAFRICA National Co-ordinators presented detailed reports of activities implemented by the national data and information centres during the year 2001. These reports which outlined the achievements and problems encountered are available in Annex VII.

4. ODINAFRICA CAPACITY BUILDING

The participants were informed that the trainees in both the data and the information courses had very varied backgrounds- some with very high qualifications and others average. They agreed that basic training (including languages) should be provided locally within the available budgets so as to better prepare the trainees for the regional training courses. Those trained should also train others in their institutions to ensure continuity. The participants called for the re-instatement of internships as these provide opportunities to acquire working experience in well-established data and information centres. There is also need to provide training on product development, as this is one area which most of the centres have not mastered.

There was concern that the Member States, which had missed the 2001 training sessions, would lag behind others. Several options were considered to enable them to catch up. These included use of the Resource Kit (with support from the lecturers), organization of short training courses, and training attachment at some of the institutions participating in the project, which are already proficient in implementation of the agreed upon activities. It was agreed that the consultant for data management (Dr. Murray Brown) would provide short hands on training courses for the relevant countries. The meeting was informed that the librarians and documentalists, during the training course in Cape Town, South Africa, had proposed that the next data and information courses be held back-to-back so as to enable interaction between the 2 groups. Participants considered the offers of Mauritania, Mauritius, Tanzania and Tunisia to host the workshops, and agreed that a decision will be taken based on a number of practical considerations including available infrastructure, Internet access, difficulties in procuring visas, etc. The participants requested that the resource persons in data management and information management should compare their programmes and identify a suitable and practical shared component for the planned training courses in 2002. The participants were also informed of the many difficulties experienced by librarians in their institutions, mostly related to the low positions occupied by the librarians in the institutional hierarchy. The participants stressed that the data and information management components of ODINAFRICA are equally important and close collaboration between the data and information experts, as well as a strong national support for both components was essential.

In view of the selection of the INMAGIC DB/Textworks software for library management, some participants expressed concern about sustainability of using commercial software. It was pointed out that whilst CDS/ISIS and its ASFISIS (being freeware) were suitable for catalogue development they were not library management packages. The INMAGIC solution, which has now been adopted for use in the project, is Integrated Library Management Software with a much wider range of functionalities. The software was selected by the IODE Steering Group for the Resource Kit after assessment of a wide selection of available options. The Secretariat repeated that software maintenance and support would be provided throughout the duration of the project. Beyond 2003, the costs to the institutions would be only approximately US\$100/year/institution. The participants were further informed that during the Cape Town workshop, it had been decided to provide three types of follow-up support for the information managers. (i) general support by Mrs. Pauline Simpson (SOC/NOL, UK); (ii) INMAGIC Technical support by Ms. Bella Odendaal, MINDEX, South Africa; and (iii) catalogue building support by Ms. Josette Confait (Seychelles Fishing Authority, Seychelles). Ms. Confait will also carry out quality control for all information centres. The quality-controlled records will be merged and loaded on the IOC web server. Dr. Murari Tapasiri (NIO, India) will assist with CDS ISIS data base convenors.

The participants mentioned problems, which they have had with the MEDI software used at the data management training course, held in Casablanca, Morocco in April 2001, and were informed that a new version will be released before the end of 2001.

5. ODINAFRICA LINKAGES WITH IOC PROGRAMMES AND OTHER REGIONAL INITIATIVES

The participants emphasized the importance of close interaction with other programmes and initiatives, especially the African Process, as this is one of the ways of ensuring sustainability of the project. It was agreed that the National Co-ordinators would make contacts with the national contact points for the African Process in their respective countries so as to discuss the inputs that ODINAFRICA can provide to the process. Participants stressed the importance of ensuring that the ODINAFRICA data centres play an active role in the development of the data and information management plans for the project proposals that are being prepared for submission to the Partnership Conference.

6. ODINAFRICA ADMINISTRATION AND MANAGEMENT

The participants considered several actions to improve the running of the project. They agreed that the number of contracts made for each institution should be reduced to cut down paperwork. The participants agreed that the Terms of Reference for the Regional Co-ordinators would be drafted and circulated to the national co-ordinators for approval, as a way of improving the management of the project. Several participants noted that their Regional Co-ordinator had not yet visited their institutions. The group recommended that Regional Co-ordinators visit the institutions under their responsibility once a year to assess progress and to discuss proposals to promote the project to national authorities. The participants were requested to identify the preferred method of transfer of funds, based on their experiences.

The problems that arose during the delivery of equipment through UNDP offices were discussed and it was noted with concern that UNDP offices may henceforth charge for administration services.

The participants discussed at length the actions required to ensure sustainability of the project beyond 2004. This included the possibility of developing data and information products for sale, the

sourcing of additional donor funding, provision of data and information management services and products to other projects and initiatives. However, they agreed that data should not be given a monetary value and that the current IOC policy on “full and open access” to data should be followed. Products valuable to the whole network, especially those whose production has been funded by UNESCO/IOC should also be freely exchanged.

It was noted that e-mail communication between the now 60 or so contacts (national co-ordinators, data managers, information managers) was still not very active. It was felt that, to some extent, this was due to the frequent changes in e-mail addresses and/or e-mail systems by participants. In response to these concerns, the Secretariat offered to register the domain name odinafrica.net and provide all participants in the project with a unique e-mail address (f.surname@odinafrica.net). The participants accepted the offer and requested the Secretariat to do the necessary. The domain was registered and e-mail addresses for the National Co-ordinators were distributed during the workshop (addresses for data and information managers would be provided later and posted on the web site). It was further noted that the new domain would be able to host a mirror of the ODINAFRICA website, as well as national ODINAFRICA (and other institutional) sites (original or mirror).

7. ODINAFRICA WORK PLANS AND BUDGETS FOR 2002

7.1 NATIONAL WORK PLANS AND BUDGETS

The participants prepared national draft work plans and budgets for consideration. These were reviewed by the regional co-ordinators to ensure that they fall within the workplan accepted by the donors. The participants then discussed the budgets in detail and also agreed upon the joint activities budget.

Note Rep 2001/2002: Sum of balance remaining from 2001 and planned budget 2002 (as in original workplan).

Total requested :
Total available :
Balance :

ODINAFRICA NATIONAL BUDGETS 2002											
Code	Activity	Benin	Cameroon	Comoros	Côte d'Ivoire	Gabon	Ghana	Guinea	Kenya	Madagascar	Mauritania
SA2.1	National Co-ordination Meeting	2000	2000	0	1800	2000	2000	0	0	0	0
SA2.4	Operational expenses	6000	5000	6980	6000	4000	10020	5000	4000	4700	6200
SA4.2	Development of metadata base	3000	3400	2700	4000	2000	3000	2900	0	0	2300
SA4.3	Development of data archives	3000	3700	2000	4000	5400		3600	1700	2000	2700
SA5.1	National workshop on products	3000	3000	3000	3000	3000	3000	3000	4000	0	3000
SA5.3	Development of products	2000	2500	3500	1800	3600		2400	1800	7200	1800
SA5.4	Public awareness	2000	2500	1800	2400	3600	1800	2400	1800		3000
	Internship				2510						
SA 2.3	Provision of hardware & software									3000	
							3000				
Total		21000	22100	19980	25510	23600	22820	19300	13300	16900	19000
Rep2001/2002		24193	24537	19246	39100	39100	26695	22214	11655	12105	23623
Balance		3193	2437	-734	13590	15500	3875	2914	-1645	-4795	4623

Code	Activity	Mauritius	Morocco	Mozambique	Nigeria	Senegal	Seychelles	South Africa	Tanzania	Togo	Tunisia
SA2.1	National Co-ordination Meeting	0	0	0	1800	1300	0	0	0	1000	1300
SA2.4	Operational expenses	6500	4000	9000	6000	6500	4000	2700	4400	9000	2500
SA4.2	Development of metadata base	0	2000	0	2600	2600	0	0	0	2500	0
SA4.3	Development of data archives	2000	5400	2700	2700	2700	5100	1700	2700	2700	0
SA5.1	National workshop on products	2500	3000	3000	2300	4099	0	3000	6500	3500	4500
SA5.3	Development of products	0	3600	1800	2500	3300	1800	3600	1800	4000	6500
SA5.4	Public awareness	4350	3600	1800	1800	1800	6200	0	1800	1500	1800
	Internship					6000					
SA2.3	Provision of hardware & software						3500				
Total		15350	21600	18300	19700	28299	20600	11000	17200	24200	16600
Rep2001/2002		15350	19900	18600	22695	28299	17290	21950	11650	24299	26560
Balance		0	-1700	300	2995	0	-3310	10950	-5550	99	9960

7.2 JOINT ACTIVITIES

Activity	Budget
Annual Project Management workshop	65,000
Annual Project Staffing costs – WIO (Consultant P-3, 50% time)	20,994
Annual Project Staffing costs – CEA (Consultant P-3, 50% time)	20,994
Development of ODINAFRICA/IODE Resource Kit	20,000
Regional Data Management Workshop	65,000
Regional Data Management Workshop follow-up (Consultant)	20,000
Regional Information Management Workshop	60,000
Regional Information Management Workshop follow-up (Consultant)	20,000
GODAR participation	15,000
Support RECOSCIX-WIO network	16,000
Support RECOSCIX-CEA network	16,000
Participation in African Process-Abuja and Johannesburg	10,000
Project Co-ordination - travel	20,000
Public Awareness (posters, brochures, etc.)	10,000
Support RECOSCIX networks - Document Delivery	14,000
Catch up data & information management training (Benin, Cameroon, Côte d'Ivoire, Gabon)	10,000
AFRIDIR development -WIO	1,000
AFRIDIR development -CEA	2,000
AFRIPUB/AFRILIB (QC and Merging)	3,000
ODINAFRICA website/WINDOW	7,000
Total Requested	415,988

Total available :

Balance :

8. DATE AND VENUE OF NEXT SESSION

The participants pointed out that the logistics of travel, including ease with which one can get a visa should be considered in selecting the venue for the next meeting. They welcomed the offer of Cameroon to host the next session from 19-23 November 2002 in Limbe, Cameroon, and congratulated the ODINAFRICA National Co-ordinator for Cameroon for the very detailed proposal he had submitted in this regard.

9. CLOSING

In his closing remarks, the Chairman of the session, Mr. Harrison Ong'anda thanked the participants for the thoroughness and dedication with they had addressed the issues. Mr. Ong'anda, on behalf of the participants, expressed thanks to the Government of Flanders-Belgium, for the generous support they have continued to provide to the project. He expressed the hope that the participants will be able to implement and complete the work plans agreed on before the next session of the planning and review meeting.

ANNEX I

LIST OF PARTICIPANTS

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ANNEX II

SPEECHES DURING THE OFFICIAL OPENING OF THE SECOND ODINAFRICA ANNUAL PLANNING AND REVIEW WORKSHOP

I. By Mr. Peter Pissierssens, Head of Ocean Services, IOC/UNESCO

Mr. B. K'Omudho, Director of the National Environment Secretariat,
Dr. Paul Vitta, Director of UNESCO, Nairobi,
Distinguished National Co-ordinators and Regional Co-ordinators,
Ladies and Gentlemen,

On behalf of Dr. Patricio Bernal, Assistant Director-General of UNESCO and Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO, I wish to thank the Government of Kenya for its kind hosting of the ODINAFRICA Review and Planning Workshop.

Kenya has played an important role in the history of ODINAFRICA. In fact, ODINAFRICA is the child of the RECOSCIX-WIO Project, Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean region. The RECOSCIX-WIO was proposed by the Delegate of Kenya in 1987 during the Second Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, better known as IOCINCWIO, held in Arusha, Tanzania. At that same occasion, Kenya offered to host the RECOSCIX-WIO Regional Dispatch Centre at KMFRI Mombasa. The project was started in 1989 with IOC funding. The project was able to establish a regional network of marine institutions, bringing scientists closer together. The RECOSCIX-WIO also provided much needed scientific literature to the East African region. Indeed, how we can we expect scientists do carry out top quality research without access to the knowledge and experience of their fellow researchers. With support from IOC and the Government of Belgium, the RECOSCIX-WIO project continued its services to East Africa until 1999. In the meantime, the research community in the IOCEA region, i.e., Western Africa had realized the value of the RECOSCIX network and requested IOC for the development of a parallel network in their region. At the same time, the Eastern African scientists realized the tremendous importance of not only sharing information but also data and this gave birth to the ODINEA - Ocean Data and Information Network in Eastern Africa.

In April 2000, twenty African States decided to join forces and develop the Ocean Data and Information Network for Africa, ODINAFRICA. This ambitious project that will be implemented over a 3-year period with a US\$ 4,000,000 budget, will assist the participating countries to develop the necessary human and institutional capacity to manage ocean data and information, and to develop data products for decision-makers, researchers, the private sector and the general public.

The ODINAFRICA project is an extremely important undertaking for the IOC as it represents a new direction in the IOC's Capacity Building strategy. Whereas capacity building activities in the past were mostly limited to occasional national or regional training courses, or to donations of equipment, the ODINAFRICA project uses a new strategy, which is based on linking training, equipment and operational support. We asked ourselves: what is the reason of organizing training courses for the trainees, when returning home they do not have the necessary equipment, or cannot get access to the Internet to communicate with their colleagues?

The ODINAFRICA is a project implemented by Africa for Africa. All products and services such as the ODINAFRICA website, the directories, the data catalogues and many more are developed and maintained in participating Member States. I can assure you that all IOC Member States are looking forward to the success of ODINAFRICA. Another region, namely the Caribbean and South American region have already started preparations for the establishment of their ODIN network that will be named ODINCARSA.

Thank you for your attention.

II. By The Hon. Katana Ngala, Minister of Environment

Dr. Paul Vitta, Director, UNESCO/ROSTA,
Mr. Peter Pissierssens, Head of Ocean Services, IOC/UNESCO,
Distinguished Scientists,
Ladies and Gentlemen,

It gives me great pleasure to be with you today on this first day occasion of 'Ocean Data and Information Network for Africa' Workshop (ODINAFRICA). First and foremost, I take this opportunity to welcome you to Kenya, for those guests who traveled from outside Kenya. I hope during your busy schedule you will also find some time to tour parts of our country to experience and enjoy our hospitality.

Ladies and Gentlemen,

The rapid development of information technology provides enormous opportunities for addressing the problems of poverty, inequality and environmental degradation by creating potential for access to information that will enable rational exploitation of the environment and resources. Harnessing this technology will enable us to make economic gains that are crucial for economic development and emancipation of our people from the debilitating effects of poverty. The relatively low level of computerization of marine science institutions in Africa has hampered their contribution to this effort. It is our hope that the development of an 'Ocean Data and Information Network for Africa' which you are undertaking will address this problem and assist the institutions with tools to enable them to have source information for their research work, and to disseminate information necessary for sustainable use of the marine environment and resources for development.

We have held several meetings in the last few years to try and find ways of ensuring that the coastal resources are used well for the benefit of the coastal communities. The strategies developed at these meetings have been endorsed by the African Ministerial Conference on Environment (AMCEN) and the OAU Heads of States meeting in Algiers in 1999. Subsequently, 'The African Process for the Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa' which will culminate in a Partnership Conference in 2002 was initiated. The Partnership Conference, bringing together representatives of the African coastal countries and the development partners will consider proposals for intervention to address coastal development and conservation problems.

I am drawing your attention to these processes because it is my conviction that the 'Ocean Data and Information Network for Africa' has a key role to play providing the necessary data and information to be used for development of the programme of interventions, as well as a vehicle for dissemination of information on the process. The Pan-African Conference on Sustainable Coastal Management, which was held in Maputo, Mozambique in 1998, had the following as one of its recommendations, *"...to strengthen the collection and dissemination of scientific information a basis for effective management of coastal areas"*.

Specific areas that can benefit from the project include preparation of feasibility studies for all sorts of project, and Environmental Impact Assessments studies. Our researchers also need baseline data to compare their results, as well as literature and reports on work done in other places. The resource managers and planners require information packaged in a way easy to understand to use in their work. A well-informed public will be better able to contribute to rational management of the resources of the environment and resources, thus ensuring that economic development is not at the expense of the environment.

Satisfying the information needs of all these potential users will be a challenge to ODINAFRICA. The data centres must not behave like "black holes" which only take in information and offer nothing in return. However, while developing your services and products you must be sensitive to intellectual property rights and copyright regulations, which are necessary to protect the needs of the generators of the

information. This is the only way in which you will be able to gain their confidence so that they can contribute to building your databases.

As you settle down to review the activities undertaken in the last year and plan for the remaining years, you should revisit the original objectives of this project and check how these have been achieved. In particular, how far have we gone in establishing data and information centres in each of the countries participating in the project, have we developed databases for storage of information, do we have catalogues of information sources, are we already producing data and information products in a language and form which is easily understandable, have we put in place mechanisms for dissemination and exchange of information?

You must also already start thinking of the period beyond the four-year project period (2001-2004). While being grateful for the support we are receiving from our development partners especially UNESCO and the Government of Flanders-Belgium, we must put in place structures that will last beyond the project period. The network that has been established in ODINAFRICA forms the basis of an alliance of marine science institutions that can exchange experiences and help in reducing the dependence on other countries.

In conclusion I would like to reiterate Kenya's commitment to the implementation of the programmes of the Intergovernmental Oceanographic Commission of UNESCO and other UNESCO programmes. You will recall that it was Kenya that called for the establishment of the IOC's Regional Committee for the Co-operative Investigations in the North and Central Western Indian Ocean (IOCINCWIO). Kenya has hosted the Regional Information Centre since 1991 and the Project Office for the Regional Committee since 2000 at the Kenya Marine and Fisheries Research Institute in Mombasa. In spite of the difficult economic situation prevailing in the country, KMFRI will continue availing its facilities and staff for the service of the project, and marine scientists in the whole of Africa. The exhibition we are inaugurating today provides a display of some of the services and products that have been developed by the centre at KMFRI.

Ladies and Gentlemen,

At this juncture, I wish you very fruitful deliberations and I therefore declare this workshop officially open.

Thank you and God bless you.

ANNEX III

ODINAFRICA Work Plan 2001

The following activities were planned for 2001.

January 2001

- Provision of data management hardware and software for established data centres (NODCs, DNAs) in Comoros, Ghana, Guinea, Mauritania and Nigeria.
- Request established data centres to identify information centres, preferably in the same institution.
- Further development of ODINAFRICA-II/IODE Resource Kit.
- RECOSCIX contracts (operational, WINDOW, AFRIDIR, Document Delivery, web services training).
- Circular Letter to Partner institutions clarifying possible funds provision arrangements; Circular Letter to Partner institutions on contractual rules and procedures.
- Circular to Partner institutions to identify hosts for the 2001 Data Management Workshop (April 2001), Information Management Workshop (August 2001) and Review Workshop (November 2001).

February 2001

- Mission ODINAFRICA-II IOCEA Regional Co-ordinator to IOCEA Member States.
- Provision of information management hardware and software for established information centres (Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania).
- Distribution of ABEKT Integrated Library Management Software to established information centres (Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania).
- National co-ordination meetings (Benin, Cameroon, Gabon, Mauritania, Senegal, Tunisia, Togo, Comoros).
- Operational expenses support for established data centres (Comoros, Ghana, Guinea, Morocco, Nigeria).
- Operational expenses; development and maintenance of national/regional data archive; support for development of data and information products; public awareness creation on the project services and products (Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania). Note that support for development of data and information products, and public awareness creation will be provided on the basis of defined deliverables.
- GODAR participation (repatriation of IOCEA and IOCINCWIO data from former USSR institutions).

March 2001

- Provision of hardware and software for new data centres (Benin, Cameroon, Gabon, Morocco, Senegal, Togo, Tunisia). Note: support will be provided only when official letters of formal establishment of National Oceanographic Data Centres or Designated National Agencies have been received by the IOC.

April 2001

- Operational expenses data and information centres; development of national and regional meta databases (Benin, Cameroon, Comoros, Cote d'Ivoire, Gabon, Morocco, Senegal, Togo, Tunisia).
- Regional data management workshop for the IOCEA region (and MED Partners).

May 2001

- Regional data management workshop follow-up (M. Brown).

June 2001

- Provision of hardware and software for information centres (Benin, Cameroon, Comoros, Gabon, Morocco, Senegal, Togo, Tunisia).

July 2001

- RECOSCIX Document Delivery 2nd semester.

August 2001

- Regional Information management workshop (IOCEA and MED - with possible participation of IOCINCWIO librarians).

September 2001

- Regional Information management workshop (follow-up) (contractor to be identified).

October 2001

November 2001

- Annual Project Review workshop.
- Renewal of ASFA subscriptions.

Several activities planned for 2001 were shifted to 2002. These include development of data archives for the IOCEA centre and Comoros. **Note:** Côte d'Ivoire cannot be provided with any support until the outstanding legal issues with CRO have been resolved. Accordingly, CRO is currently not included in the 2001 work plan.

Dates and Venues for ODINAFRICA-II Functions

The co-ordinators considered the offers from Tanzania, Kenya and Mauritius to host the second ODINAFRICA-II review workshop. A decision on the venue was deferred pending the working out of details of relative costs of hosting at each venue. However, the date was set for 19-23 November 2001.

The co-ordinators also recalled the offers of Mauritania and Morocco during the first planning workshop to host training courses for the IOCEA region. It was agreed that contacts would be made with the two Member States to follow-up on these offers. The data management training workshop was scheduled for 2-13 April 2001, and the information management workshop for 20-30 August 2001. The co-ordinators recommended that means be explored to enable some IOCINCWIO marine information managers to attend the course so as to train on the use of ABEKT software.

The co-ordinators noted the communication from the Madagascar National Commission for UNESCO to the effect that Madagascar is considering hosting the IOCINCWIO-V session. Tanzania has also submitted an offer to host the session and cater for the local expenses. The dates for IOCINCWIO-V were tentatively set for 3-11 September 2001.

ANNEX IV

ODINAFRICA REGIONAL REPORT - IOCEA

Accéder à l'information et aux données marines, procéder à leur utilisation effective pour gérer et exploiter rationnellement l'environnement et les ressources marines constitue le défi majeur à relever par les Etats africains côtiers. La fiabilité des stratégies dépend dans une large mesure de la disponibilité et de l'utilisation de l'information dans des formats compréhensibles et que l'on peut appliquer.

Suite aux recommandations formulées par les Etats concernés, dans la tentative de les aider à établir des mécanismes de collecte, de traitement, de conservation et de dissémination de l'information et des données, il a été initié le projet ODINAFRICA avec pour objectifs fondamentaux:

- aider à la création des CNDO, à leur fonctionnement et à leur développement;
- fournir des opportunités de formation à la gestion des données et de l'information marine;
- assister pour le développement des produits d'information et de données répondant aux besoins de différents utilisateurs;
- renforcer la coopération scientifique régional à travers un réseau d'échange et de dissémination des données et de l'information marine;
- aider à développer des relations avec des projets à objectifs similaires

1. Lancement Officiel d'ODINAFRICA-II

Le lancement officiel du projet avait été fixé au 1^{er} septembre 2000 suite à la première réunion de coordination tenue en août 2000 à Mombasa (Kenya) regroupant monsieur Peter Pissierssens, Chef des Services Océaniques de la COI (UNESCO) et les Coordonnateurs régionaux ODINAFRICA des régions IOCEA et IOCINCWIO. Cette réunion avait permis entre autres, d'examiner les modalités d'achèvement des activités du RECOSCIX notamment en ses volets Services et Communications. Des dispositions transitoires prises à cet effet, avaient confié le volet Communication au Coordonnateur Régional ODINAFRICA/IOCEA. Cette mission avait consisté à opérer un désenclavement des différentes institutions partenaires du projet ODINAFRICA par des offres d'acquisition:

- a) de moyens de communication constitués de:
 - un abonnement annuel à Internet;
 - une ligne téléphonique nationale;
 - un modem.
- b) de commandes d'ouvrages et d'abonnement aux revues scientifiques.

Le tout étant exécutoire suivant une requête de la Coordination Nationale ODINAFRICA de chacun des états membres.

Une lettre d'information expliquant la procédure et les actions avait été diffusée dans la région; elle avait été appuyée de lettres de rappel.

1.1 Activités Planifiées au Titre de l'Année 2001

A l'issue de la deuxième réunion de coordination tenue en janvier 2001 à Mombasa (Kenya), les activités suivantes ont été planifiées au titre de l'année 2001:

- a) Organisation des ateliers nationaux de désignation des CNDO;
- b) Organisation de l'Atelier de formation en gestion des données marines;
- c) Fourniture d'équipement informatique et logiciels aux CNDO;
- d) Organisation de l'Atelier de formation en gestion de l'information marine;
- e) Développement des métadonnées et bases de données nationales, des produits;
- f) Sensibilisation et conscientisation du public .

1.2 Procédure de Mise en Oeuvre

La procédure de mise en œuvre des actions initiées peut être décrite ainsi qu'il suit:

1.2.1 Lettres du Coordonnateur Régional

- Diffusion de lettres d'information sur le lancement des activités et de lettres circulaires d'appel à la formulation des requêtes;
- Diffusion de guide succinct d'exécution des contrats UNESCO;
- Diffusion de lettres et/ou messages de rappel;

1.2.2 Réalisation de l'Activité Planifiée au Niveau de l'Etat Membre elle Comporte Trois Options Selon la Nature de l'Activité Initiée:

- Requête de contrat de financement d'activités par le Coordonnateur National de l'Etat Membre par la fourniture d'une estimation des dépenses (cas de l'organisation de l'atelier national, de l'allocation des dépenses d'opération, du développement des bases de données, métadonnées et autres produits);
- Désignation de personnes-ressources par le Coordonnateur National pour participer aux différents ateliers de formation;
- Information préalable ou spécifique à fournir par le Coordonnateur National pour l'acquisition de l'équipement et logiciels.
- Toutes les options de la procédure ont été observées par les différentes coordinations nationales ayant bénéficié de l'assistance du projet.

Au cours de la réalisation de ces activités, une collaboration a été établie et elle a reposé sur:

- un échange de points de vue entre Coordonnateurs nationaux et Coordonnateur Régional;
- un échange de points de vue entre Coordonnateurs Régionaux;
- de l'information et des consultations avec le Chef des Services Océaniques de la COI(UNESCO).

2. Contributions

2.1 Assistance COI/UNESCO et Gouvernement des Flandres

La contribution de la COI et du Gouvernement des Flandres a consisté en la fourniture d'allocations financières pour la réalisation des activités suivant le planning retenu et suivant les allocations fixées à la suite des différentes révisions budgétaires opérées. Ces montants d'allocations sont indiqués en annexe.

2.2 Contribution des Etats-Membres

La contribution des Etats membres a consisté en la fourniture d'infrastructure et accessoires (eau, électricité), le paiement des salaires des cadres nationaux et quelquefois des assistances financières aux structures nationales abritant les CNDO.

3. Mise en Œuvre

3.1 Execution des Activites Planifiees

Les conditions d'exécution étaient les mêmes du point de vue de l'assistance du projet aux partenaires nationaux que sont les institutions participant au projet. Elles étaient assorties de conditions spécifiques à chacun des Etats membres.

3.1.1 Ateliers Nationaux ODINAFRICA

L'allocation financière sous forme de contrat s'adressait aux Etats membres qui ne disposaient pas de Centres Nationaux de Données Océanographiques (CNDO) avant le lancement du projet ODINAFRICA. La fourniture de cette allocation a permis aux pays suivants de tenir leurs ateliers nationaux de désignation des CNDO: Cameroun, Togo, Bénin, Mauritanie, Sénégal (contrat signé, en attente d'organisation de la réunion). La Tunisie a organisé son atelier sur fonds propre.

A ce jour, le projet ODINAFRICA a aidé la région à porter le nombre de ses CNDO à 9 alors qu'elle n'en avait que 4 au démarrage du projet. Cette activité sera clôturée très prochainement pour tous Etats membres en attente d'organisation de cette réunion. Ce sont Gabon et Côte d'Ivoire.

3.1.2 Atelier de Formation en Gestion des Données Marines

Le premier atelier de formation à la gestion des données marines s'est tenu à Casablanca (Maroc) du 30 mars au 13 avril 2001.

Quatre volets constituent les fondements de la formation (1^{er} niveau) pour doter chacune des institutions partenaires ODINAFRICA de gestionnaires de données marines. Ce sont:

1. Formation théorique à la compréhension des concepts utilisés dans le domaine de la gestion des données et relations entre les structures de gestion des données;
2. Manipulation des techniques d'installation de logiciels de gestion de données notamment Ocean Data View, Medi Pilot; Surfer;
3. Exercices pratiques d'utilisation de logiciels cités plus haut et de traitement des données marines notamment l'importation et l'exportation de données, interprétation et élaboration de cartes,
4. Utilisation des facilités Internet.

Un timing de travail et de suivi a été donné par les formateurs pour permettre un suivi des différents auditeurs à partir de leurs pays respectifs. Les auditeurs de la région IOCEA étaient constitués de participants du Cameroun, Bénin, Ghana, Guinée, Maroc, Mauritanie, Nigéria, Sénégal, Togo, Tunisie. Le Gabon et la Côte d'Ivoire sont les Etats Membres qui n'avaient pas d'auditeurs à cet atelier. Il y a lieu de signaler que le suivi des gestionnaires de données n'a pas encore atteint le niveau attendu par le Chargé de Formation eu égard à la faiblesse de la communication par courrier électronique au niveau des CNDO et du temps mis pour la familiarisation avec le nouvel équipement.

Fourniture d'Equipement, de Logiciels et d'Accessoires:

Comme prévu par le planning, la fourniture d'équipement informatique constitué de:

- trois micro-ordinateurs Multimédia et Pentium;
- deux imprimantes à jet d'encre laser;
- un scanner;
- trois onduleurs;
- trois stabilisateurs;
- trois multi-prises.

a été opéré en faveur de tous les Etats membres de la région, exception faite pour la Côte d'Ivoire et le Gabon. Deux fournisseurs principaux ont collaboré à la réalisation de cette activité, ce sont DAN Office (pour les francophones) et PLANSON (pour les anglophones).

Atelier de formation en gestion de l'information marine: il a eu lieu à Capetown du 29 octobre au 10 novembre 2001.

(insérer un bref commentaire sur l'atelier)

Allocations des Frais de Dépenses d'Opération

La mise à disposition des frais d'opération est un contrat de financement d'activités que le projet accorde à une institution partenaire pour aider à améliorer le fonctionnement global du CNDO.

Cette activité a connu un certain retard au niveau de plusieurs Etats membres du fait des spécificités d'organisation de la réunion de désignation du CNDO d'une part et de la soumission de la requête en dehors du délai normal de déroulement des procédures administratives de libération des fonds d'autre part.

A ce jour les Etats membres ayant bénéficié de cette allocation sont: le Cameroun, le Bénin, la Guinée, la Mauritanie, le Nigéria, la Tunisie, le Togo.

Le Ghana ayant tardivement proposé l'estimation de son budget d'opération n'a pas encore bénéficié de cette allocation.

3.2 Autres Activités Liées au Projet

Dans le présent document, sont considérées comme autres activités liées au Projet, les actions initiées dans la région IOCEA dans le cadre du RECOSCIX et dont l'achèvement a été réalisé au cours de la période impartie au projet ODINAFRICA. Elles portaient sur le désenclavement des centres d'information marine des institutions partenaires et l'acquisition d'ouvrages académiques et d'abonnement aux revues scientifiques. Elles devaient être exécutées avant fin décembre 2000.

3.2.1 Désenclavement (Acquisition de Moyens de Communication)

Cette action avait porté sur des offres d'acquisition de moyens de communication constitués de:

- un abonnement annuel à Internet;
- une ligne téléphonique nationale;
- un modem.

Peu d'Etats membres avaient requis ces offres dans le délai imparti. Ce sont le Cameroun, la Guinée, le Sénégal et le Togo.

3.2.2 Abonnement et Commandes d'Ouvrages

Les pays de la région ayant soumis les requêtes sont le Cameroun, le Sénégal et la Guinée.

3.3 Mise en Service du Site Web du Projet ODINAFRICA

Considérés par plusieurs experts comme moteurs de communication en Afrique, le site Web du projet a été mis en service au courant de l'année 2001. Depuis, plusieurs diffusions d'information en français et en anglais aussi bien sur le projet que les activités scientifiques liées au milieu marin et côtier y sont accessibles.

Une lettre d'information annonçant cette mise en service et l'appel à communication en vue de la diffusion sur le site avait été distribuée dans la région.

3.3.1 Suivi du Site Web et du WINDOW

Le Coordonnateur Régional ODINAFRICA/IOCEA est membre du groupe de travail et de suivi du site Web et du bulletin d'information WINDOW.

Outre le suivi, le Coordonnateur Régional contribue à la rédaction de la version française des publications des différentes pages Web et du WINDOW.

3.3.2 Répertoire des Experts et des Institutions:

En avril 2001, une lettre d'information avait été adressée aux Coordonnateurs Nationaux pour établir les répertoires nationaux des experts et institutions évoluant dans le domaine des milieux aquatiques (Eaux marine, saumâtre et douce).

Il y a lieu d'espérer que la plupart de ces répertoires sont en cours de confection dans nos pays respectifs.

4. Missions

4.1 Reunions de Coordination

- Réunion pour l'analyse de la situation et de l'élaboration de la stratégie d'achèvement des actions RECOSCIX initiées dans la région IOCEA et analyse budgétaire ODINAFRICA en vue de son lancement officiel (Mombasa août 2000).
- Réunion pour la planification 2001 de la mise en œuvre ODINAFRICA (Mombasa janvier 2001).

4.2 Missions de Consultation ODINAFRICA

Au cours de l'année, le Coordonnateur Régional a effectué des missions de consultation prioritairement auprès des Etats membres en attente d'organisation des réunions de désignation des CNDO. Ceci dans le but de:

- prendre contact avec les autorités des institutions partenaires pour harmoniser les compréhensions sur les mécanismes et actions à réaliser dans le cadre du projet ;
- s'assurer du soutien et de l'assistance des autorités à la réalisation des objectifs du projet;
- évaluer le niveau de mise en œuvre du projet à travers les actions initiées;
- procéder à des séances de travail avec le staff potentiel des futurs CNDO pour aider à une meilleure compréhension des actions à réaliser dans le cadre du projet;
- procéder à une revue des préparatifs des ateliers nationaux et avoir une connaissance de quelques potentialités de l'institution (données et information marines disponibles, staff, équipement);
- recueillir les remarques et suggestions des autorités, du staff.

Les Etats membres suivants ont reçu la visite du Coordonnateur Régional (février-mars 2001): Bénin, Sénégal, Togo, Ghana (mai 2001), Gabon (octobre 2001). Tous les Coordonnateurs des pays visités ont exprimé au terme des séances de travail que cette action était nécessaire à plusieurs points de vue.

Une mission de consultation sur la relance des activités ODINAFRICA en Côte d'Ivoire avait été réalisée en mai 2001.

Pour des raisons de calendrier, la période de visite des autres Etats membres sera fixée ultérieurement.

4.3 Participation Seminaires, Conférences

Au cours de la période 2000-2001, le Coordonnateur Régional a participé à:

- la Session de clôture du projet ODINEA novembre 2001 Lisbonne Portugal.
- la 16^e Session du Système International d'Echange de données Océanographiques (IODE) (Novembre 2001, Lisbonne, Portugal).
- au Séminaire de formation à la gestion des données marines.

- (Mars - Avril 2001, Casablanca, Maroc).
- la Session d'évaluation du Projet Grand Ecosystème Marin du Golfe de Guinée (Mai 2001, Accra, Ghana).

5. Resultats Atteints

Récapitulatif partiel par activité planifiée:

- 1) Réunion nationale: Six ateliers nationaux ont été organisés respectivement au Cameroun, Bénin, Mauritanie, Togo, Tunisie (organisation sur fonds propre). Cette assistance du projet a permis à la région IOCEA de passer de quatre CNDO existant au Ghana, en Guinée, au Maroc et au Nigéria avant le lancement du projet à 09 CNDO. Soit une situation partielle de 09 CNDO sur 12 attendus.
- 2) Atelier de Formation en Gestion des Données Marines: Il a procuré 10 Gestionnaires de Données (1^{er} niveau de formation) aux Etats Membres suivants: Bénin, Cameroun, Ghana, Guinée, Maroc, Mauritanie, Nigéria, Sénégal, Tunisie et Togo. Soit 10 personnes-ressources sur 12 prévues.
- 3) Equipement des CNDO: le lot d'équipement, logiciels et accessoires a été fourni au compte de 10 institutions partenaires sur 12 à pourvoir.
- 4) Dépenses d'opération: Les contrats d'amélioration du fonctionnement des CNDO et de la collecte des données et informations marines ont été alloués à 6 Etats membres sur 12
- 5) Atelier de Formation en gestion de l'Information Marine: il a procuré 11 gestionnaires de l'information marine (1^{er} niveau de formation) aux Etats Membres: Bénin, Cameroun, Gabon, Ghana, Guinée, Maroc, Mauritanie, Nigéria, Sénégal, Tunisie et Togo. Soit 11 personnes – ressources sur 12 prévues.

On peut aussi noter au titre des résultats, la collaboration générée par les ateliers de formation entre personnes-ressources et le suivi des auditeurs.

Tableau Récapitulatif des Actions Planifiées Exécutées par Etat Membre

Pays	Atelier National de Désignation de CNDO	Atelier de Formation en Gestion de Données	Acquisition d'Equipement et Accessoires	Atelier de Formation en Gestion d'Information Marine	Dépenses d'Opération des CNDO
Bénin	X	X	X	X	X
Cameroon	X	X	X	X	X
Côte d'Ivoire					
Gabon				X	
Ghana	CNDO avant ODINAFRICA	X	X	X	En attente
Guinée	CNDO avant ODINAFRICA	X	X	X	X
Maroc	CNDO avant ODINAFRICA	X	X	X	RNF
Mauritanie	X	X	X	A préciser	X
Nigeria	CNDO avant ODINAFRICA	X	X	X	X
Sénégal	En attente d'organisation.	X	X	X	
Togo	X	X	X	X	X
Tunisie	X fonds propre	x	X	X	X

6. Contraintes

6.1 Contraintes de Report d'Execution des Deux Dernieres Activites Planifiees pour 2001 Compte Tenu

- des retards spécifiques liés à la livraison de l'équipement destiné aux CNDO;
- du temps requis pour une familiarisation avec les équipements et les logiciels à utiliser.

Il a été estimé que dans la région IOCEA on ne pouvait exécuter efficacement au titre de 2001, les deux dernières actions planifiées (Développement des métadonnées, bases de données et Sensibilisation/conscientisation du public). Cela a généré une contrainte de report.

6.2 Contrainte de Mise a Jour par Action Non Executée par Quelques Etats Membres

Ici, il y a lieu de discerner deux types de rattrapage:

1. Etat membre n'ayant pas exécuté une action postérieure à la désignation de son CNDO cas du Sénégal, Ghana , Maroc.
2. Etat membre n'ayant exécuté aucune action planifiée pour 2001, cas du Gabon et de la Côte d'Ivoire.

Pour ce qui concerne le Sénégal, le report de la date de l'atelier national de désignation du CNDO est à notre avis la raison fondamentale qui a empêché le Sénégal de formuler la requête d'assistance pour les dépenses d'opération de son CNDO.

Concernant le Ghana, des changements intervenus au niveau de la coordination nationale ODINAFRICA a été à la base d'une formulation tardive de la requête portant sur les dépenses d'opération. Le Maroc du fait d'un empêchement prolongé du Coordonnateur National n'avait pu formuler de requête relative.

6.3 Contrainte de Rattrapage d'Actions Executées au Cours de la Première Année du Projet

Ce type de contrainte ne concerne que le Gabon (exception faite pour sa participation à l'Atelier de Formation à la Gestion de l'Information Marine) et la Côte d'Ivoire qui n'ont pu prendre part à aucune activité au cours de cette première année du Projet. Au cours de la mission de consultation du Coordonnateur Régional à Libreville (octobre 2001), il lui avait été donné de savoir que préalablement, le Coordonnateur National avait fait des efforts de concertation. Une réunion préparatoire tenue à Libreville avait permis d'informer davantage sur le projet et de constater la volonté d'implication de différentes institutions gabonaises dans les activités du projet.

6.3 Contrainte Generale de Mise a Jour

Elle porte sur une mise à jour générale de tous les CNDO de la région. Globalement, le suivi des gestionnaires de données se réalise avec un certain nombre de difficultés: difficultés de communication, retard dans les réponses, absence de réponse quelquefois.

Une mise à jour des différents répertoires des experts et des institutions des Sciences de la Mer constitue également un autre impératif.

Les abonnements et commandes d'ouvrages initiés sont à mettre à jour par les institutions nationales partenaires ODINAFRICA pour atteindre l'objectif d'amélioration du fonds documentaire des centres d'information.

Perspectives

A l'analyse des contraintes ci-dessus évoqués, on peut suggérer de:

1. Parachever le planning 2001 en insérant comme premières activités planifiées 2002, les actions non réalisées en 2001;

2. programmer pour la Côte d'Ivoire et le Gabon les actions 2001 à exécuter pendant une période transitoire afin d'être au même niveau que les autres Etats. Ici, il y a lieu d'insister sur un examen particulier du rattrapage des cours de formation (1^{er} niveau) pour les auditeurs de Côte d'Ivoire et du Gabon. Les propositions du Chargé de formation sont vivement attendues.
3. Durant l'atelier Revue 2001, amender les propositions de plans d'action 2002 de manière que ces plans prennent en compte les travaux à exécuter dans le cadre du suivi des auditeurs.
4. Certains Etats Membres doivent fournir assez d'efforts pour relever le niveau de promptitude dans la réponse aux actions à réaliser. Cela est dans une large mesure en rapport avec le désenclavement des CNDO. C'est à ce titre qu'il faut rappeler aux différentes coordinations nationales, de veiller à ce que les CNDO disposent de connexion Internet propre aux CNDO.

Au terme de cette première année de projet, on se doit de remercier les bailleurs de fonds Gouvernement des Flandres et la COI pour l'assistance fournie.

Aussi, ne doit-on pas encourager la collaboration opérée dans le cadre du projet et apprécier les résultats générés. Une participation encore plus active des Etats Membres conduirait à de meilleurs résultats pour 2002.

ANNEX V

ODINAFRICA REGIONAL REPORT - IOCINCWIO

1. Meeting of Co-ordinators

The ODINAFRICA Co-ordinators (Mika Odido, IOCINCWIO, Sekou Cisse, IOCEA and Peter Pissierssens, Head of Ocean Services IOC/UNESCO) met in Mombasa, Kenya from 15-19 January 2001 to review the progress in implementation of the project and accordingly revise the work plan and budget.

The co-ordinators considered the uncertainties that continue to plague the RECOSCIX-CEA RDC and recommended that the arrangements worked out last year, and endorsed by the IOCEA Chairman, in which RECOSCIX-WIO RDC would provide the information services for all ODINAFRICA-II partner institutions would remain in place until the 2001 ODINAFRICA Review workshop where this matter will be re-evaluated.

The International Ocean Institute - Southern Africa Operational Centre (IOI-SA) based at the University of West Cape, Cape Town, South Africa was approached and agreed to prepare artwork for the ODINAFRICA website and train personnel to develop and maintain the site. A web team was established to update the site regularly. The team will work under the supervision of the Regional Co-ordinators for IOCINCWIO and IOCEA and will also be responsible for preparation of the WINDOW printed newsletter. The scope of WINDOW will be expanded to encompass the whole continent. The WINDOW will be targeted at a wide audience that may not have Internet access (most of the African general public). The WINDOW will continue to be published 3 times a year (in English and French). The two regional co-ordinators will actively canvass content from all African partner countries and establish strong linkages with other projects and organizations in the region. The possibility of installing a leased line connection using xDSL in order to improve Internet access for the ODINAFRICA Information Services Centre would be explored.

The co-ordinators recommended that all the data and information centres participating in the project use a uniform equipment configuration. The configuration circulated to participating institutions was adopted as the standard. Purchase of the equipment will be either through local suppliers or the UNESCO suppliers depending on price and availability.

Several of the data centres have encountered administrative problems, which led to poor accounting and failure to meet deadlines. Guidelines on UNESCO regulations governing contracts, based on the UNESCO manual were prepared for circulation to all participating institutions. Dr. Sekou Cisse will undertake a mission to a number of ODINAFRICA-II partner countries in February 2001 to clarify administrative procedures and assist them with discussions during their national co-ordination workshops.

Due to late arrival of the ODINAFRICA-II funds at UNESCO-IOC, the national co-ordination workshops and delivery of equipment initially planned for 2000 had to be moved to 2001.

The co-ordinators briefed the Director of Kenya Marine and Fisheries Research Institute, Dr. J. Kazungu, on the progress of the project, as well as plans for the coming year. They once again expressed thanks to KMFRI for the considerable support it has continued to provide to the project including office space and staff. Dr Kazungu reaffirmed his institutions commitment to the success of the ODINAFRICA project.

2. National Co-ordination Workshop

The Comoros National Co-ordination workshop was held from 15-16 March 2001. The Centre National de Documentation et de Recherche Scientifique was confirmed as the National Oceanographic Data and Information Centre during the workshop. Subsequently, Mr. Ahmed Abdoukarim participated in the ODINAFRICA Data Management training course held in Rabat, Morocco from 2-14 April 2001. In addition, Mrs. Echata Abdou attended the marine the information management course held at the Research Aquarium,

Directorate of Marine and Coastal Management, Cape Town, South Africa from 29 October – 9 November 2001.

Mauritius also held a National Co-ordination Workshop using funds allocated for public awareness.

3. Operational Activities Contracts

Contracts for operational expenses and development of data archives have been processed for data centres in Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa and Tanzania. In the case of South Africa, there were delays due to uncertainty in mode of transfer of funds to the centre. This was finally clarified and the contract is now being processed. There were also delays in processing contract for Comoros due to delays in submitting of work plan and budgets, and inclusion of unclear items in the budget.

The amount unspent under this item was as follows: Madagascar (US\$ 400), Mauritius (US\$ 2,100), Seychelles (US\$ 2,400) and South Africa (US\$ 4,700).

4. Delivery of Information and Data Centre Equipment

Information centre equipment and software was delivered to the centres in Comoros, Kenya, Madagascar, Mauritius, Seychelles, South Africa and Tanzania. Comoros, in addition, received equipment for its data centre. South Africa identified the Directorate of Marine and Coastal Management as the information centre.

The situation regarding the continued participation of Instituto Investgacao Pesqueira (IIP) as the information centre in Mozambique remains unclear. In the meantime, Instituto Nacional da Hidrografia e Navegacao (INAHINA) that is already the National Oceanographic Data Centre (CENADO) will take on the responsibilities of the information centre. Delivery of equipment for the Mozambique information centre was therefore deferred pending further consultation.

5. Data and Information Products Contracts

Contracts for development of data/information products and publicity/public awareness were processed for Kenya, Madagascar, Mauritius, Mozambique and Tanzania. Activities that will be implemented within the framework of these contracts include:

- Publication of brochures, information sheets, data summaries, calendars;
- Organization of and meetings/seminars;
- Lectures to educational institutions;
- Consultation visits to key government officials.

The KeNODC commenced an up-date of the African Publications database-AFRIPUB. This database contains bibliographic information on aquatic science and fisheries documents published in/about Africa. An additional 1,500 records are expected by end-November 2001.

The CENADO is co-ordinating two studies: i) evolution of the bottom topography of Zambezi river delta, and ii) seasonal variation of currents, sea levels, salinity and other hydrographic parameters along the Mozambican coast.

The amount unspent under this item was: Madagascar (US\$ 400), Mauritius (US\$ 1,800), Seychelles (US\$ 3,600), and South Africa (US\$ 3,600).

6. Update of AFRIDIR

Progress has been made in up-dating the directory of marine and freshwater professionals in Africa, which is part of GLODIR. This includes correction, deletion and addition of records. A circular letter was

sent out to all ODINAFRICA institutions by the two co-ordinators, requesting them to provide up-dated information on their marine science professionals.

7. ODINAFRICA Website

Training on web-site development was provided to Mr. Samuel Ngete and Mr. Clive Angwenyi at the International Ocean Institute - Southern African operational centre located at from the University of West Cape in South Africa in April 2001.

The ODINAFRICA website was launched in May 2001 and was very well received. The site, which is up-dated monthly, is in two main parts:

- Public site where information on marine sciences in Africa can be accessed. Databases developed within ODINAFRICA can be accessed: (AFRIPUB- publications on marine sciences from/on Africa, AFRIDIR - directory of marine and freshwater professionals in Africa, MASDEA - Marine species database for Eastern Africa). Several websites with information of interest are also linked to the site.
- The project management portion which provides updates on activities of the ODINAFRICA national oceanographic data and information centres, include reports of training courses and national co-ordination workshops, help desk where data centre staff can get assistance with management of the project, details of budget allocation, etc.

Translation of the information to French has taken longer than anticipated. The number of messages which bounced when the website announcement was sent to GLODIR e-mail addresses revealed a need for up-dating GLODIR. The corrections and up-dates, especially for the AFRIDIR component were undertaken by the ODINAFRICA Information Services Centre.

8. WINDOW

The June 2001 issue of WINDOW was completed and delivered to IOC in May 2001. We are currently working on the September 2001 issue.

The WINDOW Newsletter issue for September 2001 was completed in August 2001 and dispatched to IOC-UNESCO for publication and distribution. Discussions were held with the Director of Alliance Française, Mombasa, Ms. Isabelle Dange on ways of improving the quality of the WINDOW translation. We are also relying more on the assistance of the ODINAFRICA Regional Co-ordinator for IOCEA, Dr. Sekou Cisse.

Printing of the newsletter continues to be a problem due to delays at the UNESCO press.

9. ODINAFRICA Help Desk

The ODINAFRICA Help Desk, manned by Dr. Murray Brown commenced operations. Questions and responses have been included in the partners portion of the ODINAFRICA website. In addition to answering questions from partners, the help desk also provides advise on implementation of the work programmes agreed on.

10. ODINAFRICA Information Services Centre, Mombasa

The ODINAFRICA Information Services Centre continues to address the marine information needs of the partner institutions. A separate report has been provided on this.

11. Missions Undertaken

11.1 ASFA Board Meeting

The ASFA Advisory Board reviewed activities of the partners in the inter-sessional period. During this period more than 35,000 records were added into the database, bringing the total number to more than 740,000. The serials titles monitored are 3,596 covering a wide range of topics in fisheries and aquatic sciences. Progress was also made in converting the records previously available in printed format only. The National Institute of Oceanography in India has already completed the 1974 volume, which contained about 15,000 records. Other volumes are being converted by the Kenya Marine & Fisheries Research Institute (1973), and the Chinese National Marine Data and Information Services (1972 and 1975-1977).

Three additional institutions from Africa have joined the ASFA partnership: Centre de Recherches Oceanologiques - CRO (Cote d'Ivoire), Institut National Recherche Halieutique - INRH (Morocco), and Institut National des Sciences et Technologies de la Mer - INSTM (Tunisia). The Centre de Recherches Oceanologiques - Cote d'Ivoire submitted records for the first time in 2000. Morocco and Tunisia have not yet begun submitting records mainly because they have only recently been trained, or have yet to receive training.

The board also reviewed actions to improve the scope, quality and timeliness of ASFA. Through the project for distribution of ASFA CDs to Low Income Food Deficient Countries in Africa, 26 institutions received the ASFA CDs, while an additional 6 have been provided free access to the ASFA Internet Database Services (IDS). The IDS access is not limited to countries in Africa. IOC will liaise with FAO to confirm that all the ODINAFRICA institutions that qualify are receiving the ASFA CD-ROM. Similarly, IOC will check with CSA for IDS access institutions that have requested for it. The development of a web based interface to ASFISIS to replace the current DOS-ASFISIS has progressed well. The beta version of the WWW-ASFA-ISIS, developed by the Institute for Computer and Information Engineering (ICIE) in Poland, was demonstrated at the board meeting. The final version is expected to be released in 2002. Training for new partners on ASFA input methodologies was put on hold till the new software is finalized.

11.2 Working Group on Integrated Problem Analysis

The objectives of the first phase of the project (Integrated Problem Analysis) was to identify, characterize, and prioritise causes of environmental degradation, as well as hot spots and sensitive areas. This phase initially covered the six countries that are members of the Preparatory Committee for the Partnership Conference (Côte d'Ivoire, Ghana, Kenya, Mozambique, Seychelles and South Africa), and Nigeria, which holds the presidency of the African Ministerial Conference for the Environment (AMCEN). Another four countries (Gambia, Mauritius, Senegal, Tanzania) have been able to participate in the project, thanks to the efforts of UNEP and the GPA Co-ordinating Office in sourcing additional funds. A briefing meeting was held for national co-ordinators from the initially seven countries at the IOC offices in Paris, France in December 2000. Subsequently, they embarked on constituting national teams, which worked on identification of sites (hot spots and sensitive areas) and their principal characteristics (issues and key features) as well as impact analysis at the national level. The results were presented at a meeting held in Mombasa, in March 2001. The meeting was also used to discuss the methodology for the causal chain analysis. National co-ordinators from the four new countries participated in the session and were briefed on the methodologies used for identification of sites and their principal characteristics. Comprehensive national reports (covering key issues, sites, impacts and causal chain for each issue - national priorities and other activities at the national levels) were prepared by all of the eleven national team.

Subsequently, consultations on the second phase of the GEF MSP Sub-Saharan Africa project was held at the offices of the Advisory Committee on the Protection of the Seas (ACOPS) in London, United Kingdom, from 21-22 May 2001, to review progress in the implementation of the GEF project 'Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa'. Participants included representatives of ACOPS, the Intergovernmental Oceanographic Commission of UNESCO, the United Nations Environment Programme (UNEP), the UNEP Global Programme of Action (UNEP-GPA), and the

Global International Waters Assessment (GIWA). The second phase of the project will involve the design of a programme of interventions addressing problems of regional priority that may be presented to the Partnership Conference. The proposals for intervention at the regional level should incorporate issues with elements of transboundary, and/or commonality, which could lead to participation of other countries. The framework proposals will be organized along the “clusters” or “activity themes” based on issues or sectors identified in the first phase. For each theme (cluster), a working group will be set up, headed by a Regional Co-ordinator from one of the pilot countries.

It is envisaged that proposals for intervention will be at both the national and regional level so that key national priorities are not overshadowed. Other proposals not developed within the framework of the GEF project will also be submitted to the Partnership Conference. The session re-affirmed the importance of involving other countries not participating in the GEF project at all levels. Training courses should be arranged to provide them with skills for preparation of proposals. It was agreed that approved ‘Guidelines for Preparation of Proposals’ be circulated to all the sub-Saharan coastal countries in order to ensure that a structured programme for Africa is presented to the conference. National governments and potential partners must be contacted in advance so that they can provide input in the development of interventions.

The participants recognized the need to share the treasure of information generated by the GEF project. The ACOPS (www.acops.org) and the ODINAFRICA (www.odinafrica.org) websites were identified as potential vehicles for dissemination of the information.

11.3 Report Presented to the IOC Assembly on ODINAFRICA-IOCINCWIO

The first phase of the project for the development of the Ocean Data and Information Network for Africa (ODINAFRICA-I) in the IOCINCWIO region was completed in December 2000. A review workshop was held prior to the IODE-XVI in Lisbon, Portugal in November 2000.

Starting with just two National Oceanographic Data Centres (NODCs) in Kenya and South Africa in 1997, additional NODCs/DNAs have been established in Madagascar, Mauritius, Seychelles, Tanzania and a subsidiary national oceanographic data centre in South Africa. The capacity of the data centres to collect, process, archive and interpret various categories of datasets was strengthened through the provision of up-to-date computer equipment, software, as well as training for data centre personnel. This capacity has been used effectively in developing national meta databases and data archives, thus contributing to the preservation of information and enabling users to access available datasets, including those from regional and international data centres.

Electronic mail and Internet connections provided through the project have improved communication between the institutions, with others outside the region and also improved access to international data and information sources. The connections enabled the centres to publicize their activities, services and products to a wider audience by developing web sites.

A regional input centre for the Aquatic Sciences and Fisheries Abstracts (ASFA) database was established at the Kenya Marine and Fisheries Research Institute in Mombasa. This has substantially increased the number of articles published by scientists from the region that are now included in the ASFA database.

In order to further strengthen the centres to be able to effectively discharge their responsibilities, and on the basis of the experiences in the first phase of the ODINEA/ODINAFRICA project, the participants made several recommendations which have been incorporated in the implementation of ODINAFRICA-II (see IOC Workshop Report N°172). The expertise and experience acquired in the first phase of the project will be used by closely involving the IOCINCWIO data centre managers in the ODINAFRICA data management-training programme in the IOCEA region (South-South co-operation).

The ODINAFRICA Information Services Centre located at the Kenya Marine and Fisheries Research Institute, Mombasa is providing information services for all ODINAFRICA partner countries and has

developed a web site to act as an 'African Ocean Portal' through which news, data and information on marine sciences in Africa can be accessed (<http://odinafrica.org>). This website, hosted on the IOC server has proved very popular with many people visiting the site and downloading information from it.

11.4 Other Missions

Other meetings attended were: i) Second meeting of the *Ad Hoc* Legal and Technical Working Group of the Nairobi Convention (UNEP Regional Seas Programme), which was held at the UNEP Headquarters from 1-5 October 2001 to discuss the biennium work programme for 2002-2003 and revision of the Nairobi Convention and the related protocols; ii) the GCOS Regional workshop for Eastern and Southern African countries on improving observing systems for climate which was held in Kisumu, Kenya, 3-5 October 2001.

ANNEX VI

ODINAFRICA INFORMATION SERVICES CENTRE (Report for the period February - October 2001)

1. Description of the Information Centre of the ODINAFRICA Project

1.2 Support from Host Institution

The ODINAFRICA Project Office is hosted at the Kenya Marine and Fisheries Research Institute (KMFRI), which is located in Mombasa, Kenya. The project draws the entire staff force from the host institution. Some of the staff members perform project duties as their sole assignment whereas the rest work part-time for the project and also continue performing duties assigned to them by KMFRI. The project does not receive direct financial input from the host institution; however, it is provided with office space, electricity and water.

The project occupies the second floor of the main institute building. It has one large room subdivided into workstations and one small room for the server and system administration. The total surface area is approximately 105 m².

1.3 Equipment

The list of project computers, printers, UPS units and related hardware and other electronic equipment is appended in Annex I. The project has also furniture, shelves and an outdoor bookstore for archiving literature.

The project maintains two telephone lines, one for Internet connection and the other for telephone communication. Project staffs have individual e-mail addresses and three shared/common addresses for the dispatch of information and general project mail (rdc@recoscix.org), for ASFA (asfa@recoscix.org) and for the ARIEL document delivery (ariel@recoscix.org).

2. Activities at the ODINAFRICA Project Information Centre

2.1 Query Handling and ASFA Database

The Aquatic Sciences and Fisheries Abstracts (ASFA) is an indexing and abstracting service covering the world's literature on science, technology and management of marine and freshwater environments. During the ASFA Advisory Board meeting in Tianjin, China (October 1994), KMFRI, the institution that hosts ODINAFRICA was accepted as an ASFA input centre and became the only input centre in Africa at that time. The initial aim was to become a regional input centre for the WIO region in order to cover a wider geographical area producing publications potentially of interest for input in the database. Activities of ASFA now benefit more nations in Africa under the auspices of ODINAFRICA. The ASFA bibliographic database is available on CD-ROM and holds over 230,000 abstracts covering marine, freshwater and brackish water environments. It is also available on-line as an Internet Data Service (IDS).

2.2 Directory of Marine and Freshwater Institutions and Information Centres in Africa

This is a directory of marine, coastal and freshwater research institutions and information centres in Africa. The directory includes information resources and services of international organizations, regional bodies and national institutions and organizations in Africa. It is intended to provide an up-to-date inventory of national capacities in aquatic information resources.

2.3 AFRICURRENT and Document Delivery

This can be defined as the document delivery Current Awareness (CA) service. The project subscribes to a number of periodicals that are among the most frequently requested in the past years. Every month the contents tables of the issues received during the previous month are copied and sent to the co-operating institutes and libraries in Africa as the AFRICURRENT.

2.4 AFRILIB

ODINAFRICA aims at making library materials of the marine science libraries in Africa accessible locally through the creation of a collective catalogue of co-operating institutes' library holdings. Through this service, it has become possible for example to access materials stocked by various libraries in the IOC states of IOCEA and northern Africa and WIO, and southern Africa. This format has thus widened the information pool available to the scientists in Africa.

2.5 AFRIPUB

This database of publications about marine and freshwater science in Africa has steadily grown with the rise in the number of institutions and libraries collaborating with the Project. Under the RECOSCIX-WIO Project, the precursor of ODINAFRICA Project, this database was called the Western Indian Ocean Publications (WIOPUB). The WIOPUB database was originally developed for the purpose of compiling information on marine science documents published about the WIO Region.

2.6 AFRIDIR

The first step towards establishing communication between scientists, within, as well as outside Africa, is to reveal their identity. The project has developed the AFRIDIR database for holding information on the marine and freshwater scientists of the co-operating institutes. Practical information is given on the scientist (name, education, job, function, place of work) and on the institute (address, telephone, fax, telex, telegram, e-mail address). Using the subject categories codes of the Aquatic Sciences and Fisheries Information System (ASFIS) a quick access to the scientist's topic of research is provided.

2.7 WINDOW

The Project produces a newsletter, WINDOW, which comes out three times a year. Although WINDOW (Western Indian Ocean Waters) initially provided information relevant mainly to the WIO region, it now covers the activities of the Africa Member States of IOC. The newsletter still retains this original acronym WINDOW for purposes of publicity. It has now become a window through which all the objectives of the project itself are reflected namely to:

- Publicize the project and its activities and products;
- Provide information on marine scientific institutions in Africa;
- Provide information on training opportunities relevant to marine scientists in Africa; and
- Provide information on meetings, symposia and other related activities relevant to the scientists.

The newsletter plays an important role in visualizing marine sciences in Africa and the project to the rest of the world. Currently, the print-run is over 1,500 copies and the newsletter is distributed to over 1,200 addresses in 100 countries around the globe.

3. Staff and their Tasks

The project currently has 11 staff on secondment from KMFRI who perform the following tasks:

MR. WILLY MWANGI AND MR. PETER MUTUA. BOTH WORK FULL-TIME FOR THE PROJECT AND SHARE OUT THE FOLLOWING RESPONSIBILITIES:

- Collecting and posting of project mails, parcels and other documents;
- Maintaining cleanliness in the project office;
- Photocopying of documents;
- Messenger duties.

MR. ISEDORIUS AGOLA. WORKS FULL-TIME FOR THE PROJECT PERFORMING THE TASKS OF:

- Compilation and dissemination of AFRICURRENT;
- Selective Dissemination of Information;
- Document requests and delivery.

MS. WILKISTER MOKOBI. WORKS FULL-TIME FOR THE PROJECTS AND HER TASKS ARE:

- Secretarial duties and Administration;
- Filing project documents;
- Typing minutes of project meetings;
- Typing and receiving project mails;
- Purchasing project supplies;
- Payments and banking transactions;
- Preparation of accounts.

MR. JAMES MACHARIA. SPENDS 40% OF HIS TIME ON THE ASFA DATABASE, WHICH IS A KMFRI ASSIGNMENT. THE REST OF THE TIME HE SPENDS ON THE PROJECT MAINLY ENTERING DATA IN THE DIRECTORY OF FISHERIES INSTITUTIONS IN AFRICA.

MR. TOM BOGONKO. SPENDS 60% OF HIS TIME PERFORMING TASKS ASSIGNED TO HIM BY KMFRI AND THE REST OF THE TIME HE ASSISTS MR. NG'ETE WITH THE FOLLOWING PROJECT TASKS:

- Scanning and cleaning of project computers;
- Networking;
- Computer-related problems;
- Trouble-shooting.

MR. SAM NGETE. WORKS 40% OF HIS TIME ON KMFRI ASSIGNMENTS AND SPENDS THE REST OF THE TIME PERFORMING DUTIES OF THE PROJECTS AS FOLLOWS:

- Systems Administration (networking, connections and computer related problems);
- Link to Internet Services Providers;
- ODINAFRICA Website - Databases and corrections.

MS. EUNICE ONYANGO. WORKS FULL-TIME FOR THE PROJECT PERFORMING THE FOLLOWING DUTIES:

- WINDOW Newsletter compilation, typesetting and preparation for translation;
- Updating and maintaining the WINDOW mailing list;
- Updating and maintaining the AFRIDIR database;
- ODINAFRICA website - corrections, respond to comments and compilation of minutes of web site team meetings.

MR. CLIVE ANGWENYI. WORKS 50% OF HIS TIME ON KMFRI ASSIGNMENTS AND THE REST OF THE TIME ON PROJECT TASKS AS FOLLOWS:

- Updating the ODINAFRICA Web site;
- Correcting and implementing monthly web site updates;
- Sourcing for contributions for the web site;

- Uploading web site pages;
- Receiving/categorizing the web site comments.

MS. ESTHER FONDO. WORKS 50% OF HER TIME THE TIME PERFORMING KMFRI ASSIGNMENTS AND THE REST OF THE TIME ON PROJECT TASKS AS FOLLOWS:

- Assisting in the project co-ordination on matters of administration and finance;
- Communications and selection of documents for dispatch center;
- WINDOW - edit, request for articles;
- ODINAFRICA website: edit, contribute articles and search for useful information;
- Compilation of reports and setting targets for the project.

Mr. Melckzedek Osore. Spends 50% of his time working on the KMFRI assignments and the rest of the time performing the following project tasks:

- Co-ordination and Administration;
- Communications and selection of documents for RDC;
- WINDOW; edit, request for articles and organize for interviews;
- ODINAFRICA Website – corrects, edit and contribute articles search for useful information;
- Compile and respond to the web site comments;
- Compilation of reports and setting targets for the project;
- Monitoring and compiling monthly project budget.

4. Services and Products

4.1 Query Handling and ASFA

This service has substantially reduced to less than 10% because most of the institutions in Africa have now subscribed to the Aquatic Sciences and Fisheries Abstract (ASFA) CD-ROM through the Low Income Food Deficient Countries (LIFDC) programme funded by FAO (Food and Agriculture Organization) and IOC/UNESCO. About 30 countries in Africa are now receiving the ASFA CD-ROM. Previously, the project staff handled about 150 requests per month compared to only 10 at the moment. Since the beginning of the year, the ASFA input centre at KMFRI, Kenya has submitted a total of 449 records directly to the ASFA publishers, Cambridge Scientific Abstract (CSA). It is projected that by the end of this year a total of 700 records shall be submitted. This represents an increase of 100 more records compared to entries made last year.

Apart from Kenya, the other ASFA input centre in Africa is located at Centre Recherche Oceanographique (CRO) in Cote d'Ivoire, which has now submitted about 44 records.

4.2 Directory of Marine and Freshwater Research Institutions and Information Centres in Africa - INFODIR

This database is accessible on the ODINAFRICA web site and the project's Information Centre is currently updating the records. At the moment there are 284 institutions in the directory widely distributed in Africa as shown in Figure 1.

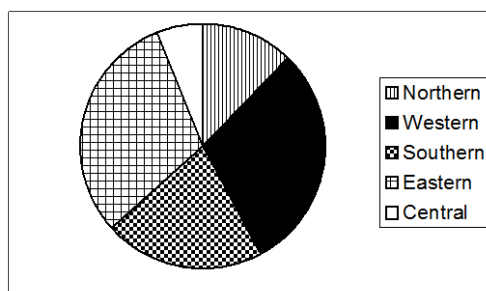


Figure 1: Regional Distribution of Marine and Freshwater Research Institutions and Information Centres in Africa.

4.3 Most Current Information on Marine and Freshwater Science in Africa - AFRICURRENT

The ODINAFRICA information service has continued to subscribe to a number of journals relevant to marine and freshwater research in Africa (See Annex II). Previously, only 11 journals used to be subscribed but since February the number has risen to 33. The titles of journals that provide the highest number of popular articles commonly requested at the ODINAFRICA Information Centre and sent out as reprints are shown in Table 1.

Journal	Aquacul Res.	Bul. Mar. Sci.	Coral Reef	Hydrob.	Ind. J. Mar. Sci.	Journ. Fish. Biol.	JMBA (UK)	Journ. Plank Res.	Limn. Ocean.	Nature	Sci
Requests	24	49	28	55	41	28	21	30	56	32	32

Table 1: Journals Providing the Majority of Reprints on Bi-weekly Basis.

Among the 33 journals, the Information Centre also subscribes to the fortnightly-published periodical called the Current Contents, which covers topics in Agriculture, Biology and Environmental Science. Each issue of the Current Content is scanned for articles of interest by the project staff, and reprints are requested from the authors and once these arrive they are entered in a database. Since February 2001, some 432 reprints have been received and distributed to scientists in Africa and all over the world. The total number of documents delivered by the ODINAFRICA Information Centre during that period is depicted in Figure 2.

4.4 Library Holding of Marine and Freshwater Science in Africa - AFRILIB

At the moment there are more than 13 libraries collaborating with the project's information centre on a regular basis. The total holding in the AFRILIB database is now approximately 10,430 records. The most active of the collaborating libraries include Limburg Universitair Centrum (Belgium), IFREMER (France), Fresh Water Institution (Canada), the National Museum (Kenya), the National Institute of Oceanography (India), FAO Fisheries Branch Division (Italy), University of Nairobi (Kenya), the International Centre for Insect Physiology and Ecology (Kenya), International Centre for Living Aquatic Resources and Management (Malaysia), Southampton Library (UK), Oregon State University (USA), Rosentiel School of Marine and Atmospheric Science (USA) and the National Centre for Marine Research Library (Greece).

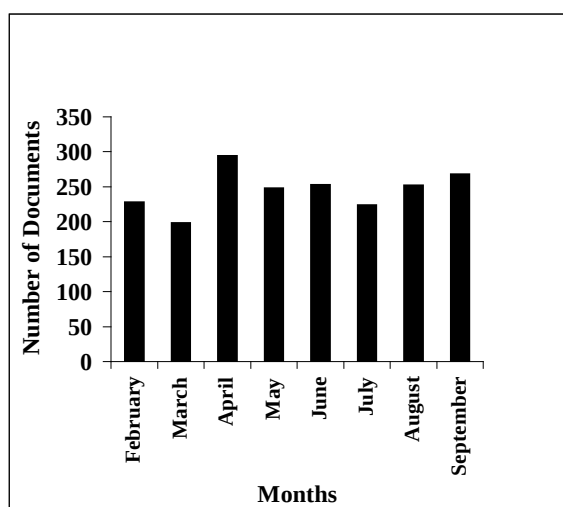


Figure 2: Number of Documents Delivered by the ODINAFRICA Project Monthly

4.5 Publications on Marine and Freshwater Science in Africa - AFRIPUB

Up until January 2001, the WIOPUB database had a total of 4,407 records concerning the WIO region. Previously this database contained only records of researches conducted in countries within the WIO region. The database contained information about research conducted in Eritrea, Kenya, Madagascar, Mauritius, Mozambique, Reunion, Seychelles, Somalia, Tanzania and other parts of the region (See Figure 3).

However, since February 2001, ODINAFRICA took over the maintenance of the WIOPUB database and extended the region of coverage to the whole of Africa.

Then the name of the database changed to AFRIPUB. Now the database has a total of 5,054 records. The database has grown tremendously as 647 new records have been added covering other African countries as follows: 204 records from 15 West African countries, 206 records from 2 South African countries, 60 records from 2 East African Countries and 177 unclassified records. These publications are contained in books, journals or just plain original articles sent to the ODINAFRICA Information Centre. Table 2 shows the number of records that have so far been entered in the AFRIPUB database monthly since February 2001.

Month	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Records	93	85	90	70	89	50	100	168

Table 2: Monthly records entered in the AFRIPUB Database between February and September 2001.

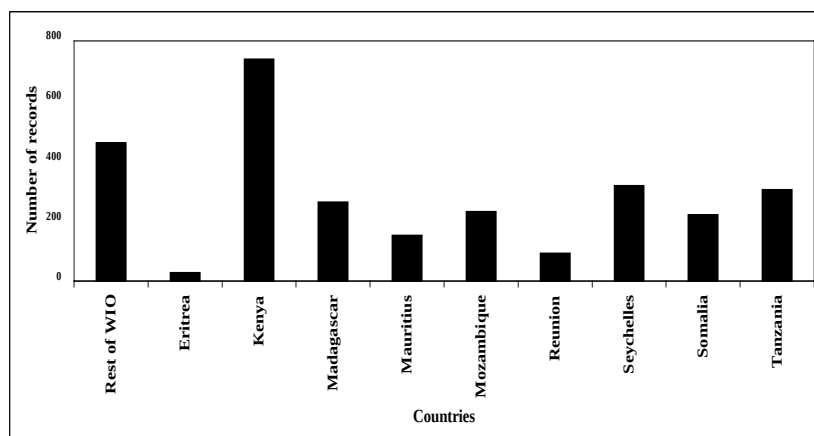


Figure 3: WIO Region and number of records each country contributed in the WIOPUB Database before February 2001.

4.6 Directory of Marine and Freshwater Professionals in Africa - AFRIDIR

The project is in the process of updating the AFRIDIR records in order to capture all the African Member States. AFRIDIR has so far entered a total of 931 records out of which 235 are Ph.D. holders, 209 are Msc holder 487 have Bsc and other qualification (see Figure 4). As the database grows, more new records are progressively entered and old ones are updated. The ODINAFRICA Project Information Centre also acts as one of the entry point for records in the Global Directory (GLODIR) for all the marine and freshwater scientists in the world.

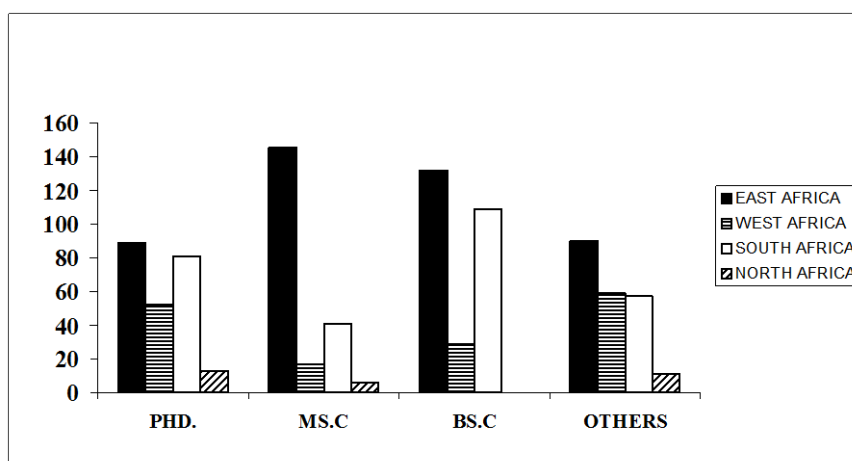


Figure 4: Distribution of Scientists and their Qualifications in Different Regions of Africa as Represented in the Directory of Marine and Freshwater Professionals in Africa (AFRIDIR)

4.7 WINDOW Newsletter

During this year, 3 issues of WINDOW were due to be published, i.e., in June, September and December. Two issues (June and September 2001) have already been prepared and submitted to the IOC/UNESCO publisher but these are still in press due to reasons beyond our control. The two issues contained a total of 19 articles about Africa and some announcements.

As WINDOW was initially mainly serving scientists from the Western Indian Ocean, most of the readers were from that region and more so from Eastern Africa (see Table 3). However, the newsletter is currently expanding its coverage to other regions in Africa and worldwide. The mailing list now contains a total of 1,537 addresses and we have received numerous requests via our website to send both the hard copy and soft copy of the newsletter. We envisage the mailing addresses to increase above 1,600 at the end of the year.

Africa				Rest of the World				
Northern	Eastern	Southern	Western	Asia	Europe	N. America	S. America	Oceania
18	833	73	74	84	245	203	41	5

Table 3: Number of readers of WINDOW Newsletter in Africa and rest of the world based on entries made in mailing list database

5. Problems Encountered

5.1 Telecommunication and Postal Services

Constant breakdown in telecommunication connectivity has tremendously reduced the quality of the project services and products. Currently the project experiences frequent breakdowns (approximately three times each month), which disrupt the programmes and causes delays in delivery of services both at the host institution and co-operating institutions and libraries. To reduce this problem, the project management has been exploring the possibility of acquiring a dedicated telecommunication line but this has been slow and painstaking.

Postal services too are not only slow but also expensive in Africa. Therefore other electronic and new innovative means of receiving documents, e.g., by ARIEL, Digital postmaster, etc. should be encouraged within Africa.

5.2 Project Newsletter WINDOW

CURRENTLY THE INITIAL PREPARATION OF THE NEWSLETTER, I.E., EDITING, TYPESETTING AND TRANSLATION IS DONE UNDER PROJECT SUPERVISION IN MOMBASSA, KENYA. THE IOC/UNESCO PRESS IN PARIS, FRANCE DOES THE PRINTING AND DISTRIBUTION. ALTHOUGH THIS ARRANGEMENT HAS WORKED WELL IN THE PAST, IT HAS RECENTLY FAILED US SO MUCH THAT SO FAR NONE OF THE NEWSLETTER MANUSCRIPTS THAT WE HAVE ALREADY SUBMITTED THIS YEAR HAS LEFT THE IOC/UNESCO PRINTING PRESS FOR DISTRIBUTION.

5.3 Computer Hardware

During this year, the project activities were temporarily hampered as a result of the following 4 computers crashing:

- Compaq computer used for document delivery and compilation of AFRICURRENT developed problems and was down from 31 August to 19 September when the problem was rectified.
- Another Compaq computer used for input of ASFA records and also for compiling information in the Directory of Marine and Freshwater institutes in Africa was corrupted and

therefore no entry of records was performed between June and August. The hard disk has now been serviced and entry of information has resumed.

- Dell Computer used for publishing of WINDOW and making local entries of the newsletter mailing list crashed on 12 September resulting in the loss of several newly entered records and the loss of the master copy of the September issue of the WINDOW newsletter. The PC was repaired on 20 September but it still has some problems.
- The 10 GB hard disk of the project server crashed in mid-July and two new hard disks of total capacity of 40GB were purchased as replacement. Unfortunately, several folders were lost beyond retrieval.

To alleviate the above problems, the project urgently needs new equipments as follows: 5 PC workstation computers, a heavy-duty network printer and 3 zip drives.

6. Project Achievements

6.1 Project Web Site: WWW.ODINAFRICA.ORG

One of the flagship products of the ODINAFRICA project since its inception has been its web site, which was launched in April 2001. The website has been accessed widely all over the world. The website is updated monthly and has regularly been attracting a growing number of visitors. Based on statistics from the Ned Stat Basic about 5,000 points have accessed the site so far and in the process provided the web team and project staff with useful comments and suggestions. There are on average about 300 views per day. The website has also lived up to its intended aim of providing a one-stop shop for information about marine and related research in Africa, as is evident from the comments that the website team has been receiving.

Since its launch, the website has featured a variety of headlines from all corners of Africa and beyond. The number of news items on ocean and coastal research has grown from only 9 at the time of launching to about 15 at the moment. The number of feature items has also progressively increased and so have the number of links relevant to marine and coastal research in Africa (see Table 4).

Month	Coastal news	Features	Origin of key story	Cumulative
April	9	2	Casablanca, Morocco	11
May	5	2	Lome, Togo	18
June	8	6	Mombasa, Kenya	32
July	11	4	Madagascar	47
September	10	3	Brest, France	60
October	8	2	Cape Town, South Africa	70

Table 4: Summary of information provided by general portal of ODINAFRICA web site since its launch in April 2001

6.2 Training and Workshops

Mr. Clive Angwenyi and Mr. Sam Ng'ete visited the University of Western Cape in South Africa from 26 February to 10 March 2001 to participate in the IOC training course entitled 'Active Server Pages and Data Driven Website' (see Annex III: the training report).

Mr. James Macharia attended the annual ASFA Advisory Board Meeting, which was held at the Institute Francaise de Recherche pour l'Exploration de la Mer (IFREMER) located in Brest, France.

Mr. Clive Angwenyi visited the National Oceanic and Atmospheric Administration of USA in Washington DC, from 1 to 12 October 2001 to attend an IOC internship on development of Internet Portals (see Annex IV: the Internship Report).

Mr. Sam Ng'ete has enrolled at the Mombasa Polytechnic for evening classes to pursue a 1-year Diploma course in computer and network engineering.

Although the project does not provide funds for training, the project staff has been encouraged to identify training opportunities available locally that are relevant to the project activities and train themselves during their free time. The project management has given moral support to such undertakings, as long as they do not interfere with the assigned duties and the normal running of the project and the host institution. Currently Ms. E. Fondo is studying French at the Alliance Française de Mombasa. She also intends to enroll for the English/French translation course, which will be useful in improving the project newsletter.

6.3 Visits

During the period from February to September, the project was blessed with various visitors who made either private or official visits to familiarize themselves with the activities of the project and also to meet the project staff. Below are the names of some of these visitors and their institutions of affiliation.

Dr. Larry Awosika of NIOMAR, Nigeria, visited the project offices for 1 day in May 2001.

Dr. Julius Francis of WIOMSA Secretariat visited the project office for a day in May 2001.

Dr. E. Olusegun Oyeyo of the International Ocean Institute, Nigeria, visited in May 2001.

Ms. Dudu Fakudze of the CSIRIS/SADC Information Services Development in South Africa visited the Project offices from 6 to 10 August 2001 for an internship (see Annex V for the internship programme).

Dr. David Boule of Seychelles Fishing Authority visited the project office during the month of June 2001.

Dr. Mohamud Ismet Jehangeer of Mauritius visited in June 2001.

Mr. Ali Mohammed of the National Museum of Kenya visited in June 2001.

Dr. Egbert De Smet of Antwerpen Universitaire Centrum, Belgium visited in June 2001.

Ms. Catherine Kaumbuthu is a former staff of the project and she is now based in Antwerp, Belgium. She paid a courtesy call on the project staff on the 24 and 25 September.

Mr. George O. Okoth of the Fisheries Department, Mombasa, Kenya visited the project on 17 October 2001.

Dr. George Habib of the Commonwealth Secretariat and attached to the Fisheries Department, Nairobi visited the project office on 17 October 2001.

7. Forthcoming Activities and the Way Forward

7.1 Proposed Activities and Products

7.1.1 AFRILIST

The ODINAFRICA Information Centre is proposing to establish this new product. The overall objective of AFRILIST is to set up a regularly updated database of marine and freshwater periodicals available in all information centres in Africa.

Description: It will comprise the Union List of Journal/Periodical holdings in each collaborating institution and will be readily available on request for document delivery. It will enhance resource sharing among information centres in Africa. This is distinguished from both AFRIPUB, which holds publications/reprints on and about Africa and AFRILIB, which contains book holdings in all the libraries. AFRILIST will supplement these available databases.

7.1.2 Internet

To avoid the recurrent telecommunication disruption, the project is proposing to acquire and establish a dedicated leased line Internet link with one of the most reliable Internet Service Providers locally. The other possibility we are exploring is to establish a satellite dish link.

7.1.3 AFRIPUB

The centre will continue collecting and updating the database giving more coverage to other African countries outside the WIO region. We propose that in order to overcome the problem of storage space, all reprints should be scanned and stored in CD-ROMs.

7.1.4 WINDOW

We propose to have the on-line updating of the WINDOW mailing list done at the ODINAFRICA Project office rather than at the IOC/UNESCO Office in Paris, as is the case at present. This will ensure that the records are up to date because the entering process will be continuous. At the moment the mailing list is very outdated and therefore many interested readers have not been receiving copies of the newsletter.

7.1.5 Training

The following areas have been identified as requiring regular staff training in order for the project to keep abreast with the constantly developing world of information technology.

- Computer software development;
- Computer hardware maintenance;
- Journalism and report writing;
- Networking.

7.2 Work plan and Budget

The work plan for the coming year will be derived from the envisaged forthcoming activities proposed above and it will be accompanied by the budget (see Annex VII).

8. Project Expenses

The status of the current project expenditure since February 2001 is summarized in Appendix 6. The core funding for the ODINAFRICA project has been provided by IOC/UNESCO through the following contracts:

- AFRIDIR Contract SC-298.108.1
- ACTIVITY FINANCE Contract SC-298.109.1
- WINDOW FEE Contract SC-214.183.1

Appendix 1: Equipment Available at the ODINAFRICA Project Office

	Equipment	User	Location	Qty	Approximated Value in KShs.
1.	Compaq*	E. Kinyanjui	Library	1	100,000
2.	WINDOWS NT server	S. Nge'te	Sys. Room	1	150,000
3.	Gateway Computer*	T. Bogonko	Sys. Room	1	120,000
4.	Clone Computer*	W. Mokobi	ODINAFRICA	1	60,000
5.	Dell Computer	E. Onyango	ODINAFRICA	1	90,000
6.	Dell Computer	C. Migosi	ODINAFRICA	1	150,000
7.	Compaq Computer	I. Agolla	ODINAFRICA	1	80,000
8.	Compaq Computer	J. Macharia	ODINAFRICA	1	80,000
9.	ODC Computer*	M. Osore	KNODC	1	90,000
10.	Clink Repeater*	ODINAFRIC A	ODINAFRICA	1	30,000
11.	Pross Backup*	M. Osore	KNODC	1	7,000
12.	Intellinet 16port hub*	Sys/Adms	Sys. Room	1	15,000
13.	Philips backup	W. Mokobi	ODINAFRICA	1	8,000
14.	APA Backup 1000	Sys Adms	Sys Room	1	10,000
15.	APC Backup (600)	Sys. Adms	Sys. Room	2	18,000
16.	UPS x	J. Macharia	ODINAFRICA	1	10,000
17.	HP 895Cxi	M. Osore	KNODC	1	25,000
18.	CD Writer	J. Macharia	ODINAFRICA	1	20,000
19.	US Robotics Modem	Sys Adms	Sys Room	1	10,000
20.	Canon scanner	M. Osore	KNODC	1	14,000

*Equipment that belongs to KMFRI and donated to the project.

Appendix 2: List of Journals Subscription by the ODINAFRICA Project

1. African Geo-Science Review
2. Applied Ocean Research
3. Aquaculture Research
4. Aquatic Microbial Ecology
5. Botanica Marina
6. Bulletin of Marine Science
7. Coastal Engineering
8. Coral Reefs - Journal of the Int. Society for the Coral Reef Studies
9. Crustaceana - International Journal of Crustacean Research
10. Current Contents: Agriculture, Biology and Environment
11. Estuarine Coastal and Shelf Science
12. Fish and Fisheries
13. Fisheries Management and Ecology
14. Fisheries Oceanography
15. Indian Journal of Fisheries
16. Indian journal of Marine Science
17. JMBA Journal of the Marine Biology Association of UK
18. Journal of Fish Biology
19. Journal of Marine Research
20. Journal of Oceanography
21. Journal of Plankton Research
22. Journal of Waterway Port Coastal & Ocean Engineering
23. Limnology and Oceanography
24. Marine and Freshwater Research
25. Marine Chemistry
26. Marine Policy
27. Marine Ecology – Berlin
28. Marine Resource Economics

- 29. Nature
- 30. Ocean and Atmospheric Data Management
- 31. Oceans and Coastal Management
- 32. Regional Environmental Change
- 33. Science

Appendix 3: Report on the IOC-Training ASP and Data-driven Websites

University of Western Cape
26 February - 10 March 2001
By Samuel Oyieke Ng'ete and Clive Angwenyi
Kenya Marine and Fisheries Research Institute
P.O. Box 81651
Mombasa
KENYA

Introduction

The IOC-ASP and Data-Driven web sites training course was carried out at the Botany Department of the University of Western Cape, South Africa from 26 February to 10 March 2001. This was an intensive hands-on training session course in website development, placing emphasis on the current data and information technology, with an overriding objective of training us on new technologies and how to utilize these technologies in building up data-driven websites. The course was sponsored by IOC/UNESCO and organized by Prof. Derek Keats of the University of Western Cape (UWC). Lecturers included Prof. Derek Keats (UWC), Mr. Martin Cocks, Mr. Rene Frans, Ms Jocelyn Collins, Ms. Anna Scott and Mr. Aobakwe, all from the International Ocean Institute (IOI) South Africa.

Course Content

We started with introductions and refresher sessions on HTML. Various essential HTML tags and codes including designing tables, forms and frames, as well as positioning objects in a page were discussed. This was followed by a session on website design, layout and graphics. We were introduced to various techniques on artwork for various websites using the Adobe Photoshop software. Great emphasis was placed on Active Server Pages (ASP). An Active Server Page is an open, compile-free application environment in which you can combine HTML, Script, and reusable ActiveX server components to create dynamic and powerful websites. There was also a brief introduction on installing msSQL server 7.0. This was followed by detailed discussions on creating basic SQL queries, as well as databases. This paved the way to a session on linking SQL and ASP, in which we were shown how to connect databases and publish them on the Net. Due to some unavoidable circumstances, the lecture on Installing Visual Interdev to author ASP sites did not take place. In its place we had training on more advanced ASP, Java and Visual Basic Scripting techniques for working with databases. We dealt briefly on basic courses on obtaining and using Java applets and how to apply and edit them to suit on web pages.

Following recommendations by various lectures, we (the trainees) visited various bookshops and bought some books to help us understand and advance more on the course contents.

Conclusion

This training exposed me to a number of techniques currently being used in developing dynamic websites and the data-driven websites. The training was quite a success. We hope that the knowledge gained will go a long way in improving data and information management activities within ODINAFRICA and Kenya Marine and Fisheries Research Institute (KMFRI). Our gratitude goes to IOC/UNESCO for their financial support, the IOI (SA) and UWC for offering the training and to the

Director, Kenya Marine and Fisheries Research Institute for giving me permission to participate in the course.

Appendix 4: Report on Internship at NOAA Library

Clive Angwenyi
KMFRI
P.O. Box 81651
Mombasa
KENYA

Introduction

The internship was basically focusing on portal technology, as well as improving the ODINAFRICA Website. The concept of virtual libraries was also introduced. With the time limit, it was only possible to discuss a few things in order to get a holistic view of how ocean portals and virtual libraries work. Much emphasis was laid on the Coral Reef Information System, a project that has been initiated by NOAA to enhance understanding of coral reef environments around and about the United States of America. Following a brief welcome from Dr. Lee Dantzler, Director of the US-NODC, the internship programme proceeded as follows:

- Visit to NOAA Library and introduction to NOAA library reference staff;
- Introduction to: the metadata catalogue, Marine Protected Areas (MPA's) portal and NOAA photo library;
- Review of ODINAFRICA website;
- Meeting with the NODC web team technical staff;
- Introduction to Coral Reef Information System (CORIS) portal;
- Overview of the whole internship exercise.

NOAA Library Visit (led by Ms. Janice Beattie - NOAA Central Library)

The library has standard set infrastructure including computers connected to the Internet. Some of the computers are accessible to the general public. Besides the physical library there is also a virtual library facility. The library targets such audiences as the NOAA scientific community, universities, students and the general public. There are 1,500,000 volumes of reference material in the library. The NOAA library subscribes to over 300 journals and has access to some free electronic journals such as Elsevier. More than 50,000 reference actions are handled every year. Despite the existence of an on-line reference, the library keeps quick paper reference material. Besides, the library has a legal reference collection with support from the general council's office for updates. More information can be obtained from this URL <http://www.lib.noaa.gov/>

During the visit, I was introduced to the library reference staff that in turn shared their experience and expertise in their respective fields with me. Having in mind the importance of having a good referral system, the library metadata staff maintains a metadata catalogue. These include information on photo collections, NOAA Historical Map and Chart collections, NOAA Central Library Bibliographies, NOAA newsletters, indexes, journals and newspapers, just to mention but a few. I spent some time looking at the Marine Protected Areas (MPA's) portal that is being developed by the reference staff. It was quite impressive to see how the photo library (<http://www.photolib.noaa.gov>) has been developed and maintained. Most of the images are very useful for reference in research.

Review of the ODINAFRICA Website

Prior to my arrival at NOAA, we had asked the NOAA library and information reference staff to review the ODINAFRICA website. The staff did a good job in this process and pointed out quite a number of things that needed attention. We took some time, based on the comments, to work on the

ODINAFRICA's October site. Most of the changes can be seen in the current site. Other changes will be incorporated in the next issues of the site.

Meeting with NODC Web Team Staff

I spent some time with the technical staff for the NODC's website. The idea was to learn some of the techniques that can be incorporated in the ODINAFRICA website. Two things came out of it, i.e., the idea of frames, as well as the software to use. At the moment, the ODINAFRICA site has framesets designed using FrontPage. The problem with FrontPage is that it creates some unnecessary files that make the site too big, hence the problem of loading. Following the recommendations and the difficulties involved with frames, we have decided to develop the site without frames. Subsequent issues of ODINAFRICA site will be developed using Dream Weaver.

Introduction to Coral Reef Information System (CORIS)

Dr. Parmesh Dwivedi presented a conceptual framework of CORIS. This portal (<http://patapsc.noaa.gov/website/coris/>) is being developed at NOAA. The theme of the portal is *"to provide a single point of discovery for NOAA data and information of direct relevance to the management and preservation of the nation's coral reefs"*. The website is envisioned as a global map display, from which users can obtain regional reports or data and information from specific coral reefs. Users will also have access to other options - such as Library, NOAA sites, and general information - from the opening page. Coral reef dataset descriptions (metadata) will be required for all datasets, and will help users to find the data and information they need.

Overview of the Internship

At the end of the internship, I spent sometime with the Director of NODC for a short evaluation of the programme. It was quite interesting to note that much had been accomplished during the short visit. The Director also remarked that he would be more than willing to host someone for a longer period. He also affirmed any support that can be from within the NODC's capability.

I would like to thank the staff and management of NOAA for their expertise and support. My appreciation goes to the NOAA Central Library and NODC staff for having spared time for me during my visit. The internship could not have been successful without the financial support from IOC of UNESCO. Thanks also to the Director of KMFRI for having allowed me to travel out of the country for the internship.

Appendix 5: Schedule of the Internship Programme for Ms. Dudu Fakudze

	Monday 6 August 2001	Tuesday 7 August 2001	Wednesday 8 August 2001	Thursday 9 August 2001	Friday 10 August 2001
0930-1100	History of the project. Organization of the network. Introduction to project staff M. ODIDO, M. OSORE, E. FONDO	Project services • AFRICURRENT • Selective Dissemination of information Isedorius Agola	Project databases • WIOLIB • AFRIPUB MICHAEL MOSOTI, WILKISTER MOKOBI	Project databases • MASDEA <i>Esther Fondo, W. Mokobi, E. Onyango</i>	Kenya National Oceanographic Data Centre (KeNODC) C. MAGORI/HARRISON ONGANDA
1100-1230	Project services • Query handling • Document delivery ISEDORIUS AGOLA	Communication tools • Institutional Intranet • WIOBASE Sam Ng’ete	Project databases • Directory of institutions James Macharia, Sam Ng’ete	Project Administration WILKISTER MOKOBI	
1400-1530	KMFRI Library ASFA inputs JANET MWOBODIA	Communication tools • WINDOW Newsletter (including maintenance of mailing list) Eunice Onyango	Visits Mamba Village Nature Trail Tusks City, etc.	Communication tools • Website development CLIVE ANGWENYI, SAM NG’ETE	Review of visit M. ODIDO, M. OSORE, E. FONDO Interview for WINDOW M. OSORE, E. FONDO
1530-1700		Project databases • AFRIDIR Eunice Onyango			

Appendix 6: Summary of the Monthly Expenditure Incurred on Project Activities between February and October 2001

ACTIVITY	EXPENDITURE PER MONTH IN KENYA SHILLINGS (KSHS)								
	February	March	April	May	June	July	August	September	October
Internet Service Provider	29,500.00	29,500.00	29,500.00	29,500.00 21,240.00	29,500.00	29,500.00	29,500.00	29,500.00	29,500.00
Communication	2,674.00	3779.00 2,674.00 40,000.00	14,403.50 26,800.00 40,000.00	22,560.00 15,401.40 40,000.00	52,014.15	3,700.00 19,992.00 34,107.45 40,000.00	40,000.00	30,106.00 3,977.00 3,977.00 40,000.00	42,427.15
Stationery	7,800.00		105,161.60 1,180.00		20,060.00	4,500.00	7,700.00 1,500.00 1,300.00 2,500.00	56,120.00 3,100.00	4,200.00
Hardware Maintenance		13,575.00 7,552.00	80,240.00	5,670.00 2,360.00	18,000.00	8,844.00 18,880.00			
Document Delivery		1,600.00	67.00 67.00	172.00 177.00 67.00	67.00	20,000.00	48.00 67.00	1,700.00 285.00	
Transport	900.00 1,400.00	3,200.00 2,700.00 1,200.00	1,545.00	1,533.00	2,900.00	1,100.00	3,790.00 800.00	800.00	
Translation	1,500.00		8,400.00	3,000.00	600.00	13,800.00		14,400.00 1,000.00 1,800.00	
Sundry	25,443.00	34,065.00	3,650.00	18,500.00	2,400	3,590.00	2,895.00	17,4800.00	442.00

Appendix 7: Workplan for Activity Financing Contracts

1. Handle requests and deliver documents to marine scientists in Africa;
2. Maintain and update databases: AFRIPUB, AFRILIB, AFRIDIR, INFOLIST;
3. Monthly updating of the ODINAFRICA website;
4. Provide a dedicated and unlimited Internet access to the Information Services Centre.

Workplan for Fee Contracts

1. Maintain, update and enter new addresses of the WINDOW mailing list.
2. Create and maintain the database of periodicals: AFRILIST.
3. Prepare 3 issues of the WINDOW Newsletter for the year 2002.
4. Transform hard copies of reprints and documents at the Information Centre into electronic form (for proper storage).

Estimation of Expenses

Item	Cost (US\$)
ISP	9,000
Communication	7,000
Stationery, Consumables and Document Delivery	4,000
Hardware/ Hardware Maintenance (comps)	1,500
Sundry (training, translation [website only])	<u>3,000</u>
TOTAL	24,500

ANNEX VII

NATIONAL REPORTS

1. BENIN

1.1 Nom du Centre de Données

Centre National Océanographique

1.2 Coodonnateur National ODINAFRICA

Nom: Mr. Roger DJIMAN
Institution: Centre Béninois de la Recherche Scientifique et Technique (CBRST)
Adresse du Centre: B.P. 03-1665
Cotonou, Benin
Fax: (229) 32 36 7 1

1.3 Bref Historique

L'Atelier régional de lancement du projet 'Réseau d'Echange de Données et d'Information Océanographiques en Afrique : ODINAFRICA-II' a eu lieu du 2 au 4 Mai 2000 à Dakar. Le Bénin a été représenté à cet Atelier de lancement par M. Roger DJIMAN, devenu Coordinateur National du projet. Le Projet ODINAFRICA est basé au Centre National Océanographique du Bénin du Centre Béninois de la Recherche Scientifique et Technique (CNO/CBRST). Depuis ce lancement, une série d'activités a été exécutée au Bénin pour la mise en œuvre effective du projet dans notre pays.

1.4 Tenue de l'Atelier National du Projet

L'Atelier National de lancement du Projet ODINAFRICA-II a eu lieu à Cotonou (Bénin) du 26 au 27 Avril 2001, sous la présidence du Dr. Bellarmin CODO, Conseiller Technique du Ministre en charge de la Recherche Scientifique et Technique.

1.5 Les Decisions Majeures de l'Atelier National sont:

Les participants ont retenu la création du Centre National de Données Océanographiques (CNDO) basé dans les locaux du Centre National Océanographique du Centre Béninois de la Recherche Scientifique et Technique (CNO/CBRST). Un acte officiel (note de service ou Arrêté) sera pris pour consacrer cette création.

Un Comité de Pilotage du CNDO a été créé et est composé des représentants des structures suivantes:

- CNO/Centre Béninois de la Recherche Scientifique et Technique (CBRST);
- Direction des Pêches (DP);
- Port Autonome de Cotonou (PAC);
- Agence Béninoise pour l'Environnement (ABE);
- Centre National de Télédétection (CENATEL);
- Agence pour la Sécurité et la Navigation Aérienne en Afrique;
- (ASECNA).

Le Comité de pilotage est chargé du suivi des activités du CNDO. Il se réunit une fois tous les six mois et un atelier national annuel du projet est prévu se tenir chaque année pour faire le point général des activités du CNDO et élaborer de nouvelles orientations de la politique générale du futur du projet.

L'Atelier a recommandé la création en urgence d'une Station d'observation des paramètres élémentaires océanographiques. Le Comité de Pilotage a tenue sa première réunion ordinaire le 26 Septembre 2001 au siège du Centre National de Données Océanographiques /CBRST.

1.6 Participation du Benin aux Ateliers Organisés par le Projet

- M. Zacharie SOHOU a participé à l'Atelier sur la Méthode de gestion de base de données océanographiques tenu à Casablanca (Maroc) du 03 au 12 Avril 2001.
- M. Thierry AZONHE prendra part à l'Atelier sur la Méthodologie de gestion de l'Information Océanographique prévu à Cape Town (Afrique du Sud) du 29 Octobre au 10 Novembre 2001. Il remplace à cet Atelier Mr DEGBE George responsable de la gestion de l'Information Océanographique.

1.7 Activité d'Archivage des Données Existantes

Une équipe permanente composée de 3 chercheurs:

- M. Roger DJIMAN, Coordinateur National du projet,
- M. Zacharie SOHOU, responsable de la gestion des bases de données,
- M. George DEGBE, responsable de la gestion de l'Information Océanographique,
- Mlle. Délé ALAYE, Secrétaire;

Travail avec les membres du Comité de Pilotage sur la mise en commun, des Données brutes et rapports disponibles au niveau des Institutions nationales. Ainsi jusqu'à ce jour, l'équipe a d'abord procédé à l'inventaire des Rapports de travaux des Campagnes Océanographiques et halieutiques faites sur les côtes béninoises depuis environ 40 ans.

Elle a par ailleurs rassemblé les données suivantes:

- Données sur les productions marines des Pêches artisanales et industrielles (moyenne mensuelles) et Données des campagnes de chalutage).
- Données Océanographiques (moyennes mensuelles des Températures et salinités de surface et de fond).
- Données Océanographiques obtenues des Campagnes Océanographiques et de chalutage.
- Données météorologiques dans des villes côtières (COTONOU, OUIDAH, GRAND-POPO) sur une période de 40 à 50 ans.
- Il s'agit des Données des moyennes mensuelles sur les précipitations, les températures minimales et maximales de l'air, l'évaporation, l'insolation, la vitesse du vent, et l'humidité relative.
- Données hydrologiques des lagunes côtières.
- Données bathymétriques obtenues à partir des travaux de construction et d'agrandissement du Port Autonome de COTONOU et à partir des Campagnes bathymétriques et Océanographiques.
- Données environnementales obtenues à partir de plusieurs rapports.
- Toutes ces données sont stockées au siège du Centre National des Données Océanographiques.

1.8 Elaboration de Répertoire National des Chercheurs, Ingénieurs et Techniciens en Science de la Mer et de la Zone Côtière Adjacente

Le CNDO, en rapport avec la Direction Générale du CBRST a entrepris d'élaborer un Répertoire actualisé des chercheurs, Ingénieurs et Techniciens en Sciences de la Mer et Zone côtière adjacente. Des formulaires ont été conçus et transmis aux Directeurs de certaines structures cibles, et aux chercheurs identifiés. Ces formulaires dûment remplis, doivent être renvoyés au CNDO pour la fin du mois d'Octobre au plus tard.

1.9 Acquisition d'Equipements

Le projet a acquis □rope micro Ordinateurs, deux imprimantes, un scanner. Il a fait installer une ligne téléphonique □roper au projet et s'apprête à acquérir un télécopieur.

2. Cameroun

2.1 Name of Data Centre

National ODINAFRICA Data Centre

2.2 Name of Head of Data Centre

Name: Gabche Charles EMENE
Designation: Research Officer
Address: P. M. B. 77 Limbe-Cameroon
Telephone: 237-75 89 03
Fax: 237- 33 20 25
E-mail: cemenegab@yahoo.com

2.3 National ODINAFRICA Co-ordinator

Name: Dr. Jean FOLACK
Designation: Senior Research Officer
Institution: MINREST-IRAD Research Station for Fisheries and Marine Science.
Office address: P.M.B. 77 Limbe, Cameroon
Telephone: 237-33.20.71
E-mail: odinafrica@camnet.cm
Private Address: P.O. Box 28 Limbe, Cameroon.
Telephone: 237-76 14 80 (Mobile)
Fax: 237-33 20 25/237-33 23 76
E-mail: folack@yahoo.fr
URL: Pending

2.4 Description of the Host Institution

Name of Institution: Institute of Agricultural Research for Development (IRAD)
Head of Host Institution: Dr. Ayuk Takem JACOB
Designation: Director-General
Address: P.O. Box 2067, Yaounde, Cameroon
Telephone: 237-23 35 38/237-22 33 62
Fax: 237-23 35 38
URL: Pending

2.5 Brief History

1965: Creation of ONAREST: Office National de la Recherche Scientifique et Technique.
1974: ONAREST was divided into 3 institutes.
1979: DGRST: Délégation Générale de la Recherche Scientifique et Technique with 5 institutions; two institutes are in the agricultural and animal sector: IRA (Institute of Agricultural Research) and IRZ (Institute of Animal Research).
1980: Creation of the Research Station for Fisheries, Limbe (SRHL) that is part of the Institute of Animal Research (IRZ), one of the 5 institutes of DGRST.
1984: DGRST became MESRES (Ministère de l'Enseignement Supérieur et de la

Recherche Scientifique).

1992: Creation of the Ministry of Scientific and Technical Research (MINREST).

1992: The IRZ became the Institute of Animal and Veterinary Research (IRZV).

1992: Creation of the Research Centre for Fisheries and Oceanography Limbe. (CRHOL) with 3 stations: Kribi and Limbe for marine and coastal studies and Fouban for inland studies.

1996: Creation of the Agricultural Research Institute for Development (IRAD). Within the Ministry of Scientific and Technical Research (MINREST) IRAD resulting from the merging of former IRZV and IRA.

1996: Creation of the Research Station for Fisheries and Oceanography Limbe (SRHOL), as a specialized operational research unit of IRAD.

2.6 Objectives, Activities, Facilities Available

Objectives

The overall objective of IRAD is to promote the development of and research on agricultural, animal, fisheries and aquaculture, forestry resources and the environment

Objectives of the SRHOL

- Improve knowledge on fisheries, aquaculture, and coastal and marine environments.
- Study and improve on artisanal fishing methods, preservation and processing of fishery products.
- Mastery of biological cycle of target species exploited and cultivated in Cameroon.
- Fish stock assessment and the state of marine and coastal fisheries.
- Monitoring and evaluation of pollution in marine and coastal environments.
- Promotion of national/regional/international co-operation in the fields of fisheries, oceanography and aquaculture.

Activities of IRAD

The IRAD is mandated to carry out scientific research within the national territory. Its research programme covers:

- Annual crop production;
- Perennial crop production;
- Animal and fish production;
- Forestry production and environment;
- Production system, economy and rural sociology;
- Vulgarization and extension.

The research programme is supported by three services:

- Scientific information;
- Biometry and computer;
- Co-operation.

Activities of SRHOL

• Fisheries

Population dynamics	Stock Assessment	Fisheries Socio-economics
- Species biology - Dynamics of exploited stocks - Exploitation patterns - Resource ecology	- Assessment of resources - State of exploitation of stocks - Management of resources - Appraisal of new resources	- Traditional management - Fisheries migrations - Gender issues/women in-put - Artisanal fisheries/Social Welfare

• Marine Ecology, Environment and Pollution

Marine & coastal pollution	Habitat conservation	Marine ecology
- Pollutant origins - Pollutant load in organisms - Pollutant thresholds - Pollution control - Nutrients dynamics	- Coastal erosion appraisal - Coastal erosion control - Mangrove control - Mangrove protection - Marine protected areas	- Plankton biodiversity - Appraisal of marine productivity - Productivity mapping - Marine hydrology - Palaecology

• Fish Farming

Fish breeding	Fish nutrition	Fish pond management
- Fingerlings production - Breeding of fish hybrids - Acclimatization of exotic breeds	- Use of agro-industry by-products & kitchen wastes - Feed formulation	- Fish pond construction - Fish stocking & polyculture techniques - Control of water quality & diseases

• Fish Technology

Fish preservation	Fish processing	Quality Assurance
- Fish handling - Cryogenic adaptation - Packaging techniques	- Traditional processing - Equipment design - Technological economics	- Organoleptic appraisal - Nutrient status - Toxicology

Facilities of IRAD

Operational structures:

- 5 regional research centers;
- 8 multidisciplinary research stations;
- 3 specialized research stations within which the SRHOL belongs;
- 20 research antennas.

Human resources:

- 1132 workers divided into:
 - Researchers: 210;
 - Technicians: 112;
 - Administrative and support staff: 810.
- Area of operation: within the national territory:
 - Research Station for Fisheries and Oceanography (SRHO).

Human resources:

- Researchers: 9;
- Technicians: 2;
- Administrative and support staff: 6.

- Infrastructure and equipment:
 - 1 main block bungalow with 2 laboratories for marine ecology/pollution studies and fisheries biology, one library, 6 offices for researchers, 6 offices for the Chief of station and administrative staff, 1 computer room, one canoe for field outings, equipment for hydrology and plankton studies.
 - There are 7 bungalows for the lodging of researchers and 5 duplexes for technicians and administrative staff.
 - Location of the SRHOL.
 - The Research Station for Fisheries and Oceanography (SRHO) is located at Batoke, at about 15Km from the central town of Limbe towards the West coast of Cameroon.

2.7 Description of the Data Centre

The data centre was established on 28 February 2001.

Objectives

The main objective of Cameroon's NODC is to help improve on capacity building on oceanographic data and information management and information exchange. It is also geared towards the collection, processing, stocking/archiving, diffusing and management of oceanographic data and information holdings. It assures the coordination of the network of national institutions holding oceanographic data and information and those, which exploited the coastal and marine zones. It also participates in the international exchange of oceanographic data and information in meetings of the IODE and develops international inventories of IODE.

National Framework

The National framework of Cameroon's NODC is made up of a hosting Institution (IRAD) which co-ordinates the activities of a network of national institutions or organizations. During the establishment of the Cameroon's NODC, a network of national institutions or organizations has been set up. This network is made up of users, holders of oceanographic data and information, managers or decision makers on coastal and marine areas. The institutions or organizations holding oceanographic data or information supply the NODC with those data or information. All involved institutions meet annually to discuss/review the programme of activities of the centre geared towards its improvement.

Physical Infrastructure

Due to difficulties in having access to telephones in the Batoke Station (SRHOL), (15km from Limbe town), the local Government of Limbe has offered a temporary office to the project, at the premises of the Divisional Office of Limbe. It has an office space area of 30m².

- Office and computer equipment available: The office equipment available is: 3 Tables, 2 chairs, 1 drawer. There are 1 computer model Dell Dimension 4100 with 74 Giga of hard disk, 260 RAM of Memory CD writer, 1 printer type HP DeskJet 990 CXI professional series, 1 APCs Back-UPS with 1 SURGE ARREST. 1 scanner Type Hp 5300 which breakdown after installation.
- Communication and Connectivity: A telephone line with connection to the Internet has been installed by the project. This is shared with the Institute, with all researchers allowed to create individual e-mail addresses.

Staffing of Data Centre

No.	Names	Tasks assigned and proportion of work	Training Level	Training course details	Training requirements
1.	FOLACK, JEAN	Co-ordinator/80%	Doctorat, 3 ^{eme} Cycle	Marine Ecology & Environment	Use of Computer in Management
2.	Gabche, Charles Emene	Data Management/50%	M.Sc.	Hydrobiology, Fisheries, Environment	Aerial photographs & Satellite Imagery
3.	Nwafor, Martina	Accountant/25%	R.S.A.	Finances	Accounting Management

- Organizational Structure

IRAD

Other Facilities:

- Software: Software on Research Systems: The environment for visualizing images,
- Books and manual: Some IOC-UNESCO publications and specialized books in Fisheries and Oceanography,
- Maps and atlases: World map with limited details,
- Videos, tapes and CDs.

Tapes and CDs on:

- Ocean Atmosphere space from Office of Naval Research, Fiscal Year 1999 Annual Reports;
- 5th Congreso de Ciencias del Mar, Marcuba 2000;
- A Student's Guide to the Seashore of West Africa by Mike Kendall and Kobina Yankson;
- Shore Biotopes of West Africa - An Introduction to Biotope Mapping by B. Foster-Smith, E. Antia, M. Kendall, D. John & F. Seku (Copyright, 2001);
- Irvine's Marine Fishes of West Africa by A.J. Edwards, A.C. Gill & P.O. Abohweyere, Copyright, 2001;
- Marine Zooplankton of West Africa by Darwin Project on;
- Marine Biodiversity of West Africa. Collaboration between;
- University of Ghana and University of Newcastle;
- Seaweeds of the Tropical West Africa Sub- region by D. John, G. Lawson, G. Ameca & F. Seku (Copyright, 2001);
- EDS Science Plan and Executive Summary. The State of Science in the EOS programme. NASA. Compact Disc Digital Data. NP-1999-01-006-GSFC;
- LOICZ/UNEP Regional Synthesis Workshop for the Africa Europe Regions, 2-5 July 2001 Coastal Zone Management Centre, RIKZ The Hague, The Netherlands. <http://www.kgs.ukans.edu/Hexacoral/>
- SEA START LUCC/DIS Global/Regional Data CD volume two Produced by: Tropical Rain Forest Information Centre, NASA Earth Science Information Partner.
- Global Datasets for Land-Atmosphere Models, ISLSCP Initiative 1: 1987-1988, Volume 1-5, NASA Goddard DAAC Science Data Series, Mission to Planet Earth;
- Journal subscriptions (related to data management): None available;
- Aerial photographs and satellite imagery: None available.

2.8 Database Development

- Meta database;
- Database of national institutions involved in ocean and related activities;
- National and other Oceanographic/meteorological databases: (has it been developed, description, number of records, availability): Not yet developed.

- National and other biodiversity databases: (has it been developed, description, number of records, availability): Not yet developed.
- National and other ocean Resources databases: (has it been developed, description, number of records, availability): Not yet developed.
- National and other environmental databases, etc (has it been developed, description, number of records, availability): Not yet developed.

No	Institutions	Type of Data Collected	Availability
1.1	Institute of Agricultural Research for Development (IRAD), Fisheries & Oceanography Research (SRHOL)	Physical Chemical, Biological, Meteorological & Fishery	No
1.2	National Cartographic Institute (INC)	Geographical	Yes
1.3	Institute of Geological & Mineral Research (IRGM)	Geology & Sedimentology	Yes
2.0	Ministry of Livestock Fisheries & Animal Industries (MINEPIA), Directorate of Fisheries	Fisheries	Yes
3.1	Department of Meteorology	Meteorological	Yes
3.2	Directorate of Merchant Ship	Accidents at sea, sea traffic	No
3.3	Autonomous Port of Douala	Sea/tidal Level, depth, tonnage at port.	Yes
3.4	Limbe Port	Sea level, tonnage at port and tidal level.	No
	Kribi Port	Sea level, tonnage at port and tidal level	Yes
4.1	Permanent Secretariat for the Environment (SPE)	Climatic	No
4.2	Mount Cameroon Project (MCP)	Climatic, vegetation cover	Yes
5.1	National Electricity Co-operation (SONEL)	Electricity consumption	Yes
5.2	National Water Co-operation (SNEC)	Water use, sources & hydrological network	Yes
5.3	National Refinery Company (SONARA)	Refinery discharge	Yes
5.4	National Hydrocarbons Company (SNH)	Hydrocarbon production	Yes
5.5	Cameroon Petroleum Depots Company (SCDP)	Petroleum stocking & marketing	Yes
6.1	Faculty of Science, University of Buea (UB)	Coastal zoology, botany & ecology	No
6.2	Faculty of Science, University of Douala	Coastal zoology, botany & ecology	No
7.1	Cameroon Development Co-operation (CDC)	Crop production, climate (rainfall, air temperature etc) & land use	Yes
8.1	Limbe Urban Council (LUC)	Land use, housing, sanitation, drainage, gender, household waste, sewage, hazardous & non-hazardous waste, circulation & transportation	Yes
8.2	Douala Urban Council (DUC)	Land use, housing, sanitation, drainage, gender, household waste, sewage, hazardous & non-hazardous waste, circulation & transportation	Yes
8.3	Edea Urban Council (EUC) Council (EUC)	Land use, housing, sanitation, drainage, gender, household waste, sewage, hazardous & non-hazardous waste, circulation & transportation	Yes
8.4	Kribi Urban Council (KUC)	Land use, housing, sanitation, drainage, gender, household waste, sewage, hazardous & non-hazardous waste, circulation & transportation	Yes
9.0	South West Development Authority (SOWEDA)	Fisheries & aquaculture	No
10	TROPENBOS, Kribi	Coastal forestry	Yes
11	Environment & Resources Protection (ENVIREP-Cameroon), NGO	Coastal & marine resources & environment	No
12	African Security & Air Navigation Agency (ASECNA),	Meteorological	Yes

2.9 Data Products Development (On-going and Completed)

- National and other ocean Resources Atlases: Not available.
- National and other Environmental Atlases: Not available.

2.10 Data Services (On-going and Completed)

- Preparation of maps: Pending.
- Provision of raw data: Pending.
- Provision of aerial photographs and satellite imagery: Pending.
- Information to public: Pending.
- Other (provide details): Pending.

2.11 Publicity and Public Awareness (On-going and Completed)

- National meetings about data centre: Meeting on the creation of the Data Centre (27-28 February 2001).
- Visits to institutions: Pending.
- Newspaper articles about the data centre: Cameroon Tribune article on the creation of the data centre following the meeting of 27-28 February 2001.
- Website(s) about the data centre: Pending.
- Brochure(s): Pending.
- Newsletter(s): Pending.
- Other (provide details): Pending.

2.12 Linkages to other Organizations/Groups

- Science programmes- Data generation, data flow in centre, input into project planning: Pending.
- Relation with WMO? GOOS? Other IOC programmes? Internet is installed but is presently not operational; correspondences with IOC and related programmes are through postal mails and personal e-mail addresses.
- Support for consultants: No has been given up till date.
- Information to policy makers: Pending.

2.8 Contribution of Data Centre Activities to Ocean and Coastal Management at National Level

There is a national policy, which lays down the general legal framework for the environmental and resources (living and non-living) management in Cameroon. This policy covers the geosphere, hydrosphere, atmosphere, their material and immaterial contents, as well as the social and cultural aspects. The ODINAFRICA-II project is carried out in Cameroon within the framework of the environmental and resources policy and will disseminate or exchange oceanographic data and information as stated in the policy.

Participation in Relevant Workshops/Conferences

No	Name	Title of Workshop/Conference	Place/Duration	Sponsor
1.	Dr. Folack, Jean	Guinean Current Large Marine Ecosystem (GCLME) Project. Group of experts Meeting	Accra, Ghana, 14-16 May 2001	UNIDO/UNEP
2.	Dr. Folack, Jean	Guinean Current Large Marine Ecosystem (GCLME) Project Stock taking Meeting	Accra, Ghana, 16-18 May 2001	UNIDO/UNEP
3.	Dr. Folack, Jean	Global International Waters Assessment (GIWA) training Workshop on GIWA Methodology on Scaling & Scoring.	Mombassa, Kenya, 17-19 July 2001	GIWA/UNEP
4.	Dr. Folack, Jean	GIWA Regional Meeting for the Gulf of Guinea Sub Region on Scoring & Scaling.	Accra, Ghana, 14 –17 August 2001	GIWA/ Hydrology Service Ghana
5.	Mr. Gabche, Charles Emene	First ODINAFRICA II Oceanographic Data Management Training Course for the IOCEA Region.	Casablanca, Morocco, 1-13 April 2001	IOC-UNESCO
6.	Mr. Gabche, Charles, Emene	Training Work shop for Thematic Up scaling of Biogeochemical & Oceanographic Data for the Estuarine System of Africa-Europe Regions.	Amsterdam, The Netherlands 2-6 July 2001	LOICZ/UNEP
7.	Mr. Gabche, Charles Emene	City Consultation Seminar: Integrated Urban: Access to Land, Housing & Basic Urban Services (water, drainage/sanitation & urban wastes management)	Limbe, Cameroon, 25-27 September 2001	UN Centre for Human settlement, Regional Office for Africa & the Arab States
8.	Dr. Njifonjou Oumarou	Sub-regional conference on participative management of natural resources	Abidjan, Côte d'Ivoire, 26-29 April 2001	PMEDP project
9.	Dr. Njifonjou Oumarou	Expert meeting on the definition of terms of reference of the sub-committee of artisanal fisheries	Cotonou, Benin, 17-21 October 2001	CECAF
10.	Dr. Njifonjou Oumarou	Sub-regional workshop on training of trainers on co-management & approach on sustainable livelihoods in artisanal fisheries	Douala, Cameroon, 8-15 October 2001	PMEDP project

2.14 Recommendations to Amendment to the ODINAFRICA Work Plan as Approved in May with Regard to Ocean Data Management

The following sub-projects have not been implemented because funds were not released:

- SA42 - Development of National and regional Meta Databases;
- SA 43 - Development of National/Regional data archives;
- SA53 - Support for Development of Data and information products;
- SA54 - Public awareness creation on the project services and products;

Recommendations

- For each existing NODC, financial allocation for all sub-projects planned for a year should be made on a single activity contract.
- There is need to motivate National Staff working with the project by giving allowances for a better output.
- Operational expenses for the Data and Information Centre should be increased to a minimum of US\$5,000 a year for full Project implementation.
- The money provided for activities planned for 2001 (which has not yet been sent to the various NODCs) should be added to the budget of year 2002.

2.15 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA during January - August 2001

The following activities were realized within the above-mentioned period:

- Repairs and furnishing of a Project office in the Central town of Limbe;
- Installation of a telephone line in January 2001;
- National co-ordination meeting held in Limbe from 27-28 February 2001 during which Cameroon's Oceanographic Data Centre was created;
- Participation at the Training Course on Oceanographic Data Management held in Morocco between 1-13 April 2001;
- Reception and Installation of computer equipment in early September 2001;
- Connection to Internet with the new equipment in early October.

Comments

- The equipment for Cameroon's NODC arrived late. The work planned to be carried out by the Data Centre Head through an Internet connection was not done. The Internet connection has been done, but the line is not responding and we are presently waiting on the Internet service provider to settle the problem.
- Cameroon has specific problems: the NODC is located at Limbe and the headquarters of the hosting institution is in Yaounde, 400 km far from Limbe. Also UNESCO and UNDP offices are located in Yaounde. With this situation, the project spends much on local travel compared to other countries where all the institutions involved are located in the same town. This specific situation for Cameroon should be taken into consideration when financial matters are concerned.
- The financial mechanism for sending money from IOC is very slow and complex, and for that reason, funds provided have not been sent to various NODC. This is why recommendation I is very important

2.16 National ODINAFRICA Information Centre

Name of Head of Information Centre:	Dr. Njifonjou Oumarou
Designation:	Research Officer
Address:	PMB 77 Limbe, Cameroon
Telephone:	237-33.20.71
E-mail:	njifonjo@caramail.com

2.17 Description of Host Institution

Same as data center.

2.18 Description of Information Centre

The Information Centre was established on 28 February 2001

Objectives: see Data Centre
National framework: see Data Centre

Physical Infrastructure

The information Centre shares the same office with the Data Centre due to the difficulties involved with installing a telephone line in Batoke (15 km from Limbe central town). The space shared is about 30m².

Office and Computer Equipment Available

The information centre equipment available are: 3 Tables, 2 chairs, 2 book shelves, There is 1 computer PC Model Dell Dimension L933r, 37 Giga for hard disk and 260 RAM memory, 1 Laser jet printer type Hp 1200 series, 1 APCs, Back-UPS with 1 SURGE ARREST. The laser printer since it was installed cannot be used, it signaled paper jams. The local technician said that all the hp 1200 have problem with the ink cartridge, which is supplied with a new printer, and that we have to contact the supplier or HP office to change this cartridge; presently, this cartridge is not available in the market in Cameroon.

- **Staffing of Information Centre**

No	Names	Tasks assigned & proportion of work	Training Level	Training course details	Training requirements
1.	DR. FOLACK, JEAN	Co-ordinator/80%	Doctorate 3 ^{eme} Cycle	Marine Ecology & Environment	Use of Computer in Management
2.	Dr. Njifonjou Oumarou	Information management/50%	Doctorat unique	Fisheries Socio-economics	Information Management
3.	Nwafor, Martina	Accountant/25%	R.S.A.	Finances	Accounting Management

- Organizational Structure

IRAD

- | | |
|---|---------------------|
| - Database Development: | Pending |
| - Information Services Offered: | Pending |
| - Publicity and Public Awareness: | Pending |
| - Linkages to other organizations/Groups: | Pending |
| - Contribution of Information Centre to Ocean and Coastal Management at National Level: | Pending |
| - Recommendations for Amendments to the ODINAFRICA Work Plan As approved in May 2000 | |
| - Regard to Ocean Data Management: | see Data Management |
| - Assessment of the Implementation of the Ocean Information Management Component of ODINAFRICA during Jan - Aug 2001: | see Data Management |

2.19 Workplan for Year 2002, Cameroon

[illegible]

2.20 Budget from IOC for Year 2002, Cameroon

No.	Activities	Cost	
		FCFA	US\$
SA21	National co-ordination meetings	1,400,000	2,000
SA42	Creation & development of regional/national meta database	3,220,000	4,600
SA43	Development & maintenance of regional/national data archive	3,780,000	5,400
SA51	National workshop on data/information service/products requirements	2,100,000	3,000
SA53	Development of data & information products	2,520,000	3,600
SA54	Public awareness creation on the project services & products	2,520,000	3,600
SA24	Operational expenses Data & Information Centres	3,500,000	5,000
Total		19,040,000	27,200

3. Comoros

3.1 Nom du Centre de Données

National ODINAFRICA Data Centre

3.2 Coordonnateur National ODINAFRICA

Nom: Dr. Aboubakari Boina
 Titre: Directeur Adjoint du CNDRS et Secrétaire Général de la Commission Nationale des Comoros pour l'UNESCO.
 Institution: Centre National de Documentation et de Recherche Scientifique
 Adresse: B.P. 169 Moroni, Comoros
 Téléphone: (269) 73 12 30 ou (269) 74 41 87
 Fax: (269) 74 41 89
 E-mail: cndrs@snpt.km ou labo.cndrs@snpt.km

3.3 Centre National de Données d'ODINAFRICA

Name of Institution: Centre National de Documentation et de Recherche Scientifique
 Chef de l'Institution: Dr. Ainouddine Sidi
 Titre: Directeur
 Chef du Centre de Données: Ahmed Abdoukarim
 Titre: Responsable du Centre de Données et d'Information Océanographiques.
 Adresse: B.P. 169 Moroni, Comoros
 Téléphone: (269) 73 12 30 ou (269) 74 41 87
 Fax: (269) 74 41 89
 E-mail: cndrs@snpt.km ou labo.cndrs@snpt.km

3.4 Description de l'Institution

La réalisation nationale la plus importante sur le plan culturel et scientifique depuis l'indépendance (1975) est la création du Centre National de Documentation et Recherche Scientifique (CNDRS) en 1979. Il a pour mission de :

- protéger et promouvoir les patrimoines culturels et naturels de la nation.
- Développer, orienter et coordonner les recherches scientifiques et technologiques.
- Elaborer et diffuser à partir des connaissances tirées des milieux naturels et humains comoriens, des savoir et des savoir-faire qui permettront aux programmes de

développement d'éviter l'écueil de l'inadéquation des techniques importées avec l'infrastructure scientifique nationale.

- Introduire dans les programmes du système éducatif, des connaissances qui susciteront le réveil du dynamisme naturel du peuple et permettront aux cadres nationaux de se reconnaître et d'être reconnus comme des agents actifs de l'histoire du pays.

Sept divisions qui composent le Centre: archives nationales; bibliothèque nationale; documentation nationale; musée national; recherche scientifique; production et valorisation; administration. A cela s'ajoute aujourd'hui: le Centre National de Documentation et de Recherche Scientifique.

La division recherche scientifique est composée de deux départements: le département des sciences humaines et le département des sciences naturelles. Le premier comprend cinq laboratoires: traditions orales et anthropologie sociale, linguistique, histoire, archéologie et civilisation islamique. Le second est formé de quatre laboratoires: géologie, entomologie, zoologie et botanique. Les deux départements fonctionnent avec des programmes propres au CNDRS ou en relation avec des programmes de développement au niveau national, régional et international. En guise d'exemple, le laboratoire de traditions orales et anthropologie social a fait de la recherche appliquée avec le "fonds d'appui au développement communautaire". Au niveau régional l'institution a participé avec succès au programme de la Commission de l'Océan Indien sur les plantes aromatiques et médicinales. Au niveau international, nous pouvons citer le projet SAREC initié par la Suède pour la connaissance des origines des villes d'Afrique du sud-est.

Les services de documentation et des archives se proposent de reconstituer et d'entretenir la mémoire collective des Comores et de faciliter la circulation de l'information scientifique. Un travail de mise à jour d'une base de données bibliographiques nationales a été entrepris. Les chercheurs peuvent utiliser l'outil informatique pour exploiter ces données.

Une bibliothèque du CNDRS est également à la disposition des chercheurs et du public. Le service offert dans cette bibliothèque peut aller de la simple photocopie à l'exploitation thématique en passant par le prêt des ouvrages, les visites guidées et l'encadrement des stagiaires.

Des séminaires et des conférences-débats sont souvent organisées et ouvertes au public. Un colloque sur "les vingt ans d'indépendance des Comores" a eu lieu en juillet 1995. Les actes du colloque constituent une documentation de référence sur l'histoire immédiate et la situation de l'Archipel.

C'est dans ce cadre que va évoluer le Centre National de données et d'information océanographiques qui vient de naître avec la participation des Comores dans le Programme ODINAFRICA II.

3.5 Description du Centre de Données

Le Centre de données et d'information océanographiques est abrité dans deux salles de 50m². Mais le Centre peut également bénéficier de l'espace de la bibliothèque du CNDRS.

Le matériel informatique est livré dans le cadre du Programme, soit principalement trois ordinateurs et deux imprimantes avec tous les accessoires.

La ligne téléphonique et la connexion Internet sont actuellement partagées avec le CNDRS. Mais des demandes officielles sont déjà lancées, pour pouvoir rendre autonome le Centre, par une ligne téléphonique et une connexion directes.

Deux cadres du Centre: Ahmed Abdoukarim et Echat Abdouraouf travaillent pour le Centre à hauteur de 70 % de leur temps. Ils disposent d'une secrétaire. Une fois que le Centre trouvera une

capacité de travail maximum, nous envisageons accepter des stagiaires qui ont déjà formulé des demandes de stage au sein du Centre.

Pour la formation, Ahmed Abdoukarim a participé à la formation organisée au Maroc et Echata Abdourouf participera à la formation de Cap Town prévue dans le cadre du Programme ODINAFRICA II. A l'état actuel des choses, il sera prématuré d'envisager d'autres formations. L'expérience du travail et le fonctionnement du Centre permettront sûrement dans les mois à venir, à déterminer la nécessité ou non d'autres formations.

Le Centre travaille en symbiose avec le CNDRS. Le premier peut disposer de tout le matériel ou équipement du second comme: les logiciels, livres, les cartes, le matériel vidéo, photo et informatique

3.6 Développement des Bases de Données

Pour l'instant, le Centre n'a pas encore ses bases de données propres. Toutefois, il accède et il s'enrichit des données propres du CNDRS et des institutions ou programmes partenaires comme: le diagnostic de l'environnement côtier des Comores, les données de la météo nationale, la base des données sur la biodiversité, sur la pêche et les activités liées à la mer.

Le Centre s'équipera sûrement de tous les rapports et documents essentiels relatifs à la région côtière (Comorienne) et à l'océan.

3.7 Développement des Produits de Données

Services De Données: Compte tenu de l'état actuellement du Centre et le retard des décaissements, nous ne disposons pas ni des produits de données, ni des services des données.

3.8 Publicité et Conscience Publique

L'atelier national pour la création d'un centre de données et d'information océanographiques avait bénéficié d'une bonne couverture médiatique, notamment par la presse écrite et la radio nationale. Le bulletin de la Commission nationale des Comores pour l'UNESCO a également (à trois reprises) fait écho du Centre des données par des articles de Ahmed Abdoukarim et Echata Abdourouf.

3.9 Liaison aux Autres Organisations/Groupes

3.10 Contribution des Activités du Centre de Données à la Gestion Côtière et Océanique au Niveau National

Les 9 et 10 ne sont pas encore entamés pour les mêmes raisons évoquées aux 7. Par ailleurs, au niveau des Comores, le Centre des données et rattaché à celui de l'information sous la responsabilité scientifique de Ahmed Abdoukarim, secondé par Echata Abdourouf, notamment en ce qui concerne la partie information.

Enfin, nous ne manquerons pas d'apporter, lors du séminaire régional, une bibliographie et une documentation sur les études réalisées aux Comores.

4. Côte d'Ivoire

No report was submitted.

5. Ghana

5.1 Name of Data Center

Ghana Oceanographic Data and Information Centre

5.2 National ODINAFRICA Co-ordinator

Name: Dr. K.A. Koranteng
Designation: Ag. Deputy Director of Fisheries
Institution: Marine Fisheries Research Division
Address: P.O. Box BT 62, Tema, Ghana
Telephone: (233 22) 208048
Fax: (233 22) 203066
E-mail: kwamek@africaonline.com.gh

5.3 Data Centre Address

Name of Head of Data Centre: Emmanuel K. Dovlo.
Designation: Assistant Research Officer
Address: P.O. Box BT 62, Tema, Ghana
Telephone: (233 22) 202346
Fax: (233 22) 203066
E-mail: mfrd@africaonline.com.gh
URL: Not yet available

5.4 Description of Host Institution

Name of Host Institution: Marine Fisheries Research Division
Head of Host Institution: Dr. K.A. Koranteng
Designation: Ag. Deputy Director of Fisheries
Address: P. O. Box BT 62, Tema, Ghana
Telephone: (233 22) 208048
Fax: (233 22) 203066
E-mail: kwamek@africaonline.com.gh
URL: Not yet available

5.4 Brief History

The institution was established in 1962 as the Fisheries Research Unit under an Expanded Programme of Technical Assistant of the Food and Agriculture Organization (FAO) to the Government of Ghana. Between 1977 and 1995 the name of the institute was changed to Research and Utilization Branch, and Marine Fisheries Research Division of the Directorate of Fisheries (DOF) of Ministry of Food and Agriculture (MOFA).

5.5 Objectives, Activities and Facilities

The main objective of the institute is to carry out scientific research on the marine environment and the fisheries resources of Ghana and in the effective exploitation and management of the resources. The MFRD also provides technical advice to the Government of Ghana for the formulation of fisheries policies, laws and regulations for the rational exploitation of fisheries resources.

The activities of the institute include the collection of oceanographic and fisheries data, the study of fisheries biology and exploitation.

The facilities available include coastal observation stations and a fisheries research vessel, which is out of operation at the moment.

5.6 Participation in National/Regional/International Programmes

The institute collaborates with the following organizations that execute regional and international programmes and projects:

- Food and Agriculture Organization (FAO) of the United Nations;
- Organization of African Unity (OAU);
- Intergovernmental Oceanographic Commission (IOC) of UNESCO;
- Committee for East and Central Atlantic Fisheries (CECAF);
- International Commission for the Conservation of Atlantic Tunas (ICCAT);
- The Gulf of Guinea Large Marine Ecosystem (LME) (UNIDO/GEF).

5.7 Description of Data Centre

The Data Centre has not formally taken off. A proposal has been prepared for a national workshop, which will serve as the formal launching of the Ghana Oceanographic Data Centre (GODC). Though recognized by IOC as a DNA the activities and obligation of MFRD to IOC is within MFRD and not the other ocean-related institutions. Therefore, formal inauguration is needed to bring on-board the other ocean-related institutions.

The Ghana National Commission/Intergovernmental Oceanographic Commission (GNC/IOC), which will serve as the Steering Committee of the ODINAFRICA project in Ghana, is expected to play a vital role in the proposed first national workshop.

GNC/IOC has the following membership:

- Marine Fisheries Research Division, (Fisheries Dept. - Ministry of Food & Agriculture).
- Water Research Institute (Council for Scientific and Industrial Research).
- Department of Oceanography and Fisheries, University of Ghana.
- Department of Chemistry, University of Ghana.
- Department of Zoology, University of Ghana.
- Environmental Protection Agency.
- Survey Department.
- Geological Survey Department
- Hydrology Division of the Ministry of Works and Housing.
- Meteorological Services Department.
- Ghana National Petroleum Corporation.
- Regional Maritime Academy.
- Ghana Shippers Council.
- Ministry of Justice.
- Ministry of Lands and Forestry.
- Ministry of Foreign Affairs.
- Ghana National Commission for UNESCO.

5.8 Objectives, National Framework, Physical Infrastructure, Staffing and other Facilities

One of the major challenges facing the Intergovernmental Oceanographic Commission's (IOC) Member States from Africa including Ghana is the access to and effective utilisation of data and information management, and sustainable exploitation of marine resources. The objectives and the national framework of the Data Centre seek to address this problem by promoting and facilitating communication among marine scientists at the national and regional level. The Data Centre will also promote scientific activities and the full use of scientific literature and information.

The physical infrastructure and staffing would be organized from the host institution's infrastructure and staff. It may be necessary to engage the services of a full-time secretary for the Data Centre.

The MFRD has taken delivery of three computers and accessories for the data and information centres.

5.9 Database Development, Data Product Development, Data Services, Publicity and Public Awareness, and Linkages to other Organizations/Groups

Work at the Data Centre has not formally begun to take account of Database and Data Products developments, Publicity and Linkages to other organizations.

5.10 Contribution of Data Centre Activities to Ocean and Coastal Management at National Level

The life and survival of the population living along the coast depend very much on the marine and coastal resources. The ability to acquire, manage, archive and disseminate data to support decision-making and management of the Ocean and Coastal Zones are of paramount importance. It is therefore expected that when the project actually takes off, it will contribute immensely in this direction.

5.11 Recommendations for Amendments to the ODINAFRICA Workplan as Approved in May 2000 with regard to Ocean Data Management

In view of the general delay in the implementation of the workplan I suggest that the time component of the workplan be reviewed.

5.12 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA during January - August 2001

The project has not been fully implemented in Ghana, no activity has yet been undertaken and assessment is therefore not possible.

5.13 National ODINAFRICA Information Centre

Head of Information Centre:	Ms. Hawa Bint Yaqub
Designation:	Research Officer
Address:	P.O. Box BT- 62, Tema, Ghana
Telephone:	(223 22) 202346
Fax:	(223 22) 203066
E-mail:	mfrd@africaonline.com.gh

5.14 Description of Information Centre

The National ODINAFRICA Information Centre is to be located at the library of MFRD, which, was established in 1962.

5.15 Objectives, Terms of Reference and National Framework

The main objective for the establishment of the library is to provide information on fish and fisheries to staff and the general public. The collaborating institutions also provide and use literature from the library. Staffs and students of universities in Ghana also use the library.

5.16 Physical Infrastructure, Staffing and other Facilities

The library is currently undergoing rehabilitation and rearrangement. The information centre will have a computer, which will be networked to the Data Centre. Ms. Hawa Bint Yaqub is the Head of the information centre and will be running the information management system to be provided under the project. She is assisted by Mr. Patrick Amartey. The library has in stock books, journals and reports.

5.17-5.18 Database Development, Information Services Offered, Publicity and Public Awareness, and Linkages to other Organization/Groups

The Centre is yet to take off.

5.19 Contributions of Information Centre Activities to Ocean and Coastal Management at National Level

The coastal zone supports a large proportion of the populations of Coastal States. The capacity to generate information in support of policies formulation and laws will help in sustainable management of the oceans and coastal zone. It is expected that when the project actually takes off in Ghana, the Information Centre will help Ghana in the sustainable management of her coast.

5.20 Recommendations for Amendments to the ODINAFRICA Workplan as Approved in May 2000 with regard to Ocean Information Management

I suggest the timetable component of the work plan be reviewed to correspond with the proposed timetable review for the Data Management.

5.21 Assessment of the Implementation of the Ocean Information Management Component of ODINAFRICA during January – August 2001

The project has not yet taken off in Ghana and therefore assessment of its implementation is not possible.

6. Guinée

6.1 Coordonnateur National ODINAFRICA

Nom: Sékou CISSE
Titre: Chef Division Gestion Information
Institution: Centre de Recherche Scientifique de Conakry-Rogbanè (CERESCOR)
Adresse: B.P. 1615, Conakry, République de Guinée
Téléphone: (224) 42 38 38/13 40 57 73/22 43 60
Fax: (224) 45 18 75
E-mail: s.cisse@unesco.org, recoscixgn@mirinet.com

Les Coordonnateurs Nationaux ODINAFRICA doivent s'assurer que l'ensemble des centres de données et d'information fournissent les détails des activités mises en œuvre jusqu'à la fin du mois d'août 2001 et comment ces activités et les autres activités planifiées contribueront à la gestion côtière et de l'océan au niveau national.

La structure proposée pour les rapports est fournie ci-dessous. La liste des articles à couvrir suivant chaque titre n'est pas exhaustive et les Coordonnateurs doivent fournir l'information aussi détaillée que possible.

6.2 Centre National de Données d'ODINAFRICA

Nom de l'Institution: Centre de Recherche Scientifique de Conakry-Rogbanè (CERESCOR)
Chef de l'Institution: Sékou KONATE (Prof.)
Titre (du chef d'institution) : Directeur Général
Adresse: B.P. 1615, Conakry, République de Guinée
Téléphone: (224) 42 38 38/13 40 57 73/22 43 60
Fax: (224) 45 18 75
E-mail: s.cisse@unesco.org, recoscixgn@mirinet.com

6.3 Description de l'Institution

Bref Historique

Le Centre de Recherche Scientifique de Conakry-Rogbanè (CERESCOR) a été créé par Décret N° 078/PRG/2C/82 du 12 juillet 1982. Il est un Etablissement Public Administratif à caractère scientifique et technique placé sous la tutelle du Ministère chargé de la Recherche Scientifique. A ce titre, il a pour mission de participer au développement économique de la Guinée en collaboration avec les services techniques des différents départements ministériels.

Le CERESCOR compte environ une centaine de chercheurs et de techniciens répartis entre la Direction Générale, les Départements Scientifiques et les Services d'Appui ; 15 % du personnel est féminin.

Pour lui permettre d'accomplir sa mission, Le CERESCOR dispose D'un Conseil d'Administration, d'une Direction Générale, de cinq Départements scientifiques et d'un Service de Gestion de l'information scientifique. Il dispose en outre d'un patrimoine propre constitué d'un territoire de 4ha 51 ; un bloc principal de 7 étages abritant les laboratoires et la Direction du Centre, un bloc secondaire de 4 étages abritant la bibliothèque, la salle de réunion, des bureaux, l'hôtel pour chercheurs visiteurs, l'infirmier, etc; une salle de conférence et une cantine.

Les Départements scientifiques sont:

- Département d'Océanographie Physique regroupant les laboratoire de Physique de la Mer, laboratoire d'Hydrochimie, laboratoire d'Hydrométéorologie;
- Département d'Hydrobiologie (laboratoire d'Ichtyologie, laboratoire d'Aquaculture, laboratoire du Plancton, laboratoire du Benthos);
- Département de Géologie et Environnement (laboratoire de Géologie Marine, laboratoire de Géophysique, laboratoire d'Environnement);
- Département des Energies (laboratoire des Mesures thermiques et optiques, laboratoire des Installations Solaires, laboratoire de la Biomasse et de l'Energie éolienne , laboratoire de l'Economie d'Energie);
- Département des Matériaux de Construction et Produits Finis (laboratoire de Matériaux Locaux, un laboratoire de Technologies des Matériaux et laboratoire de produits Finis) ;
- La Division (Service) Gestion de l'Information Scientifique comporte le Centre Informatique, la Bibliothèque, la Cellule de Publication ; il assure l'appui aux départements scientifiques.

Les Conseils Scientifique du CERESCOR et de Département sont des organes consultatifs respectivement auprès de la Direction Générale et des Départements Scientifiques.

6.4 Activités

Le CERESCOR est particulièrement chargé de mener des activités de recherche orientées vers:

- une meilleure connaissance du milieu marin et de ses ressources en vue de leur mise en valeur et de leur gestion rationnelle;
- l'élaboration et la vulgarisation de technologies de fabrication de matériaux locaux de construction et l'étude de leur comportement;
- l'étude technologique des appareils solaires et la production de prototypes, l'étude des particularités et perspectives d'utilisation des sources d'énergie renouvelables;
- la collecte et le traitement des données et de l'information marine, la constitution et la gestion des bases et banques de données.

Participation aux programmes nationaux, régionaux, internationaux. Les programmes de recherche en cours d'exécution au CERESCOR sont:

1. Biodiversité de la zone littorale;
2. Gestion intégrée des zones littorales;
3. Environnement marin et côtier;
4. Energies;
5. Etude et Promotion des matériaux locaux;
6. Bases et banques de données.

Au niveau national, le CERESCOR poursuit les activités de recherche dans les domaines cités plus haut à travers l'exécution de projets de recherche en collaboration avec les Universités Nationales, les Unités de Recherche des Départements Ministériels, les ONG opérant en milieu marin et côtier Guinéen.

Au niveau régional et international, le CERESCOR compte plusieurs points focaux de projets et des Chercheurs de rang magistral, par le truchement de ceux-ci il participe:

- aux projets et/ou programmes en sciences de la mer en gestion des données et information marines initiés par la COI de l'UNESCO;
- aux projets et/ou programmes en Environnement initiés par le PNUE, le FEM;
- aux programmes de recherche et de formation portant sur les Energies Nouvelles et Renouvelables (sponsorisés par le ROSTA, l'Institut de Physique Théorique de Trieste, l'AUEPLF);
- aux programmes de recherche sur les matériaux locaux de construction.

6.5 Description du Centre de Données

Infrastructure physique (l'espace disponible-mètres carrés; l'espace disponible – mètre)s.

Bureau et Equipement Informatique Disponible:

- Un appartement de 35 m² est octroyé par le CERESCOR au CNDO: une salle (3m,5 x 4 m =14m²) abrite le micro-ordinateur Pentium, son imprimante, son onduleur fournis par le projet ODINAFRICA et les 2 autres micro-ordinateurs et leurs imprimanteset accessoires (fournis par le CERESCOR) et le bureau.
- Communication et connexion (ligne téléphonique partagée avec l'institution ou directe, dial-up ou connexion directe à internet, adresse e-mail partagée ou individuel, etc.).
- La ligne téléphonique du Centre de Données est une ligne directe, sa connexion à Internet est également directe, son adresse e-mail est commune aux Groupes de Gestion de Données et d'Information.
- Staff (combien de membres du staff, tâches assignées à chacun d'eux, quelle proportion du temps de travail est consacrée aux travaux du Centre de Données, nécessités de formation, etc.).
- Quatre personnes (programmeurs et assistants relevant du Centre Informatique de la Division Gestion Information participent aux activités du Centre de Données. Ainsi ils exécutent les travaux d'identification, de collecte et de traitement des données au niveau;
- Des laboratoires et groupes thématiques du CERESCOR;

- des institutions (unités de recherche et autres projets) collaborant avec le CERESCOR.
- Ils participent également à la gestion des bases de données et consacrent 35% de leur temps de travail aux activités du Centre de Données. Travaillant dans la gestion des données des différents laboratoires du CERESCOR, ils ont besoin de suivre des cours ou stages de perfectionnement en gestion de données (cours de formation ou de perfectionnement).
- Le coordonnateur national chef du centre de données consacre 50% de son temps de travail aux activités du projet.

Autres Facilités

- **Logiciels:** Tous les logiciels contenus dans le Windows Professionnel et ceux contenus dans le Kit resource élaboré par les Experts de l'IODE.
- **Livres et Manuels:** Livres de programmation, manuels de programmation et rapports techniques sur la conception et la gestion des bases de données, rapports de stage.
- **Cartes et Atlas:** Cartes et atlas élaborés à partir des données validées par le Conseil Scientifique du CERESCOR (Atlas des courants du secteur guinéen de l'Atlantique, Atlas hydrochimique des eaux littorales de Guinée, Atlas des courants de marée en zone côtière guinéenne, etc.).
- Vidéo, magnétophone et disques compacts CDs.

Les disques compacts suivants sont disponibles au Centre de Données:

- World Atlas by NOAA;
- MEDI Pilot Project;
- GEBCO Digital Atlas by IOC & IHO;
- World Biodiversity Database Marine Mammals of the World;
- CD COMA (Coastal Management);
- CD Integrated Coastal Management: Concepts and strategies.

Le Centre ne dispose pas pour le moment de video cassettes.

Souscription aux Revues

Le Centre de Données n'est abonné à aucune revue pour le moment.

- Photographies aériennes et images satellitaires. Images satellitaires NOAA, Meteo sat sur la nébulosité; photos aériennes sur les fronts marins.

6.6 Developpement de Bases de Données

- Meta Bases de Données: en cours d'élaboration suite à la formation reçue au 1^{er} Atelier de Formation en gestion des Données.
- Bases de Données des facilités disponibles dans l'Institution hôte (abritant le Centre de données). Au CERESCOR, outre les bases de données disponibles au Centre de Données, les Départements scientifiques ne travaillant pas en milieu marin disposent de bases de données sur les caractéristiques des installations solaires en expérimentation au CERESCOR (Energies Nouvelles et renouvelables) et sur les caractéristiques thermophysiques de quelques matériaux utilisés dans la confection du Béton en Terre Comprimée (BTC).
- Bases de Données des institutions impliquées dans les activités liées à l'océan (incluant les détails et facilités qu'elles ont): Bases de Données du Centre de Recherche Halieutique de Bousoura portant sur les pêcheries (Poissons, engins de pêche, statistiques socio-économiques), un centre informatique et un centre de documentation. Projet Mangroves: Bases de données sur l'évolution des aménagements des aires de mangrove, une unité de

cartographie des forêts de mangrove et plans d'aménagement, un SIG et une cellule informatique.

- Base de Données Nationale des Professionnels des eaux marines (et douces).
- Rapports de croisières : Rapports sur les différentes campagnes océanographiques conjointes réalisées à bord des navires de recherche Académicien Vernadski, Mixail Lomonossov, Prof. Vodianitski, Prof. Kolesnikov, André Nizzeri (navires étrangers) et navires Rogbanè et Oustritsa (appartenant au CERESCOR). Ces rapports portent sur les recherches pluridisciplinaires menées dans le secteur guinéen de l'Atlantique tropical (shelf et basses eaux).
- Base de Données Océanographiques/météorologiques: Suite à la refonte des bases de données océanographiques, il existe actuellement les bases de données suivantes:
 - OCEAN (paramètres physiques et chimiques des eaux du secteur guinéen de l'Atlantique);
 - GEOMARINE (caractéristiques des dépôts du shelf guinéen);
 - PLANKTON (Biomasse, Nombre et Espèces du zooplancton et du phytoplancton des eaux marines et estuariennes du secteur guinéen de l'Atlantique);
 - Il existe un volume important de données hydrométéorologiques non encore conservé sur support magnétique ou dans des bases de données.
- Base de Données sur la biodiversité: Des données sur la biodiversité de l'écosystème côtier de Guinée sont disponibles au CERESCOR, leur traitement en vue de leur conservation dans une base de données sera initié dans le plan d'action 2002 du CNDO Guinée.
- Base de Données sur les Ressources.
- Base de Données Environnementales, etc.: A initier dans le plan d'action 2002.

6.7 Développement des Produits de Données

- Atlas des Ressources: non élaborés.
- Atlas Environnementaux: non élaborés.

6.8 Services de Données

- Elaboration des cartes: Plusieurs cartes élaborées à partir de l'interprétation des données des recherches côtières existent.
- Provision de données brutes: Un volume important de données est en cours d'identification suite à l'initiation du projet ODINAFRICA; il concerne essentiellement des données sur les eaux côtières.
- Provision de photos aériennes et d'images satellitaires.
- Volume relativement faible, étant donné l'état de vieillissement de l'équipement de la Station de Télédétection de l'Institution.
- Information au public:
 - variation du niveau de la mer (données marégraphiques) en différents points de la Côte Guinéenne (littoral Sud, littoral Nord, sites insulaires).
 - Recommandations et stratégies élaborées à la suite de l'exécution de projets de recherche sur:
 - la protection des côtes ;
 - la protection des frayères et/ou nurseries en zones estuariennes à mangrove;
 - l'hydrosédimentologie et les implications de vulnérabilité;
 - la gestion des intrusions salines dans les casiers rizicoles littoraux;
 - l'inventaire de la biodiversité des écosystèmes côtiers;
 - les biotechnologies de l'élevage de l'huître, de la rizipisciculture, des engins de collecte de l'ichtyoplancton.

6.9 Publicité et Conscience Publique

- **Rencontres Nationales:** Rencontres avec les Départements Techniques chargés de l'aménagement de la zone littorale (séminaires), les conférences de sensibilisation en faveur des paysans pêcheurs et autorités du littoral.
- **Visite aux Institutions:** Des visites de présentation du projet ODINAFRICA (objectifs, activités, résultats) ont été effectuées auprès des unités de recherche et projets opérant en zone littorale.
- **Journaux:** Le bulletin du Centre de Rogbanè est une revue à Comité scientifique et à Comité de Rédaction; il paraît tous les trois mois. Les articles publiés par les chercheurs du CERESCOR et collaborateurs des autres institutions sont récapitulés dans une base de données (ISIS), outil d'évaluation de la productivité des chercheurs et groupes thématiques.
- **Site Web:** L'institution n'a pas encore mis son site web en service.
- **Brochure(s):** Plusieurs brochures sont élaborées, elles présentent généralement la description des bases de données, les présentations d'applications développées, les listing de programmes conçus.
- **Bulletin d'Information:** Il n'existe pas de bulletin d'information validé par le Conseil scientifique de l'institution. Sa création peut être initiée dans le plan d'action 2002.

6.10 Liaison aux autres Organisations/Groupes

- Programme Scientifique-Génération de Données, Flux de Données dans le centre, apport à la planification de projet. A l'issue de l'exécution des volets de programmes et projets du CERESCOR, les laboratoires d'Océanographie, d'Hydrobiologie et de Géologie et Environnement apportent à la Division Gestion Information (qui abrite le CNDO) un volume appréciable de données brutes sur les eaux côtières. Cela aide à initier plusieurs volets de collecte et de traitement des données et de l'information dans le cadre du projet ODINAFRICA.
- Support pour les Consultants: Non disponible.
- Information aux concepteurs de politique: Toutes les recommandations et les stratégies élaborés par les chercheurs de l'institution constituent un volume d'informations à la disposition des chargés de la politique de gestion du milieu marin et côtier.

6.11 Contribution des Activités du Centre de Données à la Gestion Côtière et Océanique au Niveau National

Le Centre de Données est un centre de référence pour la collecte et la fourniture de données numériques et cartographiques relatives au milieu marin et côtier Guinéen. Les chercheurs se servent également de cette information scientifique pour concevoir de nouveaux projets leur permettant de participer à l'exécution de programmes nationaux conjoints. Ces informations sont également utilisées par les concepteurs d'ouvrages (aménagement en zone côtière) et par les étudiants et boursiers de thèse préparant leurs mémoires.

Centre National d'Information ODINAFRICA

Nom de l'Institution: Centre de Recherche Scientifique de Conakry-Rogbanè (CERESCOR)
Chef de l'Institution: Sékou KONATE (Prof.)
Titre (du chef d'institution): Directeur Général
Chef du Centre d'information: Mme. Aïssata CONDE
Titre: Chef de la Bibliothèque du CERESCOR
Adresse: même adresse que le Centre de Données
Téléphone: même adresse
Fax: même numéro
E-mail: asta@yahoo.fr, recoscixgn@mirinet.com

6.12 Description de l'Institution

Fournir si c'est différent de celle du Centre de Données.

- Bref historique,
- Activités,
- Participation aux programmes nationaux, régionaux, internationaux.

6.13 Description du Centre d'Information

Infrastructure physique (parquet d'espace disponible-mètres carrés ; espace disponible-mètre)s.

- Bureau et équipement informatique disponible. Une deuxième salle de (3,5 x 4 m) 14 m² sert d'abri au centre d'information. Elle abrite les deux pentiums, le scanner, les imprimantes et accessoires (fournis par ODINAFRICA) et les autres PC fournis par le CERESCOR. En outre les salles de lecture (25 places), du fonds documentaire sont des locaux exploités par le centre d'information.
- Communication and Connectivity (whether telephone shared with institute or direct, dial-up or direct connection to internet, shared or individual email addresses etc.). Communication et connexion (ligne téléphonique partagée avec l'institution ou directe, dial-up ou connexion directe à internet, adresse e-mail partagée ou individuel, etc.). Les centres de données et d'information se partagent la ligne téléphonique directe.
- Staffing (how many staff members, tasks assigned to each of them, what proportion of working time each spends on data centre work, training requirements, etc.). Staff (combine de members du staff, tâches assignées à chacun d'eux, quelle proportion du temps de travail est consacrée aux travaux du Centre de Données, nécessités de formation, etc.). 4 personnes (Bibliothécaires (DEA et Msc.) et documentalistes (Diplôme professionnel Technique) participent aux travaux du centre d'information, personnel entièrement féminin. Elles consacrent 45% de leur temps de travail aux activités du Centre d'Information (élaboration de produits et mise à jour des bases de données documentaires en ISIS, autres prestations de service).

Autres Facilities

- Livres et rapports: Les livres 6300 unités rapports 135 unités.
- Souscription aux revues: Le centre d'information ne bénéficie pas de souscription en tant que telle, mais il reçoit régulièrement par l'entremise de la Bibliothèque du CERESCOR des périodiques (8 différents périodiques) en plus des rapports techniques de la COI de l'UNESCO.
- Stock de Revues: Le stock est essentiellement constitué de différents numéros du journal d'Hydrobiologie Tropicale et des Revues de l'Université du Québec à Rimouski.

- Cartes et Atlas: Cartes et Atlas produits par le CERESCOR et reçus dans le cadre des dons et échange. Différentes cartes et atlas élaborés à partir des données validées par le Conseil Scientifique du CERESCOR (Atlas des courants du secteur guinéen de l'Atlantique, Atlas hydrochimique des eaux littorales de Guinée etc.). (duplication de cartes disponibles au Centre de données).
- Videos, magnetoscope, disques compacts CDs: Le centre d'information ne possède que des retroprojecteurs, lecteurs de diapositives mais il ne possède pas de chaîne vidéo; donc les films disponibles sont visionnés au sein de l'institution. Il possède des disques compacts de la série ASFA.
- Photographies aériennes et images satellitaires: Cf . centre de données: duplication des mêmes photos et imageries satellitaires.

6.14 Developpement des Bases de Données

- Catalogue du fonds documentaire: - Catalogue topographique du fonds documentaire; - Répertoires des acquisitions trimestrielle.
- Base de Données des publications scientifiques, marines, aquatiques édités dans/ou à propos du pays: Base données documentaires portant sur les rapports techniques et scientifiques, rapports de stage des chercheurs, rapports scientifiques des départements et laboratoires, des projets, publications des chercheurs et rapports de programmes conjoints, etc.).
- Base de données des facilités disponibles: Base de Données documentaires sur le fonds documentaire.
- Base de données océanographiques/météorologiques: Néant.
- Base de Données sur la biodiversité: Néant.
- Base de Données sur les Ressources: Néant.
- Base de Données environnementales: Néant.

6.15 Information sur les Prestations de Service

- Services de recherche bibliographique: Le service de recherche bibliographique est offert essentiellement à l'aide du logiciel ISIS.
- Distribution de documents: La diffusion de documents est relativement limitée, elle peut connaître de l'essor avec la mise en opération actuelle du CNDO dans le cadre des activités ODINAFRICA.
- Dissémination sélective de l'information: Elle est plus renforcée et pour cela le centre d'Information dispose d'un photocopieur fourni par le CERESCOR.
- Listes d'acquisition: Liste d'acquisitions disponible.
- Opportunités de formation: Les opportunités de formation ne sont pas nombreuses; le chef de la Bibliothèque a bénéficié de formation dans le cadre de l'IAMSLIC (ISIS niveaux I & II), elle est également retenue pour le 1^{er} cours de formation à la gestion de l'information Marine organisé par ODINAFRICA.
- Opportunités de financement de la Recherche: Généralement les opportunités de recherche de financement ne sont adressées qu'à la COI de l'UNESCO.
- Opportunités de travail: Le staff de la bibliothèque est souvent sollicité pour la participation à l'enseignement des cours de perfectionnement destinés aux bibliothécaires, archivistes et documentalistes; il prend part à l'exécution des travaux du Réseau National des Bibliothèques de Guinée.

6.16 Publicité et Conscience Publique

- Réunions nationales;
- Visite aux institutions;
- Journaux, articles;

- Site web;
- Brochure (s).

Les brochures élaborés à la bibliothèque du CERESCOR présentent de l'information scientifique et documentaire exploitable par les départements techniques chargés de l'aménagement de la zone littorale, les Etudiants et boursiers de thèse préparant leurs mémoires.

- Bulletin d'information : pour tous les autres points ci-dessus voir 4.5 concernant le Centre de Données; en effet, les staff des centres de données et d'information travaillent ensemble sous la coupe du CNDO.

6.17 Contribution des Activités du Centre d'Information à la Gestion Côtière et Oceanique au Niveau National

En Guinée, la bibliothèque du CERESCOR qui sert de centre d'information ODINAFRICA est une bibliothèque de référence pour l'acquisition de l'information documentaire et cartographique marine sur tous les sites marins et côtiers du pays.

6.18 Mise en Œuvre d'ODINAFRICA en Guinée

Avant l'initiation du projet ODINAFRICA, la Guinée disposait déjà d'un CNDO, donc il ne se posait pas un besoin de réunion nationale de désignation du CNDO, cependant au cours des sessions du Conseil Scientifique du CERESCOR et des Départements, le Coordonnateur National a eu à réaliser des briefings sur le projet ODINAFRICA: objectifs, moyens de mise en œuvre, résultats attendus et impacts prévisionnels sur les activités de recherche en milieu marin et côtier. Aussi, des visites ont été effectuées par le Coordonnateur National auprès de certaines institutions collaborant avec le CERESCOR pour le même type de briefing.

Les actions réalisées dans le cadre du projet de Septembre 2000 à Août 2001 sont:

1. Briefing des chercheurs du CERESCOR et de quelques responsables des institutions collaborant avec le CERESCOR.
2. Désenclavement du CNDO (centre de données et d'information) par acquisition de moyen de communication (ligne téléphonique directe, modem, abonnement à Internet).
3. Formation de personne-ressource à la gestion des données par une participation au 1^{er} Atelier sur la Gestion des Données (Casablanca avril 2001).
4. Acquisition d'équipement informatique et accessoires (micro-ordinateurs, imprimantes Laserjet et Deskjet, scanner, onduleurs, etc.) destinés au CNDO (centre de données et d'information).
5. Frais de mise en opération: acquisition d'allocations financières de US\$4000 (soit US\$3500 au titre du premier paiement exécuté et US\$500 au titre du dernier paiement non encore exécuté).
6. Formation de personne-ressource par une participation au 1^{er} Atelier à la Gestion de l'Information Marine (Capetown, 29 Octobre – 9 Novembre 2001): le Chef du centre d'information est retenu comme auditeur.

Globalement les impacts du projet ODINAFRICA en Guinée porteront sur la qualification ou l'amélioration:

- des ressources humaines des centres de données et d'information;
- des outils et méthodes de travail;
- des produits et services;
- des relations entre institutions opérant en milieu marin et côtier.

A terme, le projet permettra de capitaliser un volume important d'information sur le milieu marin et côtier facilement accessible et permettant d'initier nombre de projets et actions visant une gestion rationnelle des ressources et le développement des zones côtières.

7. Kenya

7.1 National ODINAFRICA Co-ordinator

Name: Harrison Ong'anda
Designation: Head, Information and Data Management
Institution: Kenya Marine and Fisheries Research Institute (KMFRI)
Address: P.O. Box 81651, Mombasa
Telephone: 254 11 471129, 475151-4
Fax: 254 11 475157
E-mail: honganda@recoscix.org

7.2 National ODINAFRICA Data Centre

Name of Institution: Kenya Marine and Fisheries Research Institute (KMFRI)
Head of Institution: Dr. Johnson Kazungu
Designation: Director
Head of Data Centre: Mr. Harrison Ong'anda
Address: P.O. Box 81651, Mombasa
Telephone: 254 11 471129, 475151-4
Fax: 254 11 475157
E-mail: kenodc@recoscix.org

7.3 Brief History

KMFRI was created in 1980 by an amendment of the Science and Technology Act 1979 (Cap. 250 of the Laws of Kenya) to carry out research in the following areas:

- Marine and freshwater fisheries;
- Aquatic biology including environmental and ecological studies;
- Marine research including chemical and physical oceanography.

7.4 Participation in National/Regional/International Programmes

KMFRI is participating in the following international programmes:

- Ocean Data and Information Network for Africa;
- Global Sea Level Observing System;
- Coral Reef Degradation in the Indian Ocean;
- WWF Eastern Africa Marine Eco-region;
- IUCN Coastal Management Programmes;
- The KWETU Women Self Help - Crab Aquaculture;
- WWF Kiunga Mangrove Management Plans;
- ACC-KMFRI Coral Reef Regeneration Experiment;
- Kenya National Oceanographic Data Centre;
- IFS-KMFRI hydrology programme;
- IOC-KMFRI shoreline accretion studies;
- IOI (International Ocean Institute) East Africa;
- GEF-ACOPS programme;
- GOOS Africa.

7.5 Description of Data Centre

Physical infrastructure (floor space available – square metres; shelf space available-metres).
Office and computer equipment available:

- 5m x 5m floor space;
- 1 laptop PC, 2 desktop PC, 3 Desk jet printers.

Communication and Connectivity

The Internet connection is through dial up to a telephone line. The dial up telephone line is shared within the institution for Internet surfing as well. The PCs are connected on a local area network. There are individual users email addresses.

Staffing

The KeNODC consists of 3 fulltime staff:

- Co-ordinator;
- Assistant coordinator/Database Manager;
- GIS technician/Office Assistant.

Other Facilities

- Software (see Annex 1).
- Books and manuals: (see Annex 2).
- Maps and atlases.
- Videos, tapes, and CDs: (see table 1).

Journal Subscriptions

- Aerial photographs and satellite imagery.

7.6 Database Development

- Meta database: KeNODC metadata base compiled in MS-Acess – 1999. Revised KeNODC metadata base compiled in MEDI pilot programme – 2001.
- Database of facilities available at host institution: None.
- Database of institutions involved in ocean related activities (including details of facilities they have): Database of institutions contain 30 records and the following fields are covered: Name, Acronym, Type, Postal Address, Physical Address, City, Contact Person, Contact Status, Telephone, Fax, Internet, Core business, Keywords, Mission.
- National database of marine (and freshwater) professionals: Covered under AFRIDIR.
- Cruise reports: None.
- Oceanographic/meteorological databases: Discussions are continuing on the way forward for digitizing VOS and SOP datasets that were received at the met office up to 1980.
- Biodiversity databases: Biodiversity metadata bank report compiled by the National Environment Secretariat provides the following information.
- Institutions that handle biodiversity data and information in Kenya.
- Datasets that are held in institutions listed above.
- Resource databases: Eastern Africa Coastal Resources GIS database implemented by UNEP under the Regional Seas Programme.
- Environmental databases, etc. A number of completed work using GIS tool represent a pool of environment database.

7.7 Data Products Development

- Resource Atlases;
- Environmental Atlases;
- Eastern Africa Marine and Coastal Environment Resource Atlas authored with the UNEP initiative of the Regional Seas Programme.

7.8 Data Services

- Preparation of maps. Major maps prepared during the project duration include:
 - WWF Eco-region maps and subsequent conservation sub regions as inputs to the Eastern Africa visioning process.
 - ICRI (International Coral Reef Initiative) baseline maps consisting of environmental datasets from the marine parks and reserves.
 - GEF-ACOPS maps on a variety of themes.
- Provision of raw data. Small volumes of datasets have been provided on request, in the following subject areas:
 - Climate (rainfall, dew-point, etc) obtained from Met Department.
 - Socio-economics (population census, administrative boundaries, etc.).
- Provision of aerial photographs and satellite imagery. A number of satellite images on coastal area are available at Department of Rangeland Surveys and Remote Sensing, and UNEP.

Area	Institute	Image Type	Satellite Type	Resolution
Tana River	DRSRS	321	SPOT1 HRV2	20
Tana River	UNEP	123	SPOT2 HRV1	20
Tana River	UNEP	2	SPOT2 HRV1	20
Tana River	UNEP	1	SPOT2 HRV1	20
Tana River	UNEP	3	SPOT2 HRV1	20
Kinango	DRSRS	321 R	SPOT1 HRV1	20
Shimoni	DRSRS	321	SPOT1 HRV1	20
Ngomeni	DRSRS	123	SPOT1 HRV1	20
Kilifi	DRSRS	123	SPOT1 HRV2	20
Mombasa	DRSRS	321	SPOT1 HRV2	20
Lamu	DRSRS	321	SPOT1 HRV2	20
Manda Is	DRSRS	321	SPOT1 HRV1	20
Lamu	UNEP	421 TM	LS4	20
Kilifi	UNEP	421 TM	LS4	20
Mombasa	UNEP	421 TM	LS4	20
Ngomeni	DRSRS	123	SPOT1 HRV1	20

This list would be updated as more resources are revealed.

- Information to public. Tide predictions chart is provided for any duration required - hourly/high-low predictions.

Publicity and Public Awareness

- National meetings.

The National Workshop was held in October 2000. The broad objective was to promote structures (issue identification, networking and codes of conduct) that facilitate data and information exchange for management of coastal resources. The meeting was broadly attended.

- Visit to institutions: All the institutions represented in the database were paid a personal visit by at least one of the Data Centre staff. The other institutions that the centre is constantly engaged with and considered crucial include:
 - The Coast Development Authority;
 - The Fisheries Department;
 - The National Commission for UNESCO.
- Newspaper articles: None.
- Website: The website for KeNODC is part of the wider initiative by KMFRI to develop the institution's website. The KMFRI website is being finalized to be presented for executive approval.
- Brochure(s): A fact-sheet/flyer has been developed and widely distributed. One of the main features is the IODE logo as was proposed earlier.
- Newsletters: None.

7.10 Linkages to other Organizations/Groups

- Science programmes: Data generation, data flow in centre, input into project planning. A number of scientific programmes are going on generating substantial quantities of ecological data of the marine nearshore areas and the wetlands. Brief descriptions of these activities are described in the KeNODC data/activity profiles database.
- Support for consultants: The KeNODC provided assistance to consultants from the Africa Centre for Technological Studies (ACTS) for fisheries data during their preparation for the Marine Forum Workshop concerning the ICM policy process in April 2001.

7.11 Contribution of Data Centre Activities to Ocean and Coastal Management at National Level

The Data Centre supports coastal management through:

- Institutional database;
- National workshop;
- Provision of base maps for various planning workshops;
- Other requests (see Annex 3).

7.12 National ODINAFRICA Information Centre

Name of Institution:	Kenya Marine and Fisheries Research Institute (KMFRI)
Head of Institution:	Dr. Johnson Kazungu
Designation:	Director
Head of Information:	Mrs. Janet Mwobobia
Designation:	Librarian
Address:	same as data centre
Telephone:	same as data centre
Fax:	same number
E-mail:	jmwobobia@recoscix.org
URL:	www.kmfri.org

7.13 Description of Institution

Only provide if different from data centre.

- Brief history;
- Activities;
- Participation in national/regional/international programmes.

7.14 Description of Information Centre

Physical infrastructure (floor space available - square metres; shelf space available-metres).

- Office and computer equipment available:
 - Floor Space 44m x 15m;
 - Shelf Space;
 - 5.5ft x 7.4ft with 6 small shelves measuring 1ft x 5.5 ft;
 - 2 Shelves each 3.3 x 7.4m with 12 small shelves measuring 1ft x 2.4ft;
 - 2 Shelves each 15 x 7.4m with 36 small shelves measuring 1ft x 2.4ft;
 - 2 Shelves each 9.1 x 7.4m with 36 small shelves measuring 1ft x 2.4ft;
 - 3.5 x 6.8 with 12 small shelves measuring 1ft x 2.4ft.
- Steel Shelves:
 - 3 Shelves 10ft x 6ft with each 20 shelves measuring 3ft x 5ft;
 - 5 (five) computers, one scanner and two printers.
- Communication and connectivity is within the same arrangement with the data center and the Institute.
- Staffing:
 - 11 Members;
 - Tasks assigned to each of them.

Name	Assignment
Janet Mwobobia	- Allocation of Duties - Supervision of Library Staff
Elijah Mokaya	- Document request & Document Delivery - Current Awareness - Supervision of Library
Michael Mosoti	- Document request & Document Delivery - Assisting WIOPUB - Assisting WIOLIB
Judith Yoala	- Cataloguing - Classification - Issuing Reference
Eunice Kinyanjui	- WIOLIB Data Entry
Lucas Mogire	- Circulation control - Shelving - Arrangement of Materials - Spine Marking
Juliet Ombuki	- Shelving - Circulation control - Arrangement of Materials - Spine Marking
Ibrahim Onyiego	- Recording & Indexing - Arrangement of Display - Receiving New Arrivals
James Mutunga	- Binding & Conservation restoration - Labeling
Benjamin Wamungunda	- General Duties

Other Facilities

- Books and reports: The Library has over 5,000 different titles of books and has a wide range of workshops, conferences, seminars, and reports.
- Journal subscriptions: The Library is subscribing to a total of 33 types of journals and 89 active journals as part of exchange.
- Journals stock: The Library stock is over 200 different title of journals.

- Maps and atlases: The Library has three atlases e.g., World Atlas, Oceanographic Atlas, East African Atlas Coastal Resources.
- Videos, tapes and CDs: ASFA CDs Years 1978-1987, Jan 1997 – Dec.1997, 1988 – March 1997 and 1997 – 2000/09.
- Aerial photographs and satellite imagery: None.

7.15 Database Development

- Catalogue of library holdings;
- Catalogue of KMFRI Library has 10,471 records containing books and journal articles;
- Database of marine/aquatic science publications published in/or about the country;
- Database of facilities available;
- Oceanographic/meteorological databases;
- Biodiversity databases;
- Resource databases;
- Environmental databases, etc.

7.16 Information Services Offered

- Bibliographic Search Services
- Document Delivery: Through ODINAFRICA Information Services Centre.

7.17 Publicity and Public Awareness

- National meetings;
- Visit to institutions;
- Newspaper articles;
- Website;
- Brochure(s);
- Newsletters.

7.18 Contribution of Information Centre Activities to Ocean and Coastal Management at National Level

The information centre continues to provide all the services above to scientists and other parties interested on information on Kenya's aquatic resources.

Appendix 1: CD-ROM at KENODC Office. Reporting Period: January - August 2001

S/No	Name	Content	Region Covered	Type (Images, Data)
1.	NASA - National Aeronautics & Space Administration	Monthly Mean Distributions of Satellite - Derived sea surface temperature & pigment concentration	Global	Global Data for 1984 - 1986.
2.	Analysis & Planning for Integrated Coastal Management	• Country problem profiles; • Descriptions of management concepts, processes, & methods; • Question & answer format with experts; Specific case studies;		Models
3.	Agris Fisheries	International Information System for the Agricultural Sciences & Technology		Information
4.	Arcview	GIS		Software
5.	Togo	Meteorological & oceanographic Datasets for 1985 & 1986	Global	Data

S/No	Name	Content	Region Covered	Type (Images, Data)
6.	C-NAV	Coral Navigator		Information
7.	MEDEA	Scientific utility of Naval Environmental Data	Global	Naval Data
8.	NODC - Temperature-Salinity Profiles (1900-1988)	Scientific data from national & international sources selected from the data files from the National Oceanographic Data Center	Global	Data
9.	NODC Taxonomic Code			Information
10.	GEBCO 97	Bathymetric Charts of the World	Global	Images
11.	Global Ocean Temperature & Salinity Profiles		Global	Data
12.	MEDI Pilot Project	Directory of Marine & Coastal Datasets.		Software
13.	JPL	It contains lesson plans & science data collected from Earth Orbit on two space shuttle missions. It includes radar images of the earth from space		Model
14.	ELADA			
15.	Marine Mammals	World Biodiversity Database	Global	Information
16.	UNDP	The environment management spatial database of the Batangas Bay region	Asia	Model
17.	FishBase	A Biological Database on Fish	Global	Information
18.	FAO			
19.	World Ocean 1998 Atlas & Figures	Ocean parameters: oxygen, nutrients, chlorophyll, Temperature, Salinity - objectively analyzed fields & statistics	Global	Data
20.	World Ocean 1998 Atlas & Figures	Ocean parameters: oxygen, nutrients, chlorophyll, Temperature, Salinity - objectively analyzed fields & statistics	Global	Data
21.	Geosat Altimeter Data	Geophysical Data Records 1997 Release	Global	Data
22.	WOCE Global Data version 2.0 2000	Data before & during the WOCE period (1990-1998). - WOCE current meter moorings - WOCE surface velocity programme - WOCE acoustic Doppler current profilers - WOCE Sea level data - WOCE Surface meteorology - WOCE surface fluxes - WOCE satellite sea surface height - WOCE satellite sea surface temperature - WOCE satellite wind data - Electronic atlas of WOCE data	Global	Data

Appendix 2: Names of Books

S/No	Name of the Book	Type (Manual, Reference Book, Data quality control)	Origin
1.	ArcView GIS	Manual	Environmental Systems Research Institute Inc. (ESRI)
2.	Arc/Info	Manual	ESRI
3.	A survey of geographic information system & image processing software 1991	Manual	UNEP/GRID
4.	Marine Environmental Data Information Referral catalogue	Manual	UNESCO
5.	Procedures for the IGOSS pilot project on Marine Pollution (Petroleum) Monitoring	Manual and Guide	UNESCO
6.	The IOC General Magnetic tape format for the international exchange of oceanographic data	Manual	UNESCO
7.	Coral reef degradation in the Indian Ocean	Manual	CORDIO
8.	IOC Regional Committee for the Co-operative Investigation in the North & Central Western Indian Ocean	Report	IOC
9.	IOC-WMO-UNEP ICSU Coastal Panel of the Global Ocean Observing System (GOOS)	Report	IOC
10.	The on-scene spill model	Manual	USA/NOAA
11.	Sampling & Analytical methods of the National Status & Trends Programme National Benthic Surveillance & Mussel watch projects 1984-1992	Manual	USA/NOAA
12.	Salinity	Manual	USA/NOAA
13.	Quality control and processing of historical oceanographic temperature, salinity & oxygen data	Manual	USA/NOAA
14.	Oxygen	Manual	USA/NOAA
15.	IOC Committee on International Oceanographic Data & Information Exchange	Manual	USA/NOAA
16.	Nutrients	Manual	USA/NOAA
17.	Guide to using Lotus 1-2-3	Manual	Edward M. Baras
18.	Statistical Abstract	Manual	Central Bureau of statistics
19.	Multi-temporal datasets for assessing the impact of golf course construction in the grand strand region of south Carolina	Manual	
20.	Results of the NODC and IOC Oceanographic Data Archaeology & Rescue Projects	Manual	USA/NOAA
21.	Convention on Biological diversity	Manual	UNEP
22.	Research Quality Data holdings of the University of Hawaii Sea level Center	Manual	University of Hawaii
23.	The Inter-ministerial Committee on Environment Sub-committee on Biodiversity	Workshop Proceedings	FAO
24.	Wetland Database	Manual	
25.	Coastal Ocean Data workshop	Report	USA/NOAA
26.	Directory Interchange Format manual	Manual	
27.	US Marine CD-ROMS	Directory	USA/NOAA
28.	Directory of Marine Scientists & Marine Environmental Centres in the Arab States	Directory	UNEP
29.	Object-oriented design of a near real-time marine environmental data acquisition & reporting system	Report	USA/NOAA
30.	Ocean profile: Software for the At-sea merging of oceanographic data	Report	USA/NOAA
31.	Operations manual for Pelagos: An expert system for quality control & feature recognition of oceanographic data from the open ocean.	Data control	USA/NOAA
32.	Hydrographic observations in the western tropical & subtropical north Atlantic ocean: Atlantic climate change programme (ACCP) & western tropical Atlantic experiment (Westrax) during 1990	Report	USA/NOAA
33.	Measurement of fugacity of carbon dioxide in seawater: An evaluation of a method based on infrared analysis	Report	USA/NOAA
34.	APL Disdrometer evaluation	Report	USA/NOAA

Appendix 3: Requests for Data from 2000 to 2001

S/No	Requested By	Description	Requested On	Processed By	Delivered On
1.	Jacqueline Uku KMFRI P.O. Box 81651 Mombasa	Map of the Kenyan coastline showing Nyali and Vipingo with hotels & residential properties. Also indicates the longitude latitudes.	15/02/2000	Pamela	
2.	Mwatha G.K KMFRI P.O. Box 81651 Mombasa	Map of Kenya showing the coastline. Indicate the position of Mombasa, Malindi Ungwana Bay & Sabaki	17/02/2000	Pamela	24/02/2000
3.	Daniel Munga P.O Box 81651 Mombasa	Map of Cochín	10/03/2000	Pamela	15/04/2000
4.	Beatrice Obegi KMFRI P.O. Box 81651 Mombasa	Map of Kenyan Coast Mtwapa-Likoni showing sampling points Nyali beach & English points. (insert Kenyan Map)	14/03/2000	Pamela	17/03/2000
5.	Joseph Maina CRCP P.O. Box 99470 Mombasa	Map of coastline showing Marine National park/Reserve and towns: - Malindi, Vipingo, Kanamai, Diani Beach	03/04/2000	Pamela	05/04/2000
6.	Paruin Mwanjala Cordio, P.O. Box 10135 Mombasa	Map of Marine National Park	05/04/2000	Pamela	07/04/2000
7.	Lynda Rodwell CRCP, P.O. Box 99470 Mombasa	- General Kenyan Coast cross-sectional diagram of lagoon/reef. - Kenyan Marine parks & National Reserve	07/04/2000	Harrison	10/04/2000
8.	Mwangi Steve KMFRI, P.O. Box 81651 Mombasa	- Map of Kenya Coast clearly showing the position of Mtwapa creek & Mombasa area & Funzi Bay	19/05/2000	Pamela	26/05/2000
9.	Gilbert Muriungi Mombasa Polytechnic P.O. Box 90420 Mombasa	Map Marine park showing the star fishing sampling station; the Nyali Barracks, Ras Wasini.	23/06/2000		
10.	Mwaguni Saeed CDA, Mombasa	Scanning of CDA logo	03/07/2000	Harrison	03/07/2000
11.	Dr. N. Muthiga KWS, Mombasa	21/07/2000	21/07/2000	Harrison	21/07/2000
12.	Mrs. M. Mukira Fisheries Dept., Kwale Box 89, Ukunda.	Kwale District Fisheries Resources	28/08/2000	Pamela	29/08/2000
13.	Mr. Maina P.O. Box 99470 Mombasa	A Map of Kenya coast showing Ras/watine, Malindi, Watamu.	21/08/2000	Pamela	29/08/2000
14.	Charles Magori KMFRI, P.O. Box 81651 Mombasa	Map showing sites studied along the Kenyan coast (Mombasa Marine Park & Diani)	15/09/2000	Pamela	22/09/2000
15.	Gladys Moragwa KMFRI, P.O. Box 81651 Mombasa	Map of Mida Creek	06/09/2000	Pamela	06/09/2000
16.	James Omolo KMFRI, P.O. Box 81651 Mombasa	Dotted sampling areas - District with boundaries, Kwale, shelly beach, Gazi, Shimoni & Vanga, Kilifi, Mtwapa, Mida Creeks	14/08/2000	Pamela	16/08/2000
17.	David Olendo Baobab Farm	Turtle Nesting sites, other improvement	17/07/2000	Harrison	20/07/2000
18.	Joseph Rasowo Moi University	Checklist for coral species	19/07/2000	Harrison	02/08/2000
19.	Beatrice Obegi KMFRI, P.O. Box 81651 Mombasa	Heavy metal contamination around Tudor creek zn, cd, in, lead	21/08/2000	Harrison	21/08/2000
20.	G.K. Mwatha KMFRI, Box 81651, Msa	Kenya coastline showing Ungwana Bay, Shimoni, & Vanga areas	25/08/2001	Pamela	23/01/2001
21.	David Olendo KESCOM, Box 82144,	Kiunga Map, Marine Parks & Reserves	0102/2001	Harrison	06/02/2001

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S/No	Requested By	Description	Requested On	Processed By	Delivered On
	Msa				
22.	Mr. Wanyoike Prov. Fish. Office	Scanning	05/02/2001	Phyllis	05/02/2001
23.	A. J. Kulmiya University of Nairobi P.O. Box 30197 Nairobi	-Typographical profiles: sub-strata-coral reefs, seagrass beds, sand & mud banks etc, temperature profiles, salinity. -Shimoni, Vanga, msambweni, Kilifi, Ngomeni, Kipini, Lamu, Kiunga, reefs, sands mud flats, seagrass, etc.	05/02/2001	Harrison	10/02/2001
24.	Patrick Gwada KMFRI, P.O. Box 81651 Mombasa	Vegetation map showing mangrove areas & river basins R. Mwachema & Gazi areas	22/01/2001	Harrison	23/01/2001
25.	J.N. Uku KMFRI, P.O. Box 81651 Mombasa	Map of Diani chale area from river mwachema to chale showing location of hotels with a scale	09/02/2001	Harrison	11/02/2001
26.	Mr. D. Munga KMFRI, Box 81651, Msa	Hydrology Data	13/02/2001	Harrison	13/02/2001
27.	Dr. J. Kazungu Director/KMFRI Box 81651, Msa.	Map of Kenya coast showing clearly the rivers & coral reef	13/02/2001	Harrison	13/02/2001
28.	Dr. Anthony King P.O. Box 30, Ukunda	Electronic version of Mombasa & Kizite Marine Park			
29.	Simons K. Nzuki Moi University P.O. Box 3900, Eldoret.	Mangrove maps for Lamu area	02/03/2001	Harrison	02/03/2001
30.	Jared Bosire KMFRI, Box 81651, Msa.	Map of Kenyan coast showing various mangrove locations	19/03/2001	Harrison	24/03/2001
31.	Mr. J. Kitheka P.O. Box 81651 Mombasa	Map showing rivers, mangroves tidal creeks & major towns	12/03/2001	Pamela	14/03/2001
32.	Kuria Kairu P.O. Box 81651 Mombasa	Map of Lamu	05/09/2001	Harrison	05/09/2001
33.	Boaz Kaunda Moi University, Eldoret	-1:50,000 map of Malindi - 1:50,000 Map of Watamu	24/05/2001	Pamela	27/05/2001
34.	Mr. Mwachireya P.O. Box 81651 Mombasa	-Kenya Map & all water bodies - Coast region & all water bodies - Coast Population 1989	03/08/2001	Pamela	05/08/2001
35.	Nyunja Judith University of Nairobi P.O. Box 30197, Nairobi	- Shimoni area including wasini island & other small islands behind wasini island -Mtwapa area & its catchment areas	30/07/2001	Pamela	05/08/2001
36.	Mr. P. Mathendu KMFRI, P.O. Box 81651 Mombasa	Map of the coast of Kenya between Mombasa & Vipingo showing sampling sites.	27/08/2001	Pamela	31/08/2001
37	A. Kulmiya UoN, Box 30197, NBI	Set of resource map	21/02/2001	Harrison	21/02/2001

8. Madagascar

8.1 Nom du Centre de Donnée

Madagascar National Oceanographic Data Centre (MD-NODC)

8.2 Coordinateur National

Nom: Dr. Man Wai Rabenevanana
Adresse: Institut halieutique et des Sciences Marines - IHSM
P.O. Box 141- Route du Port, TULEAR 601
Tel/Fax.: (261) 94 435 52

8.3 Adresse du Centre

Institut halieutique et des sciences marines - IHSM
P.O. Box 141- Route du Port - TULEAR 601
Tel/Fax.: (261) 94 435 52

8.4 Date de Designation du Centre (IODE)

Décembre 2000

8.5 Projets et Activites depuis 31 Mai 2001

Cette année, les activités du centre sont orientées sur les différents points suivants:

- Création de CD-ROM de metadonnée national;
- CD-ROM de base de données des espèces marines et d'outils publicitaires (posters, prospectus, panneau publicitaire et site Web);
- Sans négliger la coté formation du personnel et la mise à jour des catalogues de données.

8.6 Produits et Outils Publicitaires

Le Site Web

Un site web pour le centre est crée. La négociation auprès du Data Telecom Malagasy - DTS (provider) est en bon train et le lancement du site serait dans les prochains jours.

8.7 Infrastructure, Formation et Depenses

Infrastructure

Le nouveau bâtiment pour le NODC est en phase de finalisation. Il sera opérationnel des la fin du mois d'octobre (plutôt que prévu).

Formation du Personnel

Outre l'équipe du CNDO, quelques Société de Pêche ont été visitées depuis le mois de juillet 2001. Ces missions ont permis à l'équipe du centre de recueillir des informations et/ou des données auprès de ces organismes. Le rapport suivant est l'une effectuée dans la région du Sud-Est de Madagascar.

Dans le cadre du Projet ODINAFRICA-II, le Centre National de Données Océanographique pour Madagascar (MD NODC) a planifié cette année des missions en vue de mettre en place un réseau national d'échange de données et/ou d'informations océanographiques. Les entreprises, sociétés ou institutions opérant dans le domaine maritime ou environnemental seraient les partenaires potentiels sources de données pour le centre. Ce périple national a été débuté dans le Sud Est de Madagascar, notamment à Fort-Dauphin (Tolagnaro).

Fort Dauphin sur la Carte

Situé à l'extrême sud-est de l'île (cf. Fig. 1), Fort Dauphin-le capital du Sud-Est de Madagascar-est reconnu par la présence locale des belles plages et sites touristiques attirant, chaque année, des milliers de touristes venant de part le monde entier.

L'Alize soufflant du SE-NW engendre des grosses vagues qui se déferlent sur les cotes accidentées et rocheuses. Ces rochers qui abritent le trésor pour la population locale, à savoir la langouste de Madagascar.

En effet, la pêche occupe une place économique importante dans cette région. La spécialité c'est la langouste dont le *g. Palinurus homarus* représente la majorité des captures. Ici la langouste est pêchée sur une bande de cote littorale longue de 450 km.

La Mission

La mission a duré six jours (du 19 au 24 juillet 2001) pendant laquelle cinq sociétés de pêche ont été visitées. Le tableau suivant montre le déroulement de la mission.

Le Calendrier	
Date	Activités
19.07.01 a.m.	Départ de Tuléar (AIR MAD)
19.07.01 a.m.	Arrivée a Fort Dauphin
19.07.01 p.m.	Visite de courtoisie Mairie de la ville
20.07.01 a.m.	Visite Société de Pêches
a.m.	Sce Pêche Tolagnaro MADA PECHE (Langouste) Visite Mairie de la Ville : Projet de mise en place dans le sud d'une Station Marine
p.m.	Le Martin Pêcheur (Langouste) SUD EXPORT (Langouste) EMI (Langouste)
21.07.01 22.07.01	Visite Fort-Dauphin et alentours
23.07.01	Visite du Centre d'Information de la Mairie de la ville et remise des plaquettes publicitaires MD NODC auprès du responsable local
24.07.01	Retour a Tuléar AIR MAD)

Les Sociétés Visitées

Cinq sociétés de pêche ont été visitées durant le séjour: Le Service de Pêche, le MADA PECHE, Le Martin Pêcheur, Le SUD EXPORT et l'EMI.

Le Service de Pêche

Le Service de Pêche de Fort-Dauphin est un service à caractère public. Il rassemble toutes les données et/ou informations sur la pêche de la région anossienne. Selon les informations fournies par ce Service, 5 espèces différentes de langoustes sont pêchées dans la région dont la principale est le *g. Palinurus homarus*. Toutes espèces confondues, 320 tonnes de langoustes en moyenne sont pêchés tous les ans. Dans cette région, plus de 4.000 familles pratiquent la pêche à la langouste, ce qui représente une population de 22000 personnes. La pêche est traditionnelle. Elle s'effectue aux pirogues à l'aide des casiers où les conditions des mers sont souvent très difficiles. En matière de régulation, la pêche à la langouste est interdite les 3 premiers mois de l'année. Elle est ouverte le 1^{er} avril jusqu'au 1^{er} décembre. Quant à la taille de la prise, elle est réglementée : quand la taille est inférieure à 20cm, les langoustes doivent être relâchées. De même celles qui portent des œufs. Les contrevenants sont sanctionnés par une amende.

Le MADA PECHE

Créée en 1999, le MADA PECHE opère uniquement dans la filière langouste. Forte d'environ d'une vingtaine d'employées, la société exporte ses produits finis vers l'Europe sous le norme de la CE. Jusqu'au mois de juillet 2001 (notre passage à Fort-Dauphin), la société a déjà dépensé une bagatelle de 3 milliards de francs malagasy en achat de produits bruts, ce qui est l'équivalent de 6000 kg de langoustes brutes.

Le Martin Pêcheur

Cree en 1986 par Jacques Daumas, un français né à Madagascar, le Martin Pêcheur s'intéressait aux algues marines et puis à la langouste. La Société commercialise également des crevettes et du poisson. Premier société de pêche ayant obtenu un agrément d'exportation en Europe (en novembre 1997), le Martin Pêcheur compte actuellement 83 personnes et 10 journaliers. Sur les 320 tonnes de langouste pêchées dans la région, le Martin Pêcheur en traite environ 180 dont 50% exportés au Japon et 50% en Europe.

Pour assurer la collecte des produits le long du littoral (450km découpé en plusieurs zones), la Société a mis en œuvre des voitures 4x4 et deux petits avions. Ceci pour garder la fraîcheur de la langouste à l'arrivée de l'usine. 40% de la collecte sont effectuées par voie aérienne soit une soixantaine de tonnes en 1999. Une dizaine de piste sont, de ce fait, aménagées. Par contre, les 4x4 assurent la collecte des produits pour les villages proches. Avant l'arrivée des 4x4, les langoustes sont conservées dans des viviers. Avant l'exportation, les langoustes sont traitées suivant la norme européenne de salubrité afin que les consommateurs dégustent en sécurité ce produit de la mer du Sud-Est de Madagascar.

Les autres informations et/ou données recueillies lors de cette mission son disponibles sous forme de K7 vidéo ou dans le site web du centre.

9. Mauritanie

9.1 Coordinateur National ODINAFRICA

Nom: Mohamed Ould El Mahfoudh
Titre: Responsable du Laboratoire Environnement et Milieux
Institution: Centre National de Recherches Océanographiques et des Pêches (CNROP)
Adresse: B.P 22, Nouadhibou, Mauritanie
Tel: (00222) 745 124/749 035
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E-mail: mohamed.ould_el_mahfoudh@caramail.com

9.2 Centre National des Données

Nom du Gestionnaire du Centre des Données: Bambaye Ould HAMADI
Titre: Chercheur
Adresse: B.P. 22, Nouadhibou, Mauritanie
Tel: (00222) 745 124/749 035
Fax: (00222) 745 081
E-mail: dvis@toptechology.mr

9.3 Description de l'Institution Hôte

Nom de l'Institution hôte: Centre National de Recherches Océanographiques et des Pêches (CNROP)
Responsable de l'Institution: Mohamed M'bareck Ould Soueïlim
Titre: Directeur
Adresse: B.P. 22, Nouadhibou, Mauritanie
Tel: (00222) 745 124/749 035
Fax: (00222) 745 081
E-mail: dvis@toptechnology.mr

Bref Historique

En 1952: Création d'un Laboratoire des Pêches chargé de contrôle des produits de la pêche et de la collecte des paramètres hydrologiques.

En 1978: Création du CNROP dans le but de réaliser des recherches relatives aux évaluations des stocks (pélagiques et démersales), à l'écologie, à la biologie des différentes espèces, à l'hydrologie et environnement.

Objectifs, Activités, Infrastructures Disponibles

Les principaux objectifs du Centre National, en autres, peuvent être énumérés dans les points suivants:

- De donner des avis scientifiques pour le Ministère des Pêches sur la gestion ainsi que et les processus d'aménagement des ressources halieutiques dans la zone Mauritanienne à partir des résultats d'études qu'il mène relatives aux évaluations des stocks;
- De suivre et connaître les conditions environnementales optimales aux quels les espèces se rattachent;
- De valoriser les produits de la pêche à fin de développer des outils capables d'améliorer leurs qualités.

Infrastructures Disponibles

Le CNROP dispose de quatre (4) département de recherches et deux services d'appui:

- Département Ressources Vivantes et Environnement;
- Département Exploitation et Aménagement;
- Département Statistique et Informatique;
- Département Valorisation et Inspection Sanitaire);
- Service Administratif et Financier;
- Service Documentation et information Scientifique; et
- Une représentation à Nouakchott.

9.4 Description du Centre des Données

Infrastructure physique (espace disponible mètres carrés).

- ☐ **Bureau et Equipement Informatique Disponible:** Trois bureaux de 48 m² et une salle de réunion de 40 m² environ sont destinées aux différentes activités du CNDO. Actuellement, les travaux informatiques se réalisent sur le Parc Informatique du CNROP.
- ☐ **Infrastructures:** Le CNDO est domicilié au Centre National de Recherches Océanographiques et des Pêches. Il dispose de locaux de gestion de données et de gestion de l'information.

- ☐ **Communication et Connexion Internet:** Jusqu'à présent, la ligne téléphonique et la ligne Internet sont partagées avec l'institution.
- ☐ **Personnels (nombre, tâches, temps consacré et formation):** Le personnel du CNDO (groupe gestion données et groupe gestion information) est constitué de 7 chercheurs et 4 techniciens. Ils travaillent au CNDO en temps partiel les activités de collecte, de gestion et de traitement des données. Le renforcement des capacités des scientifiques chargés de la gestion des données est une nécessité pour l'amélioration de la qualité des données.

Autres Facilités

- ☐ Logiciels: Il dispose de logiciels FoxPro, Statistica, Surfer et logiciels contenus dans Windows.
- ☐ Livres et manuels: Le CNDO ne dispose pas de livres de programmations ni de manuels.
- ☐ Cartes et Atlas: Des atlas de température de surfaces ainsi que des cartes sont disponibles, mais de qualités moins bonne.
- ☐ Vidéo, magnétophone et disques compacts CDs: Le CNDO ne dispose pas le matériel mentionné.

Souscription aux Revues: Aucun abonnement des revues scientifiques n'est fait jusqu'ici.

- ☐ Photographies Aériennes et Images satellitaires: Il existe quelques données satellitaires de NOAA de température de surface.

9.5 Développement de la Base de Données

- ☐ Meta data: Metabase de données et les nouvelles bases de Données développées jusqu'au 31 août 2001:
 - Réception et archivages de données provenant des scientifiques de manière traditionnelle à partir des campagnes océanographiques;
 - Contrôle de la qualité des données avant d'être saisie comme étape du module assurance de la qualité du système;
 - La base de données traditionnelle est gérée par des logiciels: FOXPRO 6.0, SURFER 7.0 et STATISTICA 5.0;
- ☐ Facilités des Bases de Données disponibles dans l'institution hôte (abritant le Centre de données): De plus des données hydrométéorologiques du CNDO, les différents Département disposent de données biologiques et les données sur les pêcheries.
- ☐ Base de données des institutions impliquées dans les activités liées à l'océan (incluant les détails et facilités qu'elles ont): Le CNROP dispose des bases de données diverses relatives aux aspects suivants:
 - données hydrométéorologiques et environnementale;
 - statistiques des pêches (captures, espèces, efforts de pêche, licences de pêche des navires, nombre d'embarcations artisanales, fréquences de tailles des espèces, etc.);
 - données biologiques des principales espèces (taille, poids, maturité, contenu stomacaux, etc.);
 - données des campagnes d'évaluations des stocks (détermination des espèces pêchées, paramètres tailles-poids, nombre, etc.);

Les deux ports de Nouakchott et Nouadhibou détiennent des données sur la marée, la houle.

L'Agence Nationale de Sécurité de Navigation Aérienne et la Société des Aéroports de Mauritanie détiennent des données météorologiques relatives à la température de l'air, la vitesse et direction du vent, la visibilité, ensoleillement, la pression atmosphérique.

Les deux Parc du Banc d'Arguin et de Diawling disposent de données biologiques.

- ☐ Base de données Nationale des professionnels des eaux marines et (douces). Au niveau national, les données du CNROP, de l'université de Nouakchott, du Banc d'Arguin, du parc National de Diawling constituent des données collectés par des professionnels.
- ☐ Rapports des croisières: Les rapports des campagnes des N/O du CNROP, de Fridtjof NANSEN, des N/O Russes et d'autres sont en grand partie disponibles.
- ☐ Données Océanographiques/Météorologiques: Au niveau du CNDO, il existe les données météorologiques des deux stations de Nouadhibou et Nouakchott depuis 1960 et des données de pression atmosphériques des Açores et le Nord de Mauritanie. Aussi, une base de données hydrologique qui datent aux années cinquante. Cette base regroupe des données de température, la salinité, la densité, oxygène dissous, nitrate, nitrite et phosphate sur des profondeur standards jusqu'à 600m.
- ☐ Base de données sur la biodiversité: Le CNROP détient également des données sur la population des phoques moines (*monachus monachus*) espèce en voie de disparition.
- ☐ Base de données sur les ressources: Le CNROP, les deux Parcs Nationaux et l'université de Nouakchott disposent de données biologiques.
- ☐ Données environnementale: La plus part des données environnementale est à la disposition du CNDO.
- ☐ Site Web: L'institution ne dispose pas de site web.
- ☐ Brochures: Des brochures ne se réalisent pas régulièrement au niveau du CNROP.
- ☐ Bulletin d'information: Le CNROP publie régulièrement des bulletins scientifiques et des archives.

9.6 Liaison aux autres Organisations/GROUPES

- ☐ Programmes scientifiques, générations de données, flux de données dans le centre, apport à la planification de projet:

Il existe des plans quinquennaux qui se traduisent annuellement à des actions de recherches. Au niveau du CNDO, il existe quelques petits programmes qui répondent à des questions particulières comme:

- Programme d'étude de la dynamique de l'upwelling;
- Programme environnement côtier;
- Programme de bio-écologie des phoques moines;
- Programme de l'aménagement de littoral.

Le flux de données parvient généralement des campagnes océanographiques et des deux stations météorologiques de Nouakchott et Nouadhibou ainsi que des stations côtières. La plus part de la planification du projet sera à la base des données disponibles.

- ☐ Support pour les consultants: Le support financier pour les consultants se fait en fonction du besoin et à partir d'une programmation annuelle du budget de l'institution. Quand à l'appui matériel est fréquent.
- Information aux concepteurs de politique: Le CNROP réalise annuellement un rapport technique au Ministère des pêche. Des avis sont fournies également régulièrement aux décideurs politiques.

9.7 Contribution des Activités du CNDO à la Gestion Côtière et Océanique au Niveau National

La fourniture de cartes, de graphiques et articles scientifiques sur l'évolution du régime thermique des eaux ainsi que le mouvement des eaux (courant marins) et les caractéristiques des

masses d'eaux contribuent efficacement à la compréhension des mécanismes de migrations et la disponibilité des ressources halieutiques.

9.8 Centre National d'Information ODINAFRICA

Nom du Responsable: SOW Amady Tidjane
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Fax: (00222) 745 081
E-mail: dvis@toptechnology.mr

9.9 Description de l'Institution

Voir description CNROP au début du rapport.

9.10 Description du Centre d'Information

- ☐ Bureau et équipement informatique disponible: Le Centre d'Information dispose d'une bibliothèque, une salle de lecture et un bureau. La superficie du centre est d'environ 60m². Un seul PC en état dégradé est à la disposition du Centre d'information.
- ☐ Communication et connexion (ligne téléphonique partagée avec l'institution ou directe, dial-up ou connexion directe à internet, adresse e-mail partagée ou individuel, etc.).

La ligne téléphonique et Internet sont partagées avec l'institution.

- ☐ Staff (membre, tâches assignées à chacun d'eux, quelle proportion du temps de travail est consacrée aux travaux du Centre de Données, nécessités de formation, etc.)

Le staff du CI est constitué de quatre (4) personnes: deux cadres, un technicien supérieur et un employé.

Autres Facilités

- ☐ livres et rapport: Le Centre regroupe un nombre important de livres, de bulletins et de rapports scientifiques.

9.11 Développement des Produits de Données

- ☐ atlas des ressources: non élaboré.
- ☐ atlas environnementaux: il existe des atlas de température mais de qualité mauvaises.

9.12 Services d'Informations Offerts

- ☐ élaboration des cartes: jusqu'à présent, il ne produit pas de cartes.
- ☐ provision de données brutes: un travail considérable doit être élaboré à partir de la date que le Centre acquière du nouveau matériel performant.
- ☐ provision de photos aériennes et d'images satellitaires: Le centre n'a pas encore le moyen de réaliser ce travail.
- ☐ informations aux publiques: Les informations au niveau du CI sont encore limitées.

9.13 Publicités, Marketing, Promotion

- ☐ rencontres nationales: Le CNROP organise annuellement de manière continue des activités diverses comme les groupes de travail, ateliers, séminaires dans ses locaux à Nouadhibou. Le Centre d'Information joue le rôle de préparation et de suivi du déroulement de l'ensemble de ses activités. Dans ses propres activités, le centre ne programme des rencontres pour son publique.
- ☐ visite aux institutions: Il offre dans des cas limités l'encadrement aux institutions nationales en matière de gestion des fonds documentaires à titre d'exemple, l'université de Nouakchott, Ministère des Pêches et autres institutions.
- ☐ journaux, articles: Il assure le rôle d'édition des différents bulletins, archives, rapports et documents scientifiques au niveau du CNROP.
- ☐ Website: Le centre ne dispose pas de Site web.
- ☐ livres et rapports: Le centre dispose un nombre important de livres de grandes importances en océanographie, en biologie, en statistique, en écologie, en géologie, en informatique, etc.
- ☐ souscription aux revues: Le centre reçoit régulièrement des revues scientifiques et techniques soit sous forme d'abonnement ou de dont.
- ☐ Cartes et atlas: Le centre ne produit pas de cartes ni d'atlas dû à ces moyens limités.
- ☐ vidéos, magnétoscope, disques compact: Il dispose d'un téléviseur et un vidéo.
- ☐ photographies aériennes et images satellitaires : Le centre ne dispose pas de produits satellitaires ni de photos aériennes.

9.14 Développement des Bases de Données

Le Centre d'Information va développer après la réception du matériel adéquat va développer les outils et services qui sont inscrits dans son programme de recherche et d'activité.

9.15 Information sur les Prestations de Service

Le seul service de prestation de service que le centre peut offrir à l'état actuel des choses le service de distribution des bulletins et documents aux différents partenaires.

9.16 Contribution des Activités du Centre d'Information à la Gestion côtière et Océanique au Niveau National

Le Centre joue un rôle sensible et efficace dans l'édition, la multiplication des documents et leurs diffusions.

10. Mauritius

10.1 Name of Data Centre

National Oceanographic Data Centre

10.2 National ODINAFRICA Co-ordinator

Name: M. Beebeejaun
Designation: Meteorologist
Institution: Meteorological Services
Address: St. Paul Road, Vacoas
Tel: (230) 686-1031/(230) 686-1032/
Fax: (230) 686-1033
E-mail: meteo@intnet.mu/mruocean@intnet.mu
Web-site: <http://nadc@intnet.mu> (still under construction)

10.3 Description of Host Institution

Name: Mauritius Meteorological Services
Director: Mr. S.N. Sok Appadu
Tel: (230) 686-1031/(230) 686-1032
Fax: (230) 686-1033
E-mail: meteo@intnet.mu
Web-site: [Http://ncb.intnet.mu/meteo/htm](http://ncb.intnet.mu/meteo/htm)

10.4 Brief History

Operational as a Government institution since 1874 as the Royal Alfred Observatory, but its records date back as far as 1733. The availability of the cable connection in the 1940's facilitated the meteorological links with its outer islands (St. Brandon, Agalega and Rodrigues). It has kept pace with the new advances in technology and today it possesses sophisticated equipment in terms of computer and satellite picture receiving stations to cope with demands from the public and private sectors for advance warning of tropical cyclones and other natural calamities.

10.5 Objectives

Due to its interest in the air-sea interaction, it is aiming to:

- Provide a service to clients by incorporating all oceanographic data into a relational database and,
- Co-ordinate oceanographic data, i.e., archiving, processing, backup and production of digital products, which is a multi-disciplinary affair.

The Meteorological services are involved in many national and international programmes such as Climate Change, NVERSS, ARGO, GOOS, SURVAS.

It has 2 sea-level stations located at Trou Fanfaron at Port Louis and at Port Mathurin at Rodrigues with nearly continuous datasets since 1986. It also has one wave rider located off Blue Bay to the south east of Mauritius and a network of coastal stations, which perform meteorological and ocean-related observations.

10.6 Description of NODC

The National Oceanographic Data and Information Centre (NODC) was officially established at the Meteorological Services on 8 November 1999. Its first meeting was subsequently held in July 2000.

The NODC is composed of the following institutions:

- Albion Fisheries Research Center (AFRC); Satellite station;
- University of Mauritius (UOM); Satellite station;
- Mauritius Oceanographic Institute (MOI);

- Central Statistics Office (CSO);
- Department of Environment (DOE);
- Central Informatics Bureau (CIB);
- Shoals of Capricorn (SOC);
- Mauritius Meteorological Services (MMS);

The UOM received within the project, one PC and a laptop where the other institutions proceed to make their data entries. Two Pentium III personal computers of RAM 256 MB with an e-mail/Internet connection, one scanner and one printer have also been obtained from IOC under ODINAFRICA II for setting up of a marine information centre at the second satellite station AFRC.

The office space is temporarily shared with the host institution and the satellite stations with no permanent staff for the time being. The task assigned to each participating institution is to complete the metadata entries by the end of this year, in conjunction to their normal load of their office duties. Each Participating institution is in possession of the MEDI software and manuals.

10.7 Meta Data

Most institutions are nearing completion of their meta database. Actually, only the meta database comprising the physical parameters, of the meteorological services are available in the NODC website.

10.8 Website

The NODC website is prepared by the Mauritius Telecom. It has been released but a few shortcomings still exist. The information available on the website is as follows:

- Brief of Participating Institution.
- Metadata on some of the various oceanographic variables collected so far.
- Equipment available and parameters measured by the participating institutions.
- Latest information on oceanographic activities at national, regional and international level.
- Notes of NODC meetings.
- Some ocean data.

The site is linked to national, regional and international websites and will be updated regularly to provide latest information to marine users.

10.9 Publicity and Public Awareness

- An NODC brochure has been prepared and distributed widely among the public and marine users. It contains some background information, the development of regional network of ocean data centres and ODINAFRICA II role in ocean activities. It also gives an overview of the developing history, purpose and the current status of the NODC in Mauritius.
- A workshop had been organized in September 2001 at La Pirogue Hotel to the West coast of Mauritius with 31 participants comprising 18 diverse marine institutions. The opening ceremony was performed by a high official of the Prime Minister's Office amidst panoply of eminent guests and participants. The local television media broadcast excerpts of an interview of the Chairperson of the NODC, together with the coverage of the ceremony, at the prime time during the main news bulletin. A press release was also prepared and distributed to local journalists on the occasion.
- The first edition of the newsletter of the meteorological services contained an article about the NODC establishment and importance in Mauritius.
- We had about six meetings of the NODC at the different participating institutions to discuss the core issues of the future development of the centre.

- An interview about the importance and functions of the NODC is appearing shortly in an English newspaper.

10.10 NODC Database Build-up

A CD-ROM containing all oceanographic data in the Indian Ocean had been purchased from the National institute of Goa, India. The data are being currently retrieved and put in the appropriate format before ingesting them into the NODC database. Similar practices are being attempted towards the Southern African Data Centre for Oceanography (SADCO) and the World Oceanography Centre, USA.

10.11 Future Plans

- The metadata of all oceanographic parameters available will be completed by the end of this year.
- All historical data of the Mauritius national waters will be retrieved from the overseas institutions and a database created at the NODC.
- Atlases of the oceanographic variables of the Mauritius EEZ will be prepared.
- An exchange data policy among ocean data producers and with regional and international bodies will be formulated.
- Data having its primary purpose acquired will be made available for other research scientists and users for further exploitation.
- Ocean products will be made available regularly on the Internet and website.
- A Newsletter will be prepared at regular intervals to highlight the NODC progress and publicity.
- A questionnaire will be prepared and sent to the marine communities in order to assess the type of data necessary for collection and monitoring.
- Increase capacity building of the local experts, which is a necessity for efficient management of data handling and analysis of the NODC.

11. Morocco

No report available for Morocco.

12. Mozambique

12.1 Name of Data Centre

National ODINAFRICA Data Centre

12.2 National ODINAFRICA Co-ordinator

Name:	Albano Angelo Madanda Gove
Institution:	INAHINA
Address:	Av. Karl Marx, 153, Office 503, P.O.BOX. 2089 Maputo - Mozambique
Telephone:	258.1.430186/8
Fax:	258.1.430185

12.3 Description of Host Institution

Name of host institution: INAHINA - Instituto Nacional de Hidrografia e Navegação
Head of Institution: Albano Angelo Madanda Gove
Telephone: 258.1.430186/8
Fax: 258.1.430185

12.4 Brief History

The INAHINA is a governmental institution under the Ministry of Transport and Communication. It was established in 1989. The primary objective of INAHINA is to ensure the safety of navigation through the realization of the following activities: hydrograph, cartography aids to navigation and oceanography. The INAHINA ensure the necessary support for research, coastal and environment monitoring and other related activities.

The INAHINA has got the minimal and necessary equipment to ensure hydrographic surveys (mostly for interior hydrographic survey in harbours navigational channels, interior waters and limited capacity for coastal hydrographic survey); one Tender Vessel Buoy (52m long), which can be adapted for other activities, such as, coastal hydrographic survey, oceanographic expedition, etc; 4 Survey boats; echo-sounds and different types of positioning systems (Trisponder, GPS, Polar-Fix and classic equipment); Tide Gauges (different types), current meters etc. The cartographic Section has capability to produce maps using classic or digital cartography.

Participation of INAHINA in National Programmes:

- Participation in Coastal Zone Management co-ordinated by Ministry for Co-ordination of Environment Actions.
- Collaboration in research activities in co-ordination with University (Physic and Geological Departments)

Participation of INAHINA in Regional/International Programmes:

- Collaboration in the Regional Hydrographic Commission 'SAIHC - Southern Africa and Island Hydrographic Commission'.
- Participation in ODINAFRICA Programme.

12.5 Description of Data Centre

The CENADO was not yet formalized. However, it has been functioning from the last 3½ years. Among the members institution, there is a consensus for the necessity of setting up the Data and Information Centre and the process for formalization of CENADO was submitted to the Government for approval.

12.6 Objectives of CENADO (as they are proposed)

- Implement, develop and maintain a National Oceanographic Database;
- Promote the necessary actions for data and information exchange;
- Develop and maintain updated the national directory of oceanographic data (Metadata);
- Promote the elaboration and publicize of scientific reviews, atlas, etc.
- Develop actions for data rescue at national and international level;

12.7 National Framework (as proposed)

The CENADO has chosen a distributed model of Data and Information Centre. It is hosted and co-ordinated by INAHINA (executive organs), while the managers of member institutions

compose the Steering Committee. Institutions, which collect data, must ensure an internal management of its data and was agree that they have to submit updated Metadata.

12.8 Physical Infrastructure

The data center is located at 9th floor occupying two adjacent rooms totalizing 26m² of space.

- It has available two PC's and two Notebooks, 1 printer HP DeskJet, and 1 scanner.
- Communication is shared - Phone, fax, and dial-up connectivity for the Internet.

12.9 Staffing

CENADO has the following staff members:

- **Albano Gove** – co-ordinator works on Guidance/decisions. He is on demand of his tasks.
- **A. Olivio Siteo** - Data manager works on all technical tasks. Works on Administrative tasks, outside linkage and other related including support to the Information Center. He works full time.
- **Ana Maria Alfredo** - Librarian. Works on running of the library and spends 50% of her time.

Training

- The data Manager has participated in several courses organized by IOC-ODINEA training courses. He is also finalizing a distance-learning course in Information System Management.
- Ana Maria Alfredo - this year she has started a Literature course at the university.

Staffing Needs

Data center - There is an urgent need to allocate more staff, at least, 3 persons (2 in full time - one data manager, and the other for Technical and Administrative Tasks) and one oceanographer (to accomplish tasks on demand).

Information center - There is a need for having one librarian (urgent - taking in account that Ana Maria, is most of the time at school). If the Data Center can have the mentioned people, then they can ensure the necessary technical support to the Information Center. In parallel to these actions, there is a need for a short consultancy for the rapid development of the library, which in turn is the support of the Info Centre. It is worth to note that INAHINA is not a traditional institution that deals with marine information. However, we believe that with well-defined guidance, its library can achieve needed level to serve marine information.

12.10 Database Development

Meta Database

- Tide Gauges Stations, including total description (site location - maps, bench marks, availability of data, etc) - 12 entries.
- Geology - in progress update - at least 228 records.
- Meteo - In progress revision and update - at least 241 records.
- Water Quality (microbiology), Pemba Bay - 18 records.
- Water Quality, Maputo Bay - In progress collection of data.
- Biochemical - In progress collection of data.

- Cruise Reports - In progress construction Metadata - in process description of 58 hydrographic stations occupied during a cruise this year. The cruise has collected physical and biochemical parameters.
- Oceanographic Parameters.
- Unfortunately we do not have received any information from IIP (Fisheries Institute), which we believe, has a huge oceanographic data.
- Other sources: 11 entries from Department of Biology (UEM).

12.11 Numerical Database

The CENADO has got a copy of Dataset produced by R.V. Pelagia (from Netherlands), which take a cruise in Mozambique Channel in April 2001 - The data is being entered into our database (details will be available later).

12.12 Data Products Development

There are two products in development (ongoing):

- 'The Zambezi River Delta channels instability';
- 'Mean sea level, currents, waves, tides, salinity and temperatures variability along the coast of Mozambique'.

12.13 Data Services

Maps - There are two proposals for elaboration of two digital maps: Geological map of Maputo bay and fisheries, resource map - In phase of collecting data and information.

Data - The process of gathering data into numerical database is ongoing, which will provide raw data, photographs, satellite imagery, etc.

12.14 Publicity of CENADO's Activities

Visits to institutions were organized in Maputo, Nampula and Cabo Delgado. The primary objective of those visits, were to offer awareness to people in institutions at different levels about the existence of the Data and Information Center.

Website - CENADO has its own website which is hosted at the following address (WWW.CFMNET.CO.MZ/INAHINA). There is a plan to move the web site to own Domain that was recently signed.

Other ways of Publicity - Is in preparation the press of calendars and folders with spots about CENADO, which will be distributed to institutions. At least 3 palestras will be held in three schools.

12.15 Linkages to other Organizations

Dr. Alberto Mavume and Dr. Manhique, lecturers at Department of Physics (Eduardo Mondlane University) are involved in two programmes, which are funded by SAREC - SIDA:

- 'The Impact of Tropical Cyclones on the Coastal Waters of Mozambique - The effect of ocean currents in the Mozambique Channel and the sea surface temperature in the Mozambique climate';
- 'A study of the response to wind forcing and flooding in the coastal water elevation'. The CENADO will be involved in these projects, providing data, software and support for processing.

12.16 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA

Please see ODINAFRICA – ASSESMENT.

12.17 National ODINAFRICA Information Center

Head of information Center: Albano Ângelo M. Gove
Designation: Co-ordinator

12.18 Description of Information Center

CENADO is being proposed to have the two components:

- Data Center;
- Information Centre.

The objective and terms of reference for the Data Center apply to the Information Center. However, it is important to note that the Information Center was hosted for several years by IIP (fisheries institute) and that INAHINA is hosting it from the present year.

12.19 Physical Infrastructure

The librarian/Information Center, is located at 8th floor occupying two adjacent rooms totalizing 26m² of space:

- It has two PC's.
- 1 Printer HD DeskJet.
- 1 scanner.
- LCD - Data show.
- 1 TV.
- 1 Video.
- Digital photo camera.
- 1 Slide projector.
- Communications and connectivity - same as for Data Center.

Staffing

See point 9.

12.20 Database Development

Catalogue library holdings (on going):

- Serials – 40;
- Monographs – 240;
- Periodic - 75 titles.

12.21 Information Services Offered

Trimester bibliographic bulletin is issued, which is distributed through departments.

12.22 Publicity and Public Awareness

See point 14.

13. Nigeria

13.1 National Co-ordinator

Name: Mr. Larry Awosika
Designation: Chief Research officer
Institution: Nigerian Institute for Oceanography and Marine Research
Address: 1, Wilmot Point Road Bar Beach,
Victoria Island, Lagos, Nigeria.
Telephone: 234-1-2619517
Fax: 234-1-2619517
E-mail: niomr@linkserve.com.ng/larryawosika@yahoo.com

13.2 National ODINAFRICA Data Centre

Name of Head of Data Centre: Mrs. Regina Folorunsho
Designation: Principal Research Officer
Address: 1, Wilmot Point Road Bar Beach,
Victoria Island, Lagos, Nigeria.
Telephone: 234-1-2619517
Fax: 234-1-2619517
E-mail: niomr@linkserve.com.ng,
rfolorunsho@yahoo.com

13.3 Description of Host Institution

Name of Institution: Nigerian Institute for Oceanography and
Marine Research
Head of Host institution: Dr. T.O. Ajayi
Address: 1, Wilmot Point Road Bar Beach, Victoria Island,
Lagos, Nigeria.
Telephone: 234-1-2617530
Fax: 234-1-2617530, 2629517
E-mail: niomr@hyperia.com
niomr@linkserve.com.ng

13.4 Brief History

The Nigerian Institute for Oceanography and Marine Research (NIOMR) was established in November 1975 by the Research Institutes Establishment Order of 1975. The Institute has the mandate to conduct research into the resources and physical characteristics of the Nigerian territorial waters and the high seas beyond. Specifically the Institute conducts research in the following areas:

- Abundance, distribution and other biological characteristics of species of fish and other marine forms of life and practical methods of their rational exploitation and utilization.
- Physical characteristics of the Nigerian territorial waters and the high seas beyond.
- Effects of pollution in the Nigerian coastal waters and its prevention.
- Improvement of brackish water fishing and fish culture: design and fabrication of simple fisheries implements and equipment:
- The nature of the marine environment, including weather forecasting, seabed topography and characteristics and deposits.
- Fish utilization.
- The socio-economic problems of exploitation of the resources of the seas and brackish water.

13.5 Description of Data Centre

The Data Center was established in 1990. The Centre was designated an IODE National Oceanographic Data Centre in 1994.

Objectives

The objectives of the data center include:

- To collate all oceanographic (biological, geological, physical, chemical, socio-economics) data in Nigeria.
- Collect meta data and encourage submission of meta data for the center from other institutions.
- To participate in the development of data management plans and establish systems to support major ocean and coastal experiments.
- Develop standards for data documentation and processing
- Participate in the International Oceanographic Data and Information Exchange (IODE) of IOC.
- Collaborate with other regional and international data centers.
- Provide data and information to users nationally and internationally.
- Assist in the training of national manpower in the area of ocean data management.

The data center co-operates with national institutions in the collation of data and holds regular meetings on ongoing oceanographic work.

Physical Infrastructure

The data center is presently located at the Marine Geology/Geophysics Division of NIOMR at the headquarters building in Victoria Island, Lagos. The NIOMR library is also located at the NIOMR headquarters building. The data center has a direct dialing telephone line (234-1-2619517) and Internet service.

Staffing

The data center is staffed by 4 senior officers, a secretary and one office assistant. The senior officers are research officers who routinely collect and analyze data. They also liaise with other research officers in the Institute to ensure their participation in the data center.

Training

The center sent a Research officer (Mr. M.A. Adekanmbi) to the first ODINAFRICA training on data management held in Casablanca, Morocco between 2 and 13 April 2001. Mrs. Violet Ohimia also attended the NIM training in Cape Town from 29 October to 15 November 2001.

Training Needs

More advanced training will be required for data managers and scientists on data archiving and archeology, database set up and analysis of data.

Computer Equipment

Computer equipment includes 3 PCs, 2 printers, 1 scanner, fax machine, digitizing tablet, which are located in the Marine Geology/Geophysics computer room.

13.7 Database Development

- A stationary letterhead, Metadata form, Data Request form and other forms have been designed for the NODC.
- Preparation of a national catalogue of datasets is on going.
- Compilation of Database of marine professionals in NIOMR.
- National and other ocean resources databases are yet to be developed.
- National and other environmental databases are to be fully developed. Most of these data are available in manuscript format. Efforts to put them in a database will be put in place in 2002.
- Business plan: Drafting of list of potential customers and services will be incorporated into the plan.

13.8 Data Products Development

No data products have been developed. However, the data center usually provide data to the Hydrographic Division of the Nigerian Navy for the production of tide tables annually.

13.9 Data Services

The center has been providing data for government, researchers and students. Efforts are being geared towards the preparation of various topographic and bathymetric maps.

13.10 Publicity and Public Awareness

The data center is yet to officially organize a national meeting about the data center. Visits to institutions in the nation are scheduled for late 2001.

13.11 Linkages to other Organizations/Groups

The data center makes data available to government, NGO, consultants, policy makers. The Institute's research officers and staff of the data center are involved in WMO, GOOS and IOCE regional activities.

13.12 Contribution of Data Centre Activities to Ocean and Coastal Management at National Level

Data in manuscript and digital format in the data center was used in the coastal profile for the ICAM aspect of the GOG project.

13.13 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Data Management

So far, the project is going on well. However, there is need to ensure that the project activities are implemented as scheduled.

13.14 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA during January - August 2001

So far, the project is being implemented well. However, there is need again to keep to time schedule as much as possible.

13.15 National ODINAFRICA Information Centre

Head of Information Centre:	Mrs. Violet Ohimia
Designation:	Librarian
Institution:	Nigerian Institute for Oceanography and Marine Research,
Address:	1, Wilmot Point Road Bar Beach, Victoria Island, Lagos, Nigeria.
Telephone:	234-1-2619517
Fax:	234-1-2619517
E-mail:	niomr@linkserve.com.ng

13.16 Description of Host

Same as NODC.

13.17 Description of Information Centre

The Nigerian Institute for Oceanography and Marine Research Library was established with the Institute in 1975. It was set up basically to source, acquire organize and make available various material that will help to meet the research needs of the Institute and interested users, bearing in mind the mandate of the Institute.

NIOMR's Library is mandated to:

- Provide current and up to date information materials that cover all the research needs of the various departments in the Institute.
- Solve the problem of inadequate bibliographical tools for researchers.
- Design, print and publish all (NIOMR) publications.

The Library is fully air-conditioned and equipped with collections covering specified subject area such as:

- Aquaculture,
- Fisheries,
- Oceanography,
- Agriculture,
- Economics & Statistics, etc.
- Book shelves,
- Reading Carrels with capacity for 12 users,
- Display racks,
- Photo-copier,
- Computer systems,
- Scanner and binding facilities.

Staffing

The library is managed by 2 librarians and 2 library Assistants.

13.18 Physical Infrastructure

The following tools and equipment are available in the library:

- Author/Title Catalogue;
- Subject Catalogue;
- Cardex Journals List;

- Bibliographical Tools - Cataloguing Tools (UDC) Scheme and Sears List of Subject headings;
- Computer System (Word processing);
- Photocopier;
- Display Racks;
- Reading Carrels;
- Shelves.

Library Collections

The Library subscribes to seventy-six journals in the following subject areas:

- Aquaculture;
- Marine Biology;
- Fishing Technology;
- Fish Technology;
- Economics and Statistic;
- Oceanography;
- Geology.

The total holding as at December 2000 is shown in the table below:

MATERIALS	Title	Volume
Journals	4,236	12,677
Books	7,102	10,246
Reports	9,041	13,245
Dissertations	9,102	10,246

13.20 Database Development

Development of computerized database in the library is yet to take off. All the library catalogues of library holdings are done manually and in manuscript format.

13.21 Information Services Offered

Information offered by the library is done by readers services unit, the technical services unit and the documentation unit.

The readers services unit is managed by a Library Officer and one Library Assistant. It is the first point of call in the Library where all user enquiries are attended. The readers services unit is equipped with the following facilities:

- Reading facilities for twelve users,
- Circulation desk for the charging and discharging of library materials (loaning system),
- Bookshelves, where materials are arranged according to the UDC classification scheme,
- A catalogue where the users can access the library stock either by Author/Title and subject,
- Cardex for the journal entries, and
- Photocopier for all the necessary photocopying jobs as demanded by the users.

The Technical Services Unit is staffed by the librarian, two Library officers, and a secretary. It is responsible for:

- sourcing, ordering and acquiring all materials for the library,
- cataloging and classifying all the material for proper arrangement, and
- ensure that all the wear materials are properly bound.

The documentation unit is managed by a senior graphic artist and a secretary. It is responsible for printing all NIOMR publications. It is equipped with:

- HP commercial Printer;
- Scanner;
- Computer System (word processing);
- Binding facilities.

13.22 Publicity and Public Awareness

No national meetings have been held to publicize the library. It is hoped that this will be done late in 2001. However, many universities are aware of the existence of the library.

13.23 Linkages to other Organizations/Groups

Same as in NODC.

13.24 Contribution of Information Centre Activities to Ocean and Coastal Management at National Level

The library provides the point of reference for all ocean related references, books for scientists.

13.25 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Information Management

More effort should be place on providing funds to libraries to acquire journals, books, and physical structure of the libraries (desk, tables, etc.).

13.26 Assessment of the Implementation of the Ocean Information Management Component of ODINAFRICA during January - August 2001

Encouraging, but more activities should be implemented to ensure that libraries are on-line and have facilities to provide current journals and references to users.

14. Senegal

14.1 Nom du Institution

Centre de Recherches Océanographiques de Dakar-Thiaroye (CRODT)

14.2 Coordonnateur National ODINAFRICA

Nom: Ndiaga Gueye
Titre: Docteur (Dr.)
Institution: Direction des Pêches et de l'Océanographie Maritime (DOPM)
Adresse: km, 10,5 Bd. du Centenaire de la Commune de Dakar,
B.P. 2241 Dakar.
Téléphone: (221) 834 80 41
Fax: (221) 834 27 92

14.3 Centre National de Données d'ODINAFRICA

Nom du Gestionnaire du Centre de Données: Anis DIALLO
Titre: Monsieur (Master Sc. Aquaculture)
Adresse: km, 10,5 Bd. du Centenaire de la Commune de Dakar, B.P. 2241 Dakar.
Téléphone: (221) 834 80 41
Fax: (221) 834 27 92

14.4 Description de l'Institution

Nom de l'Institution hébergeant: Centre de Recherches Océanographiques de Dakar-Thiaroye (CRODT)
Directeur du Centre Hébergeant: Alassane SAMBA
Titre: Docteur (Dr.)
Adresse: km, 10,5 Bd. du Centenaire de la Commune de Dakar, B.P. 2241 Dakar
Téléphone: (221) 834 80 41
Fax: (221) 834 27 92

14.5 Bref Historique

Le Centre de Recherches Océanographiques est créé en 1961 et se focalise sur l'Océanographie physique et se diversifie à partir de 1966 avec l'arrivée de biologistes. Dans les années 70, le centre couvre l'essentiel des points de débarquements de poissons sur le littoral. En 1974, avec la création de l'Institut Sénégalais de Recherche Agricole (ISRA) dont il est rattaché, le centre voit un élargissement de ses domaines d'interventions. Les aspects économiques et sociologiques autour de la pêche sont prises en considérations vue l'importance de la pêche dans l'économie du pays et le nombre d'emploi qu'elle génère. A partir des années 80, le centre prend en compte la pêche continentale et l'aquaculture avec les modifications profondes dans les écosystèmes fluviaux et estuariens du fait des années de sécheresse dans le sahel. Durant cette période aussi, il se dote en collaboration avec l'ORSTOM (actuel IRD) d'une unité de traitement des images satellites.

14.6 Objectifs, Activités, Infrastructures Disponibles

Le principal objectif des ressources halieutiques et la protection des environnements est, la mise à disposition de connaissances et de résultats techniquement fiables, sociologiquement acceptables et financièrement rentables afin de participer à:

- la contribution à l'autosuffisance alimentaire des populations,
- le rééquilibrage de la balance commerciale par l'apport de devises,
- la croissance économique stable et soutenue,
- la promotion de l'emploi,
- l'aménagement, la préservation marin et estuariens.

Les activités de recherches tournent autour de trois grands programmes:

- **Ressources et Milieux**, incluant l'environnement hydroclimatique, la bio écologie des poissons, l'évaluation des ressources halieutiques et les bases biologiques, techniques et sociologiques de l'aquaculture.
- **Dynamique des Systèmes d'Exploitation**, avec l'étude des stratégies d'exploitation, des technologies, innovations et transferts.
- **Gestion et aménagement des Pêcheries et de leurs Milieux**, incluant les processus de développement et ajustement des politiques d'intervention, de choix et identification de orientations de valorisation et la gestion intégrée des milieux côtiers et continentaux.

Depuis les années 70, le centre dispose d'un centre de calcul (informatique), a eu trois navires de recherche, le dernier (N/O Itaf DEME, Janvier 2001), d'un navire à fond plat pour les milieux continentaux et estuariens avec l'IRD), d'un centre de traitement des images satellites mis en commun depuis 2001 avec l'Université de Dakar et l'IRD pour devenir le Laboratoire d'Etude et de Recherche en Géomatique (LERG).

Le Centre participe depuis les années 70 à des programmes nationaux, régionaux, sous-régionaux et internationaux (Pamez, Propac, Atepas, Copace, CSRP, FAO, ICLARM, etc.).

14.7 Description du Centre de Données

Date de désignation comme Centre National de Données Océanographiques : 2000 Objectifs : a.renforcement du système de collecte, d'analyse et de traitement des données océanographiques avec des actions portant sur:

- l'étude sur la gestion rationnelle des ressources halieutiques;
- l'étude sur la gestion intégrée de la zone côtière;
- l'organisation de campagnes océanographiques pour la collecte de données;
- la banque de données sur les récifs coralliens;
- l'étude sur la pollution et la dégradation des milieux marins;
- Infrastructure : un bureau de 22 m².

Personnel

Deux pour le moment: Anis DIALLO (Responsable gestion des bases de données, 45%; Master Sc. en Aquaculture); Djiby THIAM (Coordination scientifique, 5%; DEA: Biologie animale). Un autre en plus est en proposition pour renforcer l'équipe (Limalé DEME; 2^{ème} année Universitaire).

Autres Facilités

- Logiciels: Windows 95, 98, 2000; Arc Info, Arc View, SPSS, etc.
- Livres et manuels (50.000 références en océanographie physique, biologique, socioéconomique, informatique et gestion sont disponibles en bibliothèque).
- Cartes et Atlas (plateau continental, bathymétrie, réseau hydrographique, etc.).
- CDs (EIARD Infosys, CEOS, Ocean Atmosphere Space, Urban Geoscientific Data of East and Southeast Asia).
- Satellite images from NOAA, MSAT are available since 1984.

14.8 Développement de Bases de Données

Meta Base de données et les nouvelles bases de données seront développées durant le projet en cours de réalisation. En effet, le travail de création de bases de données n'a pas encore débuté au sein du CNDO, Sénégal car le matériel vient juste d'être mis à sa disposition. Cependant, le CRODT qui abrite le CNDO, dispose de quatre bases de données sur:

- La pêche (statistiques);
- L'environnement marin (données de terrain et imageries satellitaires);
- La socioéconomie des pêches (prix, mareyage, recensements);
- Les campagnes d'évaluation des ressources halieutiques du Sénégal.

Ces bases de données couvrent les périodes 1956 - 2001 et 1977 - 2001.

14.9 - 14.10	Ces chapitres ne sont pas encore développés et le seront au courant de l'année 2001. Le CRODT, reçoit les publications de GOOS et WMO
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L'implantation de la gestion du centre de données océanographiques nous a permis de participer à la formation sur la Gestion des bases de données océanographiques d'une part et d'avoir l'opportunité d'échanger avec d'autres africains d'autre part. Nous en retenons une évaluation positive et pensons qu'avec le réseau d'échanges mis en place, la collaboration ira se renforçant.

14.11 Centre National d'Information ODINAFRICA

Chef du Centre d'information:	Mme Arame G. NDIAYE KEITA
Titre et Fonction:	Documentaliste, responsable du Centre d'Information
Adresse:	DOPM, 1, rue Joris Bp 289 - DDAKAR SENEGAL
Téléphone:	(221) 821 65 78 - 821 27 75
Fax:	(221) 821 47 58

14.12 Description de l'Institution de Tutelle

Fournie seulement si elle est différente de celle du CNDO.

Nom de l'institution de tutelle:	Direction de l'Océanographie et des Pêches Maritimes
Chef de l'institution :	Dr. Ndiaga GUEYE
Fonction:	Directeur de l'Océanographie et des Pêches Maritimes; Coordinateur national du projet ODINAFRICA.
Adresse:	1, rue Joris B.P. 289 - Dakar - SENEGAL
Téléphone:	(221) 821 65 78
Fax:	(221) 821 42 58

14.13 Bref Historique

Créé par loi N° 59.011 du 3 juin 1959, le service de l'océanographie et des pêches maritimes est devenu Direction de l'Océanographie et des Pêches Maritimes (DOPM); sous la tutelle du département des pêches avec comme objectif principal: le développement durable de la pêche et de l'aquaculture et la viabilité des pêcheries.

Ses Objectifs Spécifiques sont:

- prévenir les risques d'effondrement des stocks et de dégradation de l'environnement et de la biodiversité aquatique.
- restaurer le patrimoine halieutique dégradé.
- satisfaire la demande nationale en produits halieutiques.
- améliorer et moderniser les conditions de la pêche artisanale.
- valoriser la production halieutique.
- développer un système durable de financement de la pêche et des activités aquacoles.
- renforcer la coopération internationale en matière de pêche et d'aquaculture.
- renforcer les capacités techniques et manageriales des administrations et des organisations professionnelles de la pêche et de l'aquaculture.
- participation aux programmes nationaux, régionaux, internationaux : confère Document : Sénégal: programme de gestion des ressources côtières.

14.14 Description du Centre d'Information

Date de Création, Objectifs et Mission

Créée en 1983, le centre d'information de la DOPM est né d'un besoin d'information exprimé par les agents du département des pêches mais aussi de la nécessité de rassembler, d'organiser, de

traiter et de mettre sous une forme directement exploitable toute cette masse d'informations secrétée ou reçue par l'institution mère. Ainsi, l'unité d'information a en charge la collecte, le traitement et la diffusion de toute l'information marine produite par ou pour le Sénégal à l'intention de tous ceux qui s'intéressent au domaine marin.

Pour mener à bien sa mission, le Centre d'information dispose:

Infrastructures

- une salle de stockage des documents de 35 m²;
- une salle de consultation des ouvrages avec une capacité d'accueil de 20 personnes;
- une salle des périodiques de 12 m²;
- une salle pour le traitement de l'information qui sert de bureau à l'assistante;
- une salle de reprographie;
- un bureau pour le responsable de l'unité d'information.

Moyens Matériels

- 1 micro ordinateur de type PC (marque compact grande capacité);
- 1 micro ordinateur de type PC (ODINAFRICA);
- 1 scanner (ODINAFRICA);
- 2 imprimantes dont un avec (ODINAFRICA).

Communication

- une installation téléphonique pour la messagerie électronique.
- une installation téléphonique (projet ODINAFRICA) pour la navigation dans internet et la recherche d'informations.

Moyens Humains

Deux personnes à plein temps:

- Mme. Arame Gaye Ndiaye Keïta;
- Maïmouna Pouye Kane;
- Mme. Keïta coordonne toutes les activités de l'unité documentaire. De l'identification des besoins des clients à la gestion des bases de données en passant par la production de produits et services d'informations.
- Mme. Kane participe à toutes les étapes de la chaîne documentaire (collecte, traitement, diffusion de l'information) ainsi que la gestion des bases de données. Elle a été recrutée par contrat pour appuyer l'unité d'information.

Elles travaillent à temps plein dans le centre d'information.

14.15 Formation

La Documentaliste

Formation Reçue:

- Diplôme d'aptitude aux fonctions de Documentaliste (EBAD) - (UCAD).
- Diplôme Supérieur en Sciences de l'Information et de la Communication (DSSIC) (en préparation).

Formation Requise:

Formation de WEB MASTER: Conception de page WEB et gestion de site WEB.

Assistante Documentaliste:
Formation reçue: - Diplôme de programmation en BASIC;
- Diplôme de technicienne en informatique;
Formation requise: Formation pour la gestion de base de données en réseau.

Autres Facilités:

- ouvrages et rapports: 6700;
- micro fiche: 112;
- périodiques: 42 titres en cours;
- CD-ROM: 36.

14.16 Bases de Données: Existantes ou en Cours de Creation

Pour la satisfaction des demandes d'information du Centre de documentation, 2 bases de données ont été créées:

- la base de données bibliographique "Pêche" avec 3790 références. Recense les publications du département des pêches ainsi que les acquisitions sur la pêche maritime, l'aquaculture, l'océanographie, etc. Elle couvre le Sénégal en particulier et l'Afrique en général.
- la base de données bibliographique "TEXTE": (101 références) quant elle a pour objectif le référencement des textes législatifs et réglementaires sur la pêche maritime dans les pays de la commission sous régionale des Pêches et avec à terme la production de répertoires.
- Ces 2 bases de données ont été développés grâce aux logiciels documentaires CDS-ISLS avec une version WINISLS.
- Une base de données des périodiques reçus est en cours de création.

14.17 Services d'Information Offerts

- Recherche bibliographique sur les bases de données locales.
- Recherche bibliographique sur les bases de données sur CD-ROM comme ASFA.
- Service de consultation des ouvrages.
- Diffusion sélective de l'information pour les utilisateurs internes du centre.
- Productions de bibliographies thématiques ponctuelles à la demande des usagers.
- Encadrement de stagiaires en Sciences de l'information documentaire pour une période de courte durée.

14.18 Publicité, Marketing Promotion

- Participation à la foire internationale de Dakar: présentation du centre d'information à l'aide de prospectus;
- Rencontre scientifique internationale: présentation du centre sous forme de communication: International Association of Marine Science and Library Information Centers.
 - Journées portes ouvertes prévues.
 - Site Web en cours de création pour la DOPM.

14.19 Coopération avec des Institutions

La coopération en matière d'échange et de diffusion de l'information marine. Le Centre de documentation est partie prenante d'un certain nombre de réseaux:

- Réseau Agricole Sénégalais (RESAGRIS).

- Réseau Sahélien de Documentation.

Il collabore aussi avec des Institutions gouvernementales ou internationales ou ONG évoluant ou s'intéressant au secteur comme:

- la FAO: réception de document et des bases de données sur CD-ROM comme ASFA.
- le CTA: réception de document et abonnement au périodique SPORE et formation en gestion de l'information agricole.
- La COI: réception de document et prise en charge pour participation à la conférence de l'IAMSLIC.
- IAMSLIC: membre du groupe Régional Afrique.
- GOOS: réception des publications.
- IUCN (International Union For The Conservation of Nature) – Réception de documents.

Les utilisateurs du Centre d'informations sont: chercheurs, étudiants en année de thèse, consultants, agent de développement, décideurs, opérateurs économiques, etc.

Les objectifs que le Centre d'information ODINAFRICA se fixe pour une contribution efficiente à la gestion durable des ressources côtières au niveau national et régional sont les suivants:

- Améliorer l'accès à l'information aux chercheurs, aux agents de développement, aux décideurs et autres partenaires évoluant ou s'intéressant au domaine marin.
- Diffuser les informations sur les résultats, les programmes de recherche, les politiques de gestion, les projets en cours sur le secteur halieutique.
- Faciliter l'accès aux bases et banques de données bibliographiques ou factuelles nationales, régionales et internationales aux utilisateurs du Centre.
- Etablir des mécanismes et des réseaux pour faciliter les échanges d'information au niveau national et régional.
- Développer et renforcer les capacités des personnes ressources du projet dans la gestion de l'information marine par le biais de formation.
- Pour la traduction de ces objectifs en programme d'actions, les activités suivantes seront menées;
- Identification des structures nationales productrices, détentrices et utilisatrices d'information marine ainsi que leurs besoins réels à l'occasion du lancement du CNDO.
- Information et sensibilisation sur le projet par le biais d'articles dans la presse nationale, l'organisation d'une journée porte ouverte à l'occasion de la réouverture du Centre de documentation de la DOPM dont les locaux sont en cours de réhabilitation pour mieux répondre aux besoins du projet.
- Renforcement des bases de données locales "Pêche" et "texte" et création d'une autre base de données de référence laquelle sera alimentée grâce au gisement documentaire existant au niveau des institutions partenaires et grâce à l'achat de documents de référence et d'abonnement à des périodiques spécialisées. Ces bases de données permettront la production de meta données (catalogues, CD ROM) pour la restitution de l'information.

Le référencement s'effectuera sur la base de rapatriement des documents primaires, de numérisation de ces données, ou de récupération des informations déjà numérisées sous forme de copie de base de données sur CD ROM, disquettes Zip, etc.

- édition d'un catalogue sur support papier sur les publications nationales et si possibles sous régionales sur le domaine marin.
- édition d'un bulletin d'information conjointement avec le CNDO.
- création d'une base de données sur les institutions nationales et des pays de la CSRP (dont 3 pays ne participent pas encore à ODINAFRICA II) disposant des informations et des données marines ou pouvant intéresser le monde maritime.
- création d'un service question réponse pour la diffusion de l'information marine.
- création d'un service Diffusion sélective de l'information.

- grâce à l'accès Internet: développement d'un service de recherche en ligne et de fourniture de document par voie électronique aux demandeurs d'information.
- élaboration et diffusion d'une plaquette d'information sur ODINAFRICA – SENEGAL: Centre d'information et CNDO.

Toutes activités doivent être sous tendues par des actions de formation:

- Formation du personnel du Centre par le Chef du Centre d'information à l'utilisation du logiciel documentaire qui devra être distribué lors du cours de formation en gestion de l'information marine.
- Formation de WEB MASTER pour la documentaliste et son assistante pour la conception et la gestion de page WEB du projet.
- Formation du personnel d'appui à la numérisation des documents (reprographie).
- Formation des utilisateurs physiques du Centre d'information à l'accès à l'information en ligne et aux outils documentaires.

14.20 Activités ODINAFRICA - Senegal (Mai 2000 - Aout 2001)

- Réhabilitation du Centre de documentation de la DOPM qui sert de centre d'information ODINAFRICA.
- Signature et envoi de contrats de financement d'activité relatifs au démarrage de RECOSIX CEA.
- Réception de fonds pour la réalisation des activités mentionnées dans le contrat de financement auprès du Bureau de l'UNESCO à Dakar.
- Achat d'un modem.
- Acquisition et installation de ligne téléphonique.
- Souscription d'abonnement à internet pour 12 mois.
- Envoi de liste des titres de périodiques sur le domaine marin pour abonnement à RECOSIX CEA.
- Réception du matériel informatique (pc, imprimante et accessoires) pour Centre d'information et CNDO.
- Signature et renvoi du contrat de financement de l'atelier national de formalisation du CNDO.
- Préparation de l'Atelier national de lancement du CNDO prévu pour fin septembre - début octobre 2001.

15. Seychelles

15.1 Name of Data Centre

National ODINAFRICA Data Centre

15.2 National ODINAFRICA Co-ordinator

Name:	Rondolph Payet
Designation:	Resource Manager
Institution:	Seychelles Fishing Authority
Address:	Fishing Port, Victoria, Mahé P.O. Box 449, Seychelles
Telephone:	+248 224597
Fax:	+248 224508

15.3 Description of Host Institution

Name of Host Institution:	Seychelles Fishing Authority
Head of Host Institution:	Philippe Michaud
Designation:	Managing Director
Address:	Fishing Port, Victoria, P.O. Box 449, Seychelles
Telephone:	+248 22597
Fax:	+248 224508

15.4 Brief History

The SFA was incorporated on 31 August 1984 by the Seychelles Fishing Authority (Establishment Act) Act, although it had physically been in existence since September 1983. It was created to develop the fishing industry to its fullest potential and to safeguard the resource base for sustainable development. The SFA is also the executive arm of the Seychelles Government in the field of Fisheries.

15.5 Objectives and Activities

The objectives and activities of the Seychelles Fishing Authority range from; promoting, organize and develop fishing, fishing industries and fishery resources in Seychelles, develop national fisheries policies, conduct negotiation with respect to fishing, participate in manpower training in the fishing industries, carried out scientific, operational and developmental research and the monitoring control and surveillance of exploitable living marine resources.

15.6 Participation in National/Regional/International Programmes

The Seychelles Fishing Authority is actively involve in numerous national programmes: National Biodiversity Action Plan, Shoals of Capricorn and Climate Change Committee; Regional programmes includes: Indian Ocean Tuna Commission, IOCINCWIO, WIOMAP and the Indian Ocean Commission and international programmes includes: ARGO, GOOS, Indian GOOS, and IBPIO to name a few.

15.7 Description of Data Centre

The Data Centre was established in 1997. Designated National Agency for Coastal and Oceanographic Data.

15.8 Objectives

The Objectives of the Data Centre within the Seychelles Fishing Authority is to:

- Fulfill the role of a marine data bank, carry out national services in oceanography, data dissemination and exchange, and promote good data management nationally.
- Carry marine environment monitoring in relation to its influence on the marine ecosystem.
- Maintain close relations with other DNAs, NODCs and WODCs in marine-related data.
- Make available data in formats readily understood, provide tool for data analysis and advise on data collection.
- Promote sustainable resources management through appropriate data applications.
- Promote operational oceanography for fisheries and climate information (safety at sea, coastal dynamics, sea state, current, winds and climate anomalies).
- Serve the scientific community and assist in decision-making.

National Framework

No definite framework has been established, however, this is presently under consideration and on how to better serve the scientific personnel and the end users.

Physical Infrastructure

Floor space available - square metres; shelf space available-metres.

The office is situated with the building of the Seychelles Fishing Authority and has a floor space of approximately 20m². One Office and 2 computers, including a Scanner, CD Writer, A4 and A3 printer. The SFA is currently moving to a Windows 2000 Platform.

Communication and Connectivity

The telephone system is shared with the Institution and the Internet connectivity is dial up with shared and individual e-mail addresses.

Staffing

Only one member of staff: Rondolph Payet.

Administration of the data centre, dealing with request and other services including research. Proportion of time allocated to the Data centre is approximately 20% per week.

Training (Rondolph Payet)

- BSc (Hons). Fisheries Science and Oceanography: University of Plymouth UK, 1996.
- Ocean Data Management Training Course, Mombassa (1997) and Cape Town (1998 &1999).
- MSc. Coastal and Marine Resource Management. University of Portsmouth, UK, 2000.
- Ph.D: Fisheries Management and Economic with Geographical Information Science, University of Portsmouth, CEMARE, 2001.

Other Facilities

Software: MapInfo Professional 6, MapImagery 6.5, Window 2000, Office 2000, Ocean Data View, GEDCO 97, Minitab, WinBilko and other small programme for data manipulation.

Books and Manuals: None.

Maps and Atlases: Videos, tapes, and CDs: World Ocean Data Atlas, Ocean Sections and Data; WOCE datasets, TOGA datasets, Pathfinder Dataset, 1995-1997.

Journal Subscriptions:None.

Aerial Photographs and Satellite Imagery: None.

15.9 Data Development

- Meta database: Meta database developed within MEDI. This includes 100 records (inclusive of datasets, Books and scientific papers. There are plans to move towards Microsoft Access).
- Database of national institutions involved in ocean-related activities: Fisheries Database, Fishermen and Marine Species Database.
- National database of marine professionals: None.
- Cruise reports: None.
- National meteorological databases.

- National and other Biodiversity databases: Research driven mainly birds and turtles and plants (invasive plants) and National Parks.
- National and other ocean Resource databases: None.
- National and other Environmental databases: None (spreadsheet based) and event driven.

15.10 Data Products Development (On-going and Completed)

National and other Ocean Resource Atlases: Fisheries Potential Mapping Atlas.
National and other Environmental Atlases: Sensibility mapping Atlases.

15.11 Data Services (On-going and Completed)

Preparation of maps: on-going.
Provision of raw data: on-going.
Provision of aerial photographs and satellite imagery: none.
Ministry of Land use and Habitat.
Information to public: On-going.
Other (provide details): Website.

15.12 Publicity and Public Awareness (On-going and Completed)

National meetings about the data centre: On-going.
Visits to institutions: none.
Newspaper articles about the data centre: none.
Website(s) about the data centre: Yes.
Brochure(s): Yes.
Newsletter(s): None.
Other (provide details): None.

15.13 Linkages to other Organizations/Groups

Science programmes- Shoals of Capricorn (Research initiative to understand the Mascareign Region of the Indian Ocean. Linked to the new initiative of Indian Ocean GOOS, GOOS Africa, IODE, WIOMAP, HABITAT, ODINEAFRICA, and IOCINCWIO. Participation in Ocean Observing Systems.

15.14 Contribution of Data Centre Activities to Ocean and Coastal Management at National Level

The overall contribution of the data centre to national coastal and marine management programme is rather minimal. This is due to the present sectoral approach in the management of the resources. However, the contribution of the centre is progressively increasing as it benefits are recognized and appreciated. There are no definite current national coastal and marine policy or programme, though some issues have been raised in the Environmental Management of Seychelles 2000-2010.

15.15 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Data Management

None.

15.16 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA during January - August 2001

In conclusion, ocean data management in Seychelles has progressed but not in manner intended. No national workshop have organized, however, a website was developed to create an awareness of the centre. The planned activities for the period January - August 2001 are satisfactory.

15.17 National ODINAFRICA Information Centre

Head of Information Centre:	Josette CONFAIT
Designation:	Documentation Officer
Address:	Seychelles Fishing Authority, P. O Box 449 Victoria, Mahe, Seychelles
Telephone:	248 224597
Fax:	248 224508
E-mail:	jconfait@hotmail.com
URL:	None

15.18 Description of Host Institution

Only provide if different from the one hosting the data centre.

15.19 Brief History

Objectives, Activities, facilities available (including equipment and observation platforms). Participation in national/regional/international programmes).

15.20 Description of Information Centre

The Library/Information Centre was established in 1989.

15.21 Objectives and Terms of Reference

- Create a holdings of materials related to fisheries and marine resources in the Seychelles, the Indian Ocean Region and internationally;
- Manage, preserve and retrieve such information;
- Encourage the inter-regional exchange of all fisheries and marine-related literature;
- Manage and distribute all the organization publications.

There is an absence of a National Information System as such the different centres collaborate on an informal basis in order to share the available resources.

Physical Infrastructure

Floor space available - square metres; shelf space available- metres.

Office and computer equipment available: A DELL DIMENSION L Micro Tower Series linked to a HP Laserjet 1200 Series printer and a HP Scanjet 5300 C scanner.

The telephone system is shared with the Institution. The Internet system uses dial-up connection with both individual and shared e-mail addresses.

There are two staff members:

Josette Confait - Administrating and managing of the Information Centre and also responsible for organizing and supervising services for users.

Training

- Users' Training Course on the use of Mini-micro CDS/ISIS software package (June 1992) University of Botswana.
- Regional Workshop on Marine Information Management (August 1992) Mombasa Kenya.
- Course on Bibliographic Database Management (August 1995). Mombasa, Kenya.
- Certificate in IT Application. University of London, October 1998.
- Workshop on preservation and conservation of library meeting. (November 1999). Seychelles.
- Attachment at the FAO Fisheries Library Rome (May/June 2000).

Denise Mathiot (Mrs) - Basic duties include the dispatch of SFA publications, loans and periodicals registration and the input of bibliographic records onto the database.

Training

- To attend module one of the International Training Programme on Information.

Other Facilities

Books and reports: *3500 titles.*

Journal subscriptions: *45 titles.*

Journals stock.

Maps and atlases: *1 map cabinet.*

15.22 Database Development (On-going and Completed)

Catalogue database of library holdings: Cataloguing is done using the Micro CD/ISIS software and the ASFISIS package developed by FAO. Currently there are some 900 records inputted and the process is still ongoing

15.23 Information Services Offered (On-going and Completed)

Bibliographic Search Services: *searches are done using both the local database and ASFA.*

Document Delivery: *Local availability and RECOSCIX-WIO and other international institutions.*

Selective Dissemination of Information: *on-going.*

Acquisitions lists: *on-going.*

Training opportunities: *on-going.*

Research funding opportunities: *on-going.*

15.24 Publicity and Public Awareness (On-going and Completed)

Visit to institutions: *on-going.*

Newspaper articles: *on-going.*

Website: *N/A.*

Brochure(s): *N/A.*

Newsletters: *N/A.*

15.25 Linkages to other Organizations/Groups

Science programmes - Data generation, Data flow in centre, input into project planning;
Relation with WMO? GOOS? Other IOC programmes? RECOSCIX;

Support for consultants: None.
Information to policy makers: None.
Relevant conferences/workshops attended: None.

15.26 Contribution of Information Centre Activities to Ocean and Coastal Management at National Level

Indirect through the provision of Document/ Research papers.

15.27 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Information Management

None.

15.28 Assessment of the Implementation of the Ocean Information Management Component of ODINAFRICA

Satisfactory.

16. South Africa

16.1 National ODINAFRICA Co-ordinator

Name: Marcel van den Berg
Designation: Chief Oceanographic Technician
Institution: Marine and Coastal Management
(Dept. of Environmental Affairs & Tourism)
Address: Private Bag X2, Roggebay, South Africa, 8012
Telephone: (+27) 21-4023260
Fax: (+27) 21-4256976
E-mail: mvdberg@mcm.wcape.gov.za

16.2 National ODINAFRICA Data Centre

Name of Head of Data Centre: Ashley Naidoo
Designation: Principle Oceanographer
Address: Private Bag X2, Roggebay,
South Africa, 8012
Telephone: (+27) 21 - 4023167
Fax: (+27) 21 - 4217406
E-mail: anadioo@mcm.wcape.gov.za
URL: www.environment.gov.za/mcm

16.3 Description of Host Institution

Name of Host Institution:	Marine and Coastal Management (Department of Environmental Affairs)
Head of Host Institution:	Horst Kleinschmidt
Designation:	Deputy Director-General
Address:	Private Bag X2, Roggebay, South Africa, 8012
Telephone:	(+27) 21 - 4023107
Fax:	(+27) 21 - 4215151
E-mail:	Hghklein@mcm.wcape.gov.za
URL:	www.environment.gov.za/mcm

16.4 Description of Data Centre

The Chief Directorate: Marine and Coastal Management (ex Sea Fisheries) became part of the ODINEA-project at the end of 1997 and was identified as a Secondary Data Centre for South Africa. The recognized NODC for Southern Africa is SADCO (Southern Africa Data Centre for Oceanography). For the purposes of the ODINAFRICA programme, the data centre housed within MCM is the 'National ODINAFRICA Data Centre' (NODC). The reason for the selection of MCM is essentially three-fold:

- The MCM is housed within the national Department of Environmental Affairs and Tourism, thus forms part of the government structures in South Africa;
- The national government through MCM, already pays SADCO a substantial amount of money annually for its running expenses;
- The MCM contributes approximately 80% of all data submitted to SADCO.

The overall objective of the host organization, MCM, has the overall objective to promote and ensure the sustainable utilisation and exploitation of natural marine resources and to carry-out the necessary research to support this. 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.

16.5 Objectives of Data Centre

- The main objective is to continue with the submission of oceanographic data to SADCO, the recognized NODC for Southern Africa.
- Continue with evaluation, calibration, and correction of oceanographic data, i.e., Quality Control.
- To create a detailed meta database of all the oceanographic and biological data collected within the Research Directorate: Marine and Coastal Management.
- To create a web page containing information and data products of Oceanographic data collected by the Research Directorate.
- To ensure an effective flow of information/data between the different research components within the Directorate and outside organizations and projects.
- Maintain the links with other institution involved in marine research.
- Provide management advice to the national government, as well as public and private enterprises.

16.6 Physical Infrastructure

There is one computer with a scanner, zip drive, CD-Rom and CD-Writer, full access to the internet via the Local Area Network (LAN), telephone line with individual number, as well as individual e-mail addresses.

Staffing

There is one dedicated person, Ashley NAIDOO, who is responsible almost completely to data management of the research directorate. He is assisted by Marcel van den Berg at most times.

National Framework

The centre does not only supply data to SADC, but also collaborates with the SA Navy, seven coastal universities, Oceanographic Research Institute (Durban), Council for Scientific and Industrial Research (CSIR), museums, aquariums, and the South African Weather Bureau. Due to the past history of South Africa, the interconnectivity and interactions between these institutes are well established and is maintained at present.

Regional Framework

Regionally, the data centre is an important facet in research programmes such as BENEFIT (Benguela Environment-Fisheries Interaction and Training), sponsored by the governments of Germany and Norway. There is also the forthcoming Benguela Current Large Marine Ecosystem (BCLME) project that is funded by, amongst others, the GEF and the World Bank. The data centre is crucial and pivotal to supplying the necessary corrected data to the institutions involved in the research programmes.

Sources of Data to the Data Centre

South Africa has four research vessels available for conducting oceanographic research. The vessels are the *Sardinops* (~40m long), *Algoa* (60m long), *Africana* (85m long) and *Agulhas* (100m long). The *Algoa* and *Africana* have also trawling capabilities and are fitted with hull-mounted Acoustic Doppler Current Profilers (ADCP), SeaBird 911+ CTD's with Rosette bottles, a full range of trawling and biological nets, etc.

For meteorological data there are seven weather stations around the coast maintained by MCM, which excludes those from the South African Weather Bureau. Lighthouses around the coast also collect wind data. In addition to the physical data collected by ships there are also approximately 40 current meters, a wave-height recorder, bottom-mounted ADCPs, etc. For the chemical data there are analyses for Nitrate, Nitrite, Phosphate, Silicate, Ammonia and Oxygen. The MCM also has its own satellite processing facilities for both SST, as well as ocean colour from NOAA and SeaWiFS, as well as winds measured from scatterometers.

The data on the data centre database are:

- Discrete and continuous CTD data;
- Satellite SST, SSH and Ocean colour;
- Currents;
- Winds;
- Temperature;
- Salinity;
- Chemistry mentioned above;
- Biological – plankton;
- Fisheries data – growth, histology, catch data, acoustic surveys, abundance, etc.

Report

16.7 Submission of Data to the South African NODC

The main drive within the Data Centre for 2000/2001 was to submit data collected to the NODC for South Africa. The following table shows the types of data and volumes of data was submitted to the South African NODC:

Types of Data	2000	2001
Current Meters		249 deployments
Thermistor String		7 deployments
Waveheight		3 deployment
CTD (Continuous)	22 cruises (943 stations)	94 cruises (5385 stations)

Funds for a master's student was received from the NODC for the verification of CTD data and this has greatly assisted with the submission thereof.

Oceanographic Meta Database

The capturing of research cruise information onto the new "Filemaker" data inventory has been continuing, and to date a total of 497 individual research surveys have been entered. A data inventory of current meter deployments has also been created and to date 321 entries have been made. Since the last report more details have been collected for each individual survey and the data centre is in the progress of creating survey track charts for each individual survey to be added to the data inventory to give easy access to the area that was covered by the individual surveys. The aim is to have the data inventory published on the local intranet before the end of the year. This will enable scientists, within the institute, to complete searches through the data inventory and locate data that is of interest to them.

Oceanographic Data received by 'Data Center'

Data received were mainly obtained from projects within M&CM, but data was also received from private organizations outside M&CM.

The following table illustrates the data received:

Types of Data	2000	2001
Sea Surface Temperature	80,030 hourly readings	44,595 hourly readings
Other temperature data		6,162 hourly readings
Thermistor String	77,851 hourly readings	43,313 hourly readings
Currents (ADCP)	8 deployments	9 deployments
Waveheight	3 deployments	4 deployments
Wind Data		
Weather Stations	17,520 hourly readings	14,640 hourly readings
Light House Data	8,760 hourly readings	8,760 hourly readings
CTD Data	16 cruises (615 stations)	11 cruises (368 stations)
Temp. Profiles	1,326 stations	741 stations

Publishing of Oceanographic Data Web Page

During this year extensive work and time has been spend on the verification and the creation of data products. These data products, in the form of graphs and tables showing for e.g., temperature averages, minimum and maximum observation and frequency plots, as well as current roses and wind

vectors have been assimilated into a web page with links to specific research and long-term monitoring projects. The web page has been available on the local intranet for the last few months and comments have been received from various scientists and users on the needs they have and improvements that can be made to the page. The web page has been extensively modified and updated with new data and is now ready for publishing on the World Wide Web.

A request has been sent to management to enable us to publish the page as part of Marine and Coastal Management's official web page (<http://www.environment.gov.za/mcm/>), but due to the official web page being in the process of reconstruction this has not happened to date.

16.8 National ODINAFRICA Information Centre

Head of Information Centre:	Mrs. Alieya Haider
Designation (of Head of Information Centre):	Principle Librarian
Address:	Gilchrist Library Marine and Coastal Management Private Bag X2 Rogge Bay, 8012 South Africa
Telephone:	(+27) 21 402 3249/50
Fax:	(+27) 21 421 7406
E-mail:	ahaider@mcm.wcape.gov.za

16.9 Description of Host Institution

Same as data center.

16.10 Description of Information Centre

The Gilchrist Library is also known as the Marine and Coastal Management library. It is under the auspices of the Marine and Coastal Management (MCM), which is a branch of the national Department of Environmental Affairs and Tourism. It is largely funded by the research component at MCM. Mrs. Haider was only recently appointed as the principal librarian and resulted in MCM becoming involved in the information management a few months ago. As a result, there is not much to report in terms of progress made over the last year.

The library was founded in 1966 and seen as an ancillary service to the Sea Fisheries Research Institute (presently the research directorate with MCM). It was named after the renowned marine biologist, Dr. J. Gilchrist. The library was, back then, exclusively for research scientists from the institute, but has subsequently extended its services to students and staff from universities and technicians, consultants and the public. The library was established to support research development and that remains its core function.

The library covers approximately 400 square meters of floor space and is filled with shelving for books, periodicals, monographs, etc. There are two computers available, the first for administration and the second, for public use. The former has Internet connection via the LAN, individual e-mailing, printer, etc. The latter is fitted with an additional CD-Rom for NISC disk users. A dispatch order has been received so the UNESCO PC's will arrive soon. The library also has a fax, two telephones and a photocopier.

Mrs. Haider is assisted by another Librarian, but she works half-day and by two other general assistants. She has a Bachelor's degree in Library and Information Sciences from the University in Cape Town.

The library records are:

Monographs	6,079;
Periodicals/Journal Titles	1,453 (with a total volume last estimated in 1995 of between 55,000 and 60,000);
Pamphlets and reprints	20,200;
Microfiche Titles	239 ;
Charts	316.

In terms of journals and periodicals, we are currently subscribed to approximately 1,200 journal titles.

16.11 Database Development (On-going and Completed)

The catalogue of library holdings is currently in progress, under the leadership of Mrs. Haider.

16.12 Information Services Offered

- Packaged information to researchers employed by MCM;
- Photocopying facility;
- Binding of periodicals;
- Access to subject card catalogues;
- Acquisition of recent marine and science publications;
- Circulation of publications as per request;
- Active inter-library lending system;
- Sabinet and the internet;
- Access via OPAC via CD Rom namely NISC Discovery, ICES Fisheries Statistics, FISHBASE.
- An invaluable access to marine Archival and Africana material.

16.13 Problems Experienced by both Data and Information Centres

The fundamental problem experienced by both pertains to the funding donated by the donors. The state has a law that states that no government institute can receive money from outside the country directly. The Director-General has therefore appealed to the Department of Finance to allow for this. After a long dialogue, it was decided that there are a few possibilities, but this will be discussed in some detail with the Regional Co-ordinator.

17. Tanzania

17.1 Name of Data Centre

National ODINAFRICA Data Centre

17.2 National ODINAFRICA Co-ordinator

Name: Dr. Desiderius C.P. Masalu
Designation: Research Fellow, Head - Marine Affairs
Institution: Institute of Marine Sciences,
University of Dar Es Salaam
Address: P.O. Box 668, Mizingani Road,
Zanzibar, Tanzania
Telephone: 255-24-2230741/2232128
Fax: 255-24-2233050
E-mail: masalu@ims.udsm.ac.tz
URL: <http://www.ims.udsm.ac.tz>

17.3 Description of Host Institution

Name of Host Institution: Institute of Marine Sciences, UDSM
Head of Host Institution: Dr. Alfonse DUBI
Designation: Senior Research Fellow, Director of IMS
Address: P.O. Box 668, Mizingani Road,
Zanzibar, Tanzania
Telephone: 255-24-2230741/2232128
Fax: 255-24-2233050
E-mail: dubi@ims.udsm.ac.tz
URL: <http://www.ims.udsm.ac.tz>

17.4 Brief History

The Institute of Marine Sciences (IMS) is part of the University of Dar es Salaam. It was established on 1 July 1979 and is based in Zanzibar. The objectives of its establishment are 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. The IMS was nominated by the Government of Tanzania in 1996 as the Designated National Agency (DNA) taking over on all activities and responsibilities on all matters pertaining to national oceanographic data and information in the country. Before 1996, the Ministry of Natural Resources and Tourism (MNRT) acted as the Tanzania DNA.

The IMS 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. The IMS has a Video production unit, a Library and a GIS database on coastal resources. The NODC and ODINAFRICA activities also fall under Marine Affairs Department.

The IMS participates actively in various national/regional/international programmes. For example, at the national level, the IMS has played a key role in the establishment and enactment of the law on Marine Protected Areas. The IMS has also played a key role in the development of Environmental policies in Zanzibar and Union government. A good example is the integrated coastal management policy that is under cabinet discussion now. The IMS is the secretariat of the Scientific and Technical Working (STWG) group of the Tanzania Coastal Management Partnership (TCMP). For that reason, the IMS has been involved in coastal zone management programmes at the national level, as well as at regional level. At the regional and international level, the IMS plays a key role as a centre of excellence. Members of academic staff at the IMS participate in teaching in various countries of the region, such as Seychelles and Mozambique. The IMS was the secretariat of the Western Indian

Ocean Marine Science Association (WIOMSA). Researchers at IMS participate in regional research/monitoring programmes, e.g., Coral Reef Degradation in the Indian Ocean (CORDIO) project, etc.

17.5 Description of Data Centre

Date of Establishment of Data Center

The IMS was nominated by the Government of Tanzania in 1996 as the Designated National Agency.

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Objectives

The main objective of the data centre is to collect, compile, analyze and archive ocean data and information and increase efficiency in ocean and coastal area management, and decision making in the country. This can only be achieved by having a good and efficient mechanism of managing oceanographic, as well as coastal data and information.

National Framework

So far, the activities of the data centre are done within the framework of IMS and the University of Dar es Salaam to which IMS belongs. In the future, after IMS upgrades its status to a full National Oceanographic Data Centre (NODC), a board will be established to oversee the activities of the data centre.

However, despite that, the IMS as a DNA has established good relations of co-operation and collaboration with many institutions/departments and programmes within the country. The IMS works closely with ICM activities through TCMP where the DNA is pushing for proper data and information management. The data centre also collaborates with the Fisheries and Forest Departments of the Union Government, the National Environment Management Council, and Fisheries and Environment Divisions in Zanzibar. The main approach used is to help the various departments/institutions/programmes develop and manage their own databases, and information about those databases is added in the meta-database that is maintained by the data centre.

Physical Infrastructure

Floor space available-square metres; shelf space available-metres.

The DNA activities are housed in two offices (each 6m x 2m) at IMS. Two shelves (each 1.5m x 1.8m x 0.45m) and one file cabinet (1.3m x 0.3m x 1.3m) are available for storing documents and other staff of the DNA. Two computers are devoted for the data centre activities and three for information management. Additionally, the data centre has on heavy-duty LaserJet printer and two small printers, one is a LaserJet and the other is a DeskJet.

The data centre shares all communication facilities, e.g., telephone, fax, Internet, etc., with the host institute. The Internet connectivity is through a dedicated service line (DSL). All staff and students have their own individual e-mail addresses.

Staffing

Three members of staff of IMS have been assigned responsibilities to oversee the manage activities of the data centre. Dr. Desiderius CP Masalu is the head of the data centre and national co-ordinator of the ODINAFRICA project. He is assisted by Mr. Christopher Muhando who is a data manager and GIS expert. The third person is Mr. Alli Haji Kombo who is a technician and is charged

with maintenance of all computers and equipment, as well as data entry and processing. This staffs spend about 30% of their working time for the data centre activities.

Dr. Masalu and Mr. Muhando have undergone the data management training courses that were done under ODINEA and ODINAFRICA by the IOC of UNESCO. However, Mr. Ali has not yet got such an opportunity though it is very important for him, as he is usually the one who is doing the processing of the data.

Other Facilities

In addition to the facilities mentioned above (3.1), several other facilities are available at the data centre for the clients as follows: The data centre has several of the popular software for processing different types of data formats. Most of these were acquired during the training workshops for data managers. However, for the year 2001, we bought two software, Visio 2000 (which was requested by the information manager), and Adobe PhotoShop for image processing. These were bought as part of national archive development. Additionally, the meta-database which maintained by the data centre contains many information maps that were created using GIS technology. Clients can print these maps directly. Several reference CDs are available in the library. Books and manuals that are held by the data centre are documented in the meta-database in detail

17.6 Database Development

- **Meta Database**

Since 1999 the data centre developed a functional meta database, which contains many information that are relevant oceanographic data and information management, as well as integrated coastal management. The meta-database was implemented in ACCESS format and can therefore be installed and used on many PCs. However, because of the limitation of ACCESS as far as web publishing is concerned, the availability and distribution of the meta database has been minimal. We have installed copies of the meta database to several stakeholders' computers where they help us updating the information and adding new ones. Our wish to make the meta-database available on the Internet. To this end we are already converting it from ACCESS to FileMaker format. This work is expected to be completed by the end of this year. The current total number of records in the meta-database is 220.

- **Database of National Institutions Involved in Ocean-related Activities including Details of Facilities they have**

Within the meta-database, there is a database of all institutions/departments and programmes that are involved in one way or another in ocean related activities. A detail description of the institutions including their facilities, projects, donors, etc. is given where available. Currently there 43 institutions/departments and 23 programmes.

- **National Database of Marine (and Freshwater)**

Another component of the meta-database is a database of marine science professionals. This shows their speciality, position and affiliation, qualifications, publications, contact address, and data and/or information they hold. There is no separate database for freshwater professionals; however, some of the professionals who registered as marine scientists in our database are actually freshwater professionals. As of now the database contains a total of 78 professionals.

- **Cruise Reports**

In 1979, IMS sold out her only research vessel, M.V. Kaskazi, with the aim of acquiring a more modern research vessel from the proceeds and some donor support. However, since then IMS

has not been able to acquire the research vessel. This means no sea-going research cruise are now organised by IMS since even within the country there is no research vessel. Consequently, the meta-database also does not contain anything about cruises reports. Most of the local research at IMS is conducted using small boats and are thus maintained close to the coast.

- **National and other Oceanographic/Meteorological Databases**

The meta-database does not contain any national oceanographic/meteorological database per se. However, oceanographic and meteorological data and information can be found and accessed from the meta-database. One of the aims of the data centre as we move towards upgrading the status to full NODC, is to ensure close collaboration with the Meteorological department. The aim here is to make them provide of meteorological data/information and services under the auspices of the data centre.

- **National and other Biodiversity Databases**

The data centre has not yet compiled the biodiversity information though understandably several individual scientists have their own database on the subject in various field such as species list of Tanzania corals, mangroves, seagrass, seaweed, fishery resources, coastal forests, etc. The data centre so far has no plans to establish such database unless there is a demand from stakeholders themselves.

- **National and other Ocean Resource Databases**

One of the major objectives of the data centre from the 2000 is to offer more services and produce more products for the clients. This includes production of a national resource kit that will contain several relevant data and information of the country. However, this has not yet achieved because of time and fund constraints at the data centre. However, the wish to produce such a product is still there.

- **National and other Environmental Databases, etc.**

Likewise, the data centre has not developed any national and other environmental database for the same reasons mentioned above. However, a lot of the data and information in the meta-database on say mangrove distribution, marine protected areas, etc, are actually relevant to environment protection and management.

17.7 Data Products Development (On-going and Completed)

The only data product that has been developed by the data centre are the various maps coastal resources, marine protected areas and coastal regions and districts. These are included in the database and can be printed by the clients. If clients want a bigger map than what they can print then they need to contact the data centre. Otherwise, no other data sets have been developed. However, the data centre plans to produce some summaries of some selected data types from scientists.

17.8 Data Services (On-going and Completed)

Currently the data centre does not give priority in archiving raw data. It focuses on acquiring the information on who is doing what and who is having what. This information is the ones that form a major part of the meta-database. For this reason, the data services that can be provided by the data centre are limited based on the amount of raw data that we hold. As mentioned above (3.4) the data centre provides various maps that have been produced by the GIS technology. Also, the data centre provides information to the public, for instance who holds what data/information and who can do/help in what. The centre provides raw data of the data that it holds. Most of these are from various CDs from various World Data Centres and some are contributed by researchers at IMS.

17.9 Publicity and Public Awareness (On-going and Completed)

Since the start of the ODINAFRICA project two things were realized by the data centre: first, the concept of oceanographic data and information management was a bit new to most researchers and stakeholders, and secondly, scientists/researchers were reluctant to give/share what data and information they held, although usually they were happy to get somebody's data and information. Following this, the data centre has placed more emphasis on awareness campaigns to educate and sensitize both scientists and all stakeholders including decision-makers on the importance and benefits of efficient oceanographic data and information management. This has been done by different methods, which include visiting stakeholder institutions and demonstrate the meta-database and its use, presenting papers at scientific conferences/workshops, teaching and supervising students, participating in project design, etc. For the period of until August, all these methods were used at various times. In November of last year and May of this year, the data centre was invited to participate in the regular TCMP retreats. At each retreat the data centre presented paper on data and information management, and on the ODINAFRICA project. During the presentation, a demonstration of the meta-database was also done. Of course, being invited to participate in the retreat is one of the results of awareness campaigns and increasing visibility of the data centre. Another sign of the increasing visibility of the data centre is the trust it is enjoying since last year, of playing host for fourth term practical training for two computer science students who want to learn database and data and information management. Furthermore, for the first time, the data centre was invited to teach data and information management and demonstrate to fourth-term students of marine biology at the Department of Zoology (University of Dar es Salaam), during their fieldwork in Zanzibar.

The staff of the data centre has visited several institutions and government departments, projects to teach and demonstrate the meta-database. For this ending year, we have already visited the Tanga region, where we talked about and demonstrated the meta-database to the Tanga Coastal Development Management Programme and The Mangrove Management Project. Though we had planned to visit Mtwara, we had to go to Tanga after the Tanga Coastal Development Management Delegation visited IMS and requested us to visit them immediately for discussion and demonstration. Remaining in the plan, we intend to visit Dar es Salaam in October. The main objective will however be, to up-date the meta-database from the various institutions where installed copies of the meta-database.

Last year the IMS got full Internet connectivity. The data centre took it seriously to make full utilization of the Internet for publicizing the DNA and ODINAFRICA. The work of designing IMS, as well as the DNA web pages and hooking them onto the Internet was done by the data centre staff and was completed in July 2001. From 1 October 2001 the web master at the University of Dar es Salaam has updated all pointers to IMS to point to the IMS web page that is based at IMS. This will increase the number of visitors to IMS/DNA web page and increase our visibility. On the DNA web page we have added pointers to various relevant web pages such as the IODE, and we hope this will also help in increasing the awareness amongst stakeholder and visibility of the data centre.

In addition to the above-mentioned efforts, we are also in the process of producing a brochure and a folder for and about the data centre. As soon as these products are out, we are planning to conduct an official visit to senior officials of the Government of Tanzania and various stakeholder institutions/departments to request them to support our efforts and inform them about the wish of the data centre to upgrade to a full NODC.

In order for the data centre to keep in touch with stakeholders, in future, when conditions allow, the data centre will establish an electronic newsletter and will produce summaries of some selected data types.

17.10 Linkages to other Organizations/Groups

Linkages with other programmes, organizations and/or groups are one of the ways of increasing visibility and acceptance of the data centre. For IMS, the data centre has so far not explored all fronts in this area. Perhaps the most linkage we have managed to develop and maintain is that with the ICZ activities in Tanzania through the TCMP. One result of this link is that the IMS has signed a Memorandum of Understanding with the Tanga Coastal Zone Development Programme under which IMS will provide consultancy expertise scientific, as well as data and information management to the programme. In addition, the mangrove management project through the forestry department of the ministry of Natural resources and Tourism has approached IMS and requested it to provide regular courses in mangrove ecology to its staff. At the moment the curricular for this course is being designed.

Another front that has been explored by the centre is that of participation in relevant workshops/conferences/seminars. As already mentioned above (3.6), the data centre is actively involved in ICM and TCMP retreats as one of the resources.

We believe that as a next step we need to do a lot more in this area to increase our services to the public and visibility.

17.11 Contribution of Data Centre Activities to Ocean and Coastal Management at National Levels

The contribution of the data centre activities to ocean and coastal management has been elaborated above in 3.1, 3.4, 3.5, 3.6, and 3.7. The data centre has been successful in this front. In order to make a great impact, the data centre in the future will concentrate in service and information provision by producing brochures, and selected data summaries to its clients as already mentioned.

It is also important to mention that the National ICM policy is currently being debated by the cabinet before it is endorsed. What is important in the document is that, data and information management is one of the issues that have been given priority. The data centre believes that it will have to play a key role as soon as the policy gets endorsed by the Government, as it will empower the centre.

17.12 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Data Management

During ODINAFRICA-I, there was a provision for internship for data centre staff where they could spend two months at a well-advanced data centre to learn, among many other things, the daily operation and management of a data centre. We believe that was an important practical training opportunity. However, many data centre staff could not utilize that chance and was scrapped in ODINAFRICA-II. We believe that due to its importance and usefulness rather than scrapping it, data managers should have been encouraged to utilize it whenever they could. We therefore strongly propose that this important training be reinstated in ODINAFRICA-II so that whenever one has time one can make use of it.

17.13 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA During January - August 2001

So far our assessment of the implementation of the ODINAFRICA project for the data management component is good. Implementation of whatever has been decided (e.g., contracts), as well as information flow has been done in reasonable time.

17.14 National ODINAFRICA Information Centre

Head of Information Centre:	Ms. Edna A. Nyika
Designation (of Head of Information Centre):	Librarian
Address:	Mizingani Rd., P.O. Box 668, Zanzibar, Tanzania
Telephone:	255 24 2230741/255 24 2232128
Fax:	225 24 2233050
E-mail:	nyika@zims.udsm.ac.tz
URL:	http://www.ims.udsm.ac.tz

17.15 Description of Host Institution

Same as the one hosting the data center.

17.16 Description of Information Centre

The Institute of Marine Sciences library was established in 1979 during the establishment of the Institute of Marine Sciences.

17.17 Objectives and Terms of Reference

The IMS mission has three attributes namely, undertaking research in all aspects of marine sciences, providing postgraduate and undergraduate training in accordance with the national manpower requirements and providing advisory and consultancy services in coastal and marine affairs.

These Objectives are Aimed at Achieving the Following:

- Contribute through research, advice, and direct intervention to Tanzania's food security programmes;
- Provide Tanzania with the capability and awareness to address problems and issues arising out of the new ocean regime;
- Contribute significantly to Tanzania's goal of attaining self-reliance in high-level manpower (marine scientists, engineers, technicians);
- To create conditions that will enable Tanzania to play its rightful role in ocean affairs, particularly to enable Tanzania to make a meaningful contribution to national, regional and international programmes devoted to the studies of the ocean and their resources.

The IMS library being one of the facilities of the institute, supports the research and teaching activities of the IMS staff and the University of Dar es Salaam as a whole. Beyond this primary responsibility, the library serves, to the extent feasibility, the larger scholarly community. The library acquires, organizes, archives and makes readily available collection of scholarly materials in print and electronic forms.

The Information centre collaborates with other libraries within Tanzania, e.g., it co-operates with the National Environmental Management Council library, TAFIRI and the Zanzibar Department of Environment library respectively. The centre also receives reports for documentation from all these institutions and other institutions dealing with marine sciences. These deposits contribute to the development of our collection.

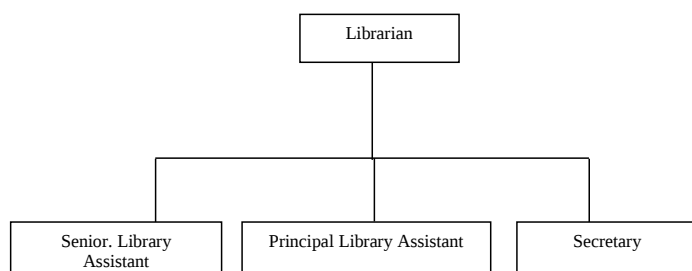
The library has a floor space of 15 square metres and shelf space available of 7 metres. However, we plan to reorganize the library, change the available shelves in order to accommodate more shelves.

The library has three computers: one old and two new, recently received from the project. The library also has a scanner and laser printer for document delivery use. There is a telephone line

extension for the library. The library has an e-mail address, which is library@ims.udsm.ac.tz. There is a direct connection to the Internet after the Institute had decided to have a leased telephone line from the Tanzania Telecommunication Company.

The Library has Four Staff Members:

1. Edna Nyika (MLIS)- Librarian. Duties- Head of Section, database management.
2. Said Sultan - (Advanced Diploma in Library Studies) Principal Library Assistant. Duties- Acquisition, cataloguing and classification of library materials, and other library routine duties.
3. Kessy Tengeneza - (Certificate in Library Studies) Senior Library Assistant. Duties - Document delivery, registration of incoming serial documents, circulation Desk.
4. Sharifa Yahya – Secretary. Duties- Data entry.



17.18 Database Development (On-going and Completed)

- Catalogue database of library holdings has been developed with 5,500 records and available to all library users. Soon available to university main library users.
- Database of marine/aquatic science publications published in or about the country has not yet been developed. We have a print list of publication.

17.19 Information Services Offered (On-going and Completed)

- There is bibliographic search service offered to all library users. The users have access to all databases CDs and electronic services that are available at the IMS library, such as the Coral Reef CD, ASFA, and Internet service search engines.
- Document delivery service is offered to users from within and outside IMS.
- Selective Dissemination of Information- Provide current information on the scientists field of interest, be it information on new books or journal articles.

17.20 Publicity and Public Awareness (On-going and Completed)

- Visit to institutions - We visited the university main library and the NEMC library.
- Newspaper articles.
- Website - We have a general page for the IMS and the data centre (ODINAFRICA).
- Brochures- Understandably, a brochure and a folder are being developed for the data centre which includes the information centre.
- Newsletter- None.

17.21 Linkages to other Organizations/Groups

- We provide information to policy makers both to the Union Government of Tanzania and Revolutionary Government of Zanzibar.

Relevant conferences/workshops attended:

- National workshop on 'Fisheries and Biodiversity Data and Information Documentation' organized by IMS (Edna Nyika) on behalf of ACP/EU Nairobi office. The workshop brought together scientists and librarians from all the institutions dealing with the aquatic environment. Gaps on data and information gathering and dissemination were identified.
- IAMSILIC annual conference in Victoria, BC, Canada.
- Training workshop for effective use of Internet resources for Librarians and Information Managers- Nairobi, Kenya.

17.22 Contribution of Information Centre Activities to Ocean and Coastal Management at National Levels

The library by the extrapolation the ODINAFRICA project contributes to the National Ocean and Coastal Management programme by provision of update information to researchers, policy makers, stakeholders and consultants in the whole programme. The library in relation with the Marine Affairs section (MEED) of the institute shows videos made by the scientists to the people in the coastal areas of Tanzania as a public awareness programme.

17.23 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Information Management

We recommend internship for information managers to be included in ODINAFRICA project if possible.

17.24 Assessment of the Implementation of the Ocean Information Management Component of ODINAFRICA During January - August 2001

The execution of the 2001 activities is proceeding well.

18. Togo

18.1 Coordonateur National

Nom: Dr. Adoté BLIVI
Titre: Maître de Conférences
Institution: Université de Lomé/Centre de Gestion Intégrée du Littoral et de l'Environnement
Adresse: B.P. 1515, Lomé, TOGO
Téléphone: 228 221 68 17/222 48 65
Fax: 228 221 85 95
E-mail: cgile@desticknet.com/adoblivi@hotmail.com

18.2 Presentation de l'Institution Abritant le CNDO

Nom: Université de Lomé, Centre de Gestion Intégrée du Littoral et de l'Environnement. (CGILE/UL)
Titre: Maître de Conférences
Institution: Université de Lomé/Centre de Gestion Intégrée du Littoral et de l'Environnement
Adresse: B.P. 1515, Lomé, TOGO
Tél: 228 221 68 17/222 48 65
Fax: 228 221 85 95
E-mail: cgile@desticknet.com/adoblivi@hotmail.com

18.3 Bref Aperçu du CGILE

Création: Arrêté rectoral 001/RC/UT du 2 février 2001. Structure de recherche pluridisciplinaire existant depuis 1995.

Objectif: Mener des activités de recherche intégrée fondamentale et appliquée en zone littorale.

Domaines d'Investigation:

- Morphodynamique;
- Pollution;
- Socio-économie;
- Géographie;
- Aménagement et occupation du sol;
- Ressources biologiques.

Divisions:

- Ressources physiques;
- SIG et télédétection;
- Aspects juridiques;
- Ressources naturelles;
- Analyse du potentiel humain et économique;
- Occupation et aménagement du sol;
- Documentation et diffusion de l'information.

Activités: Nationales

Travail en partenariat avec les laboratoires et autres structures de recherche scientifique de l'Université de Lomé et de l'Administration publique (ministères).

Internationales:

Participation aux différents programmes régionaux de recherche:

- Grand Ecosystème Marin du Courant de Guinée ONUDI-PNUE-PNUD-NOAA.
- Projet REDDA/PNUE (CGILE = Centre d'excellence).
- Colloques et ateliers.

Informations Concernant les Différents Points Focaux

Points Focaux	Institutions	Données Disponibles
ATI-ATCHA Sébabé	Direction de la Météorologie	Données météorologiques
TENGUE Kokou Trévé	Direction des Forêts	Données les produits forestiers, sur la circulation de ces produits, le couvert végétal, les espèces
SAYI Koffi	Mine et géologie	Données statistiques sur l'exploitation minière
SEDZRO Kossi	Direction des Pêches	Séries chronologiques sur les prises et les captures halieutiques, les stocks et la biomasse
AGBOKOU Adjoa Démawu (Mme)	Ministère de l'Economie	Données sectorielles du Produit Intérieur Brut (PIB), statistiques des tableaux du périmètre restreint de l'Union Économique et Monétaire Ouest Africaine
ASSIOBO-TIPOH Kokou	Ministère du tourisme et des loisirs	Structures d'hébergement et séjours, entrée des non-résidents, entrée des résidents, emplois directs dans le secteur
OURO-TAGBA Dassassô	Mairie de Lomé	Données sur les adressages, la gestion des déchets, la gestion des cimetières
KORIKO Ousman	Direction de la Statistique	Données sur la population, le Commerce Extérieur, le prix à la consommation, la Comptabilité Nationale. Egalement, données provenant d'enquêtes sectorielles
APEDO-AMAH Ayayi	Direction de la Statistique Agricole, de l'information et de la Documentation	Structure de la population, superficies cultivées, rendement des cultures, moyens de production, effectif du cheptel
WILSON Anani	Association des Volontaires Togolais pour le Développement (ONG AVOTODE)	Données sectorisées dans le sud est Togo sur la gestion et la protection de la mangrove, sur la gestion des ordures ménagères
BRUCE Koffi	Direction régionale de la planification du développement Région Maritime	Données socio-économiques
SODJI Ahlin Ahlinvi	Direction du développement industriel	Données sur la production industrielle, les unités industrielles, les salaires
GOEH-AKUE N'buéké Adovi	Université de Lomé	Données éparses dans des rapports, thèses et mémoires, cartes topographiques, cartes thématiques
BILABINA Piyalo Abiré (Mme)	Direction du Port	Données marégraphiques

Quelques Rencontres Scientifiques Organisées au CGILE:

- Atelier Régional-Erosion côtière: Bilan et Perspectives. (Lomé, décembre 1995).
- Atelier Régional sur la Méthodologie de Collecte de Données et de Gestion du Littoral, (Lomé, février 1998).
- Atelier National sur l'état de l'environnement côtier du Togo tenu pour l'adoption du document national intitulé 'Profil environnemental du littoral du Togo', (Togoville, janvier 1999).

18.4 Présentation du CNDO

- Date de création du Centre : 28 mars 2001.
- Date de création du Centre IODE : le Centre IODE n'est pas encore créé.
- Réseau national avec 13 institutions.

Avec les points focaux des différentes institutions productrices ou détentrices de données, sur la base de la feuille de MEDI Lite, le catalogue national de données est en cours de préparation.

Calendrier des Activités 2000 – 2001

Sur les 11 activités prévues en 2000-2001, 4 n'ont pas pu être organisées du fait de l'acquisition tardive du matériel (répertoire des travaux, directoire des structures, la création des produits et l'organisation d'atelier de sensibilisation du public) et une activité est en cours : l'inventaire et la collecte des données. Les requêtes de financement de ces activités seront faites au cours du dernier trimestre 2001 pour leur mise en œuvre.

Calendrier du Deroulement des Activites sur 4 ans

Activités	2000	2001	2002	2003
1. Désigner le Coordonnateur et le centre de base nationale de données	+			
2. Identifier les structures disposant des données nécessaires sur l'environnement marin et côtier	+			
3. Former un Comité d'aide au recouvrement des données	+			
4. Organiser un séminaire national sur la nécessité de mettre en place un Centre national de gestion de données	+			
5/6. Organiser des ateliers de formation en gestion de données - Organiser des ateliers de formation en gestion de l'information			+	+
7. Produire un répertoire des travaux, études et rapports relatifs aux sciences marine et côtière	+			
8. Produire un directoire des structures d'intérêt côtier et marin avec leurs objectifs, leurs activités et leurs interdépendances	+			
9. Faire l'inventaire, la collecte, la description des données et l'archivage		+	+	+
10. Créer des produits		+	+	+
11. Engager la procédure de récupération de toutes les données existantes sur le Togo à l'étranger			+	
12. Acquérir les équipements nécessaires	+			
13. Organiser un atelier de sensibilisation du public et des utilisateurs potentiels des produits.		+	+	+
14. Former le personnel sur le matériel didactique		+	+	

Fiche Budgetaire (US Dollars)

Titre d'Activités	2000	2001	2002	2003	Total
4 -Organiser un séminaire national sur la nécessité de mettre en place un Centre national de gestion de données	2000	-	-	-	2 000
5/6 - Organiser des ateliers de formation en gestion de données - Organiser des ateliers de formation en gestion de l'information	-	-	3000	3000	6 000
7 - Produire un répertoire des travaux, études et rapports relatifs aux sciences marine et côtière	2 500	-	-	-	2 500
8 - Produire un répertoire des structures d'intérêt côtier et marin avec leurs objectifs, leurs activités et leurs interdépendances	2000	-	-	-	2000
9 - Faire l'inventaire, la collecte, la description des données et l'archivage	-	3000	3000	3000	9 000
10 – Créer des produits	-	2000	2000	2000	6000
11 - Engager la procédure de récupération de toutes les données existantes sur le Togo à l'étranger	-	-	2000	-	2000
12 - Acquérir les équipements nécessaires	5000	-	-	-	5 000
13 – Organiser un atelier de sensibilisation du public et des utilisateurs potentiels des produits.	-	2000	2000	2000	6 000
14 – Former le personnel sur le matériel didactique		2000	2000		4000
Connexion Internet	600	600	600	600	2 400
Fonctionnement	4000	4000	4000	4000	16 000
Abonnement (ASFA)	-	-	2000	2000	4000
TOTAL	17 900	15 400	22 400	18 400	66 900

Contrats et Coûts de Gestion

Date	Contrat	Titre d'Engagement	Coût (USD)
27 octobre 2000	SC214.124.0	Installation téléph et modem	1000
19 mars 2001	SC214.197.1	Atelier national CNDO	2000
16 juillet 2001	SC214.253.1	Fonctionnement	3500 / 500*
8 août 2001	PEC2/513/RAF/41	Equipeement	8801
17 août 2001	PEC2/513/RAF/41	Terminal expenses	297
Total partiel			15598
Total			16098

*Le deuxième paiement n'est pas encore effectué

Autres Coûts Non Connus d'Activités Effectuées

Coût de la formation en gestion de données	?
Coût de la trousse didactique CD ROM	?
Coût du suivi de la formation	?
Coût de la formation en gestion de l'information	?
Coût de la trousse didactique	?
Coût du suivi de la formation	?

- Activités prévues de septembre en décembre 2001

Installation complète de l'équipement informatique.

- Elaboration du catalogue des données.
- Préparation de la formation des points focaux en matière de gestion de données
- Préparation des fiches de budget (estimations) des activités de 2000-2001 non effectuées.

- Préparation du répertoire des travaux (test sur trois thématiques : pêche, tourisme, agriculture).
- Production du répertoire des institutions (questionnaire en cours de rédaction).

Infrastructures du CNDO

Infrastructures du CGILE avec 6 bureaux et une grande salle de 25 places ; 6 postes d'ordinateurs; connexion téléphonique (2 lignes) et connexion Internet avec une adresse électronique.

Personnel du CGILE : 11/Personnel du CNDO * : 3

Adoté BLIVI *	Ressources physiques, administration et gestion.
Dométo H. AKUE *	Secrétaire – Documentation.
Dodé JOHNSON *	SIG – Télédétection et Bases de Données.
Koko HOUEDAKOR	Aménagement et occupation du sol et aspects juridiques.
Abla KWASSI	Ressources humaines, SIG et Télédétection.
Noumonvi SENA	Ressources naturelles et comptabilité matière.
Pessiezoum ADJOUSI	Climat et Ressources biologiques.
Sahadou OURO-MO	Chauffeur.
Komla ALOVE	Gardien.
Kudzo WODEFE	Entretien.
Essè WOGODO	Gardien.

- Temps de travail consacré au CNDO : 8 heures/semaine/personne.

Autres Facilités

Logiciels de traitements de texte (Microsoft Office Professionnel).

Logiciels de BD MEDI (nous aimerions disposer du logiciel *SURFER*).

Connexions et communications électroniques.

Revue **WINDOW**.

Les autres éléments de la rubrique ne sont pas disponibles notamment, video, tapes and CDs, aerial photos and satellite imagery.

18.5 Développement de la BD

Base de métadonnées:

- En train d'être développée.
- Une trentaine d'entrées.
- Disponibilité partielle.

Base de données sur les institutions nationales impliquées:

- En train d'être développée.
- Une dizaine d'entrées.
- Non disponible.

Base de données sur les professionnels:

- Non développée.

Les autres aspects de la rubrique ne sont pas encore développés.

18.6 Produits

Pas encore réalisés ; les questionnaires sont en cours de préparation.

18.7 Services

Pas encore réalisés.

18.8 Publicité et Sensibilisation du Public

- Atelier national de lancement tenu le 28 mars 2001 à Lomé.
- Visite et formation sommaire en notion de métadonnées des points focaux par le Data Manager.
- ODINAFRICA SITE WEB (Partie Publique).
- Les autres éléments de la rubrique ne sont pas encore réalisés.

18.9 Relations avec d'Autres Organisations

Pas encore réalisées.

18.10 Contribution du CNDO au Niveau National

- aide à la constitution d'une base de données;
- formation à la gestion des données et de l'information océanographiques;
- fourniture du matériel informatique;
- décloisonnement des données;
- utilité d'une base de données.

18.11 Recommandations Relatives au Plan d'Activités de Mai 2000

Par rapport au Réseau National:

- Développer le réseau national en fournissant du matériel informatique et logiciels spécifiques pour le traitement avec installation de connexion Internet, etc. aux points focaux actifs.
- Mettre à disposition du matériel de collecte de données (exemple, le pluviographe et les accessoires, le marégraphe).

Par Rapport aux Cours de Formation:

- La période de formation est trop courte par rapport à la densité des cours.
- Formation en langue française.

19. Tunisia

19.1 National ODINAFRICA Co-ordinator

Name: Amor El Abed
Designation: Professor
Institution: INSTM
Address: 28, rue 2 mars 1934, 2025 Salammbô
Telephone: 00216.1.730420
Fax: 00126.1.732.622
E-mail: amor.elabed@instm.rnrt.tn

19.2 National ODINAFRICA Data Centre

Name of Head of Data Centre:	Malika Bel Hassen-Abid
Designation:	Doctor
Address:	28, rue 2 mars 1934, 2025 Salammbô
Telephone:	00216.1.730420
Fax:	00126.1.732.622
E-mail:	ocean_malik@yahoo.com Belhassen.malika@instm.rnrt.tn

19.3 Description of Host Institution

Name of Host Institution:	INSTM
Head of Host Institution:	Amor El Abed
Designation:	Professor
Address:	28, rue 2 mars 1934, 2025 Salammbô
Telephone:	00216.1.730420
Fax:	00126.1.732.622
E-mail:	amor.elabed@instm.rnrt.tn

19.4 Brief History

The INSTM was created in 1924, its research concerns four main topics: Evaluation of natural resources, Aquaculture, study of marine environment and biotechnology. The INSTM is involved in many national and international programmes such as GOOS, MEDPOLE.

19.5 Description of Data Centre

The Data Centre was established in the year 2001. Date of establishment of the IODE National Oceanographic Data Centre or Designated National Agency (If IODE NODC/DNA has not been established).

Objectives

- Create a catalogue of data.
- Insure the exchange of marine data between the national institutions/organizations involved in this programme.

National Framework

What co-operative and co-ordinating structure, if any, has been established at the national level, with other institutions/organizations which provide/use data and products to/from the data centre?

- A national committee, including the representatives of all the national institutions/organizations which provide/use marine data, was created to follow the data centre work progress and to insure the feeding of the centre with marine data.

Physical Infrastructure

Floor space available - square metres; shelf space available-metres.

- Floor space available: 32m²;
- Shelf space: 20 m;
- Office and computer equipment available;

- 2 offices, 4 computers, 3 printers, 2 scanners ;
- Communication and Connectivity (whether telephone shared with institute or direct, dial-up or direct connection to internet, shared or individual email addresses, etc);
- Telephone shared with institute;
- Direct connection to the Internet;
- Individual e-mail addresses.

Staffing

- Data manager: Malika Bel hassen-Abid.
- Assistants.
- Tasks assigned to each of them, what proportion of working time each spends on data centre work.
- 1 data manager: 70% of time.
- 1 assistant: 100% of time.
- 1 assistant: 50% of time.
- Training level and training requirements, etc. (provide details of training courses attended).
- Training courses: Access.
GIS Arc/info and Arc/view.
HTML language.
Organigram.

Other Facilities

- Software: ArcInfo.
- Books and manuals.
- Maps and atlases: Marine maps of Tunisians coasts.
- Videos, tapes, and CDs.
- Journal subscriptions (related to data management).
- Aerial photographs and satellite imagery: aerial photographs and satellite imageries available for Tunisian coasts.

19.6 Database Development

- Metadata of the Atlas of factors of risk and sensitivity along the South Tunisian Coasts has already developed.
 - Number of records: 100
 - Availability: Tunisian ministry of the environment.
- Database of national institutions involved in ocean related activities including details of facilities they have has been developed.

Database of fishery activities: ports, fleet, professionals

- Availability: Tunisian ministry of the Agriculture.
- National database of marine (and freshwater) professionals was developed, but is not yet complete.
 - Number of records: 45
 - Availability: INSTM
- Cruise reports has been developed.
- National and other Oceanographic/meteorological databases have not yet been developed.
- National and other Biodiversity databases have not yet been developed.
- A data base of the evaluation of benthic living resources was developed, but it's not complete

- Availability: INSTM

19.7 Data Products Development (On-going and Completed)

- National and other ocean Resource Atlases has not yet been developed.
- National and other Environmental Atlases.
- Atlas of factors of risk and sensitivity along the South Tunisian coast.

19.8 Data Services (On-going and Completed)

Preparation of maps:

- Bathymetric data of Tunisian coasts was digitized from marine maps.
- Still continuing to generate maps such as the distribution of living marine resources.
- Good feedback between the data centre and the data provider (researchers from INSTM, university teachers and other institutions and persons).
- Provision of aerial photographs and satellite imagery.
- Contacts were made with appropriate institutions to buy aerial photographs.
- Information to public.

19.9 Publicity and Public Awareness (On-going and Completed)

National Meetings about the Data Center

- First national workshop held on 8 March 2001.
- First meeting of the national committee held on 26 June 2001.

Visits to Institutions

- Visits have been made to some of the institutions and exchange of data occurred.
Newspaper articles about the data centre - Not yet.
Website(s) about the data centre - Under construction.
Brochure(s) - Not yet.
Newsletter(s) - Not yet.

19.10 Linkages to other Organizations/Groups

Science programmes- Data generation, Data flow in centre, input into project planning:

- The data centre is concerned with many national projects, and is already informed with the kind of data generated. It assists researchers to handle their data and contribute to their spatial representation.
- Relation with WMO? GOOS? Other IOC programmes?
- INSTM is a member of GOOS project and contact is permanent between the national GOOS Tunisian co-ordinator and the data centre.
- Support for consultants.
- Information to policy makers.
- Participation in relevant workshops/conferences.

19.11 Contribution of Data Centre Activities to Ocean and Coastal Management at National Level

The data centre is an important structure to collect, handle and diffuse marine data. Its' permanent contact with data user/provider give it the advantage to have updated data and also to benefit with a large variability of data. This will be an important insight to conduct multi-disciplinary coastal management programmes.

19.12 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Data Management

None

19.13 Assessment of the Implementation of the Ocean Data Management Component of ODINAFRICA during January - August 2001

- The implementation of the ocean data management component of ODINAFRICA during January - August 2001 occurred with concordance of the plan fixed by the project (national workshop holding, designation of data center).
- A good reaction was manifested by the representatives of national institutions/organizations to the project and they show an important concern to its functioning.

19.14 National ODINAFRICA Information Centre

Name: Saida Massouidi
Designation: Librarian
Institution: INSTM
Address: 28, rue 2 mars 1934, 2025 Salammbô
Telephone: 00216.1.730420
Fax: 00126.1.732.622
E-mail: messaoudi.saida@instm.rnrt.tn

19.25 Description of Information Centre

The library/Information Centre was established in 2001.

19.16 Objectives and Terms of Reference

National Framework: what co-operative and co-ordinating structure, if any, has been established at the national level, with other institutions/organizations, which provide or use literature/documents to/from the library/information center.

Physical Infrastructure

Floor space available - square metres; shelf space available- metres.

- Office, 2 Computers, 2 Printers and 1 Scanner is available.
- Telephone shared with institute.
- Direct connection to the Internet.
- Individual e-mail addresses.

Staffing

- 1 librarian: Saida Messaoudi.
- 2 assistants.
- Tasks assigned to each of them, what proportion of working time each spends on library/information centre work.
 - 1 librarian: 100%.
 - 2 assistants 100%.
- Training level and training requirements, etc. (details of training courses attended).
 - Organigram.

Other Facilities

Books and reports.
Journal subscriptions.
Journals stock.
Maps and atlases.
Videos, tapes, and CDs.
Aerial photographs and satellite imagery.

19.17 Database Development (On-going and Completed)

- A catalogue database of library holding is going to be developed using the ISIS software.
- Availability: INSTM.
- Database of marine/aquatic science publications published in/or about the country has not yet been developed.

19.18 Information Services Offered (On-going and Completed)

Bibliographic Search Services: Access to the library holding database at a national level and also a free access to ASFA.

- Document Delivery:
 - Free consultation of documents at the information center.
 - Selective Dissemination of Information.
 - Acquisitions lists.
- Yearly available at the information center:
 - Training opportunities.
 - Research funding opportunities.
 - Job opportunities.

19.19 Publicity and Public Awareness (On-going and Completed)

- National meetings:
 - First national workshop held on 8 March 2001.
 - First meeting of the national committee held on 26 June 2001.
- Visit to institutions:
 - Visit to IFREMER (France) and to UQAR (Canada) documentation centers.

Newspaper articles	-	Not yet.
Website	-	Under construction.
Brochure(s)	-	Not yet.
Newsletters	-	Not yet.

19.20 Linkages to other Organizations/Groups

Science programmes- Data generation, Data flow in centre, input into project planning:

- Contacts have been made between the information centre and the other national institutions (provider/user of marine information) through specific conventions.
- Relation with WMO? GOOS? Other IOC programmes?
- Receive the different GOOS reports.
- Support for consultants.

- Information to policy makers.
- Relevant conferences/workshops attended.

19.21 Contribution of Information Centre Activities to Ocean and Coastal Management at National Levels

The information centre is designated to ensure the flux of information between different institutions concerned with the coastal management programmes. Its tasks consist to store, manage and diffuse all kind of information in relation with the ocean. Developing a national catalogue database of library holding is among its priorities. Also, the dissemination of the information, through the Internet, is with a big concern.

19.22 Recommendations for Amendments to the ODINAFRICA Work Plan as Approved in May 2000 with Regard to Ocean Information Management

None.

19.23 Assessment of the Implementation of the Ocean Information Management Component of ODINAFRICA during January - August 2001

None.

ANNEX VIII

CAMEROON OFFER TO HOST THIRD ODINAFRICA SESSION 2002

Cameroon is ready to host the next ODINAFRICA-II review workshop. Cameroon has many favourable points:

- ODINAFRICA has held its first meeting in West Africa.
- No IOC meeting has been held in Central Africa Region.
- The price of tickets and round trip, since travel is the most difficult issue to co-ordinate (see table). The cost is for October 2001 and we will make an adjustment for about 10% for variation.

For the Local Organisation, the Institute of Agricultural Research for Development (IRAD) will be the host institution and the National Co-ordinator of ODINAFRICA in Cameroon will be the Liaison Officer between IOC and the IRAD and funds will be sent to Cameroon through the same channel where ODINAFRICA-II budget is sent, that means through the ODINAFRICA-II project account. The Cameroon Government will confirm this offer after the Nairobi meeting.

Best regards,
Dr. Jean Folack

Estimating cost (USD), ODINAFRICA-II annual meeting Limbe, Cameroon, 19-23 November 2002

• Table 1. Cost to be reimbursed by IOC to the host institution

Item	Description	No. Days	No. Persons	Unit cost	Total
1.	Local organization				
1.1.	Local personnel	5	7	60	2,100
1.2.	Hire of conference room & glass showcase	5	40	300	1,500
1.3.	Workshop secretariat running cost	5	-	-	3,000
1.4.	Hire of some equipment (i.e., video projector. Etc.)	5	-	200	1,000
1.5.	Hire of interpreters	5	4	300	6,000
1.6.	Hire of interpretation equipment	5	40	500	2,000
1.7.	Workshop gadgets	-	50	40	2,000
1.8.	Communication/Internet/fax/	5	40	400	2,000
1.9.	Local transport (to & from airport)	-	25	100	2,500
1.10.	Coffee break	5	50 x 5 x 2	5	2,500
Total		-			24,600
1.11.	Administrative charges 10 %	-			2,460
1.12.	Miscellaneous 5 %	-			1,230
	Total Local Organization	-			28,290

• Table 2. Cost of DSA to be paid by IOC

Item	Description	No. Days	No. Persons	Unit cost	Total
1	DSA external participants	5	23	100	11,500
2	DSA local participants (20% DSA rate)	5	10	20	800
Total					12,300

• **Table 3. Cost of air tickets to be bought by IOC (October 2001 rate)**

Country of the participant	Round Trip	Cost (USD)
1. Morocco (2 separate tickets)	-Rabat-Paris-Rabat -Paris-Douala-Paris	749 985
2. Tunisia (2 separate tickets)	-Tunis-Paris-Tunis -Paris-Douala-Paris	494 985
3. Mauritania	Nouchott-Abidjan-Dla-Abj-Nouchott	763
4. Senegal	Dakar-Douala-Dakar	658
5. Guinea Conakry	Conakry-Abidjan-DLA-ABJ-Conakry	744
6. Côte d'Ivoire	Abidjan-Douala-Abidjan	536
7. Ghana	Accra-Lagos-Dla-Lagos-Accra	680
8. Togo	Lome-Douala-Lome	315
9. Benin	Cotonou-Douala-Cotonou	295
10. Nigeria	Lagos-Douala- Lagos	385
11. Gabon	Libreville-Douala-Libreville	175
12. South Africa	Johannesburg-Dla-Johannesburg	675
13. Comoros (2 separate tickets)	-Moroni-Nairobi-Moroni -Nairobi-Douala-Nairobi	485 555
14. Seychelles (2 separate tickets)	-Mahe-Nairobi-Mahe - Nairobi-Douala-Nairobi	600 555
15. Mozambique	Maputo-JNB-NB-Dla-NB-JNB-Maputo	1,150
16. Tanzania	DAR-NB-DLA-NB-DAR	1,885
17. Madagascar	Antana-JNB-DLA-JNB-Antanarivo	1,885
18. Mauritius	Mauritius-NB-DLA-NB-Mauritius	1,105
19. Kenya	Mombassa-NB-DLA-NB-Mombassa	1,555
20. IOC	Paris-Douala-Paris	985
Total		19,199
Inflation 10 %		1919
Grand Total		21,118

ANNEX IX

GUIDELINES FOR UNESCO CONTRACTS INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO OCEAN DATA AND INFORMATION NETWORK FOR AFRICA (ODINAFRICA)

INTRODUCTION

These notes are prepared to assist partners in the project to better understand the UNESCO procedures utilized to provide support to the participating institutions.

Funds channeled through UNESCO-IOC for the ODINAFRICA project will be disbursed to the participating institutions through two types of contracts: (i) Activity Financing Contracts and (ii) Fee Contracts. Both types of contracts are concluded by UNESCO and an individual or a legal entity (the 'Contractor'). By legal entity is meant a state (represented by an organ or ministry) or else a grouping or a corporate body recognized by national or international legislation (e.g., an university, research institute, non-profit making organization, National Commission for UNESCO, IGO, NGO, etc).

In some cases funds may be provided to the participating institutions through national UNESCO offices through the decentralization of funds. In those cases the partners will interact directly with these UNESCO offices.

In some cases, support may also be provided to individuals for internships. In this case a 'Letter of Agreement' will be issued.

It is important to remember that funds provided are meant to supplement financial and/or material resources (including contributions in kind) available from the institutions ('Contractors') from other sources.

DEFINITION OF CONTRACTS AND WHAT THEY COVER

1. Activity Financing Contracts

Concluded by UNESCO and the 'Contractor' in order to carry out a specific activity (such as organization of a meeting, seminar or workshop, or the establishment of a library or documentation service) the expenditure for which is fully or partly funded by UNESCO, where no work is done on behalf of UNESCO on a remunerated basis and which does not result in the provision of a manuscript, work, product, process or specialized service required by UNESCO for its own use.

The activity financing contracts can be used to obligate funds for organizing workshops or seminars, operational expenses of the data centres including communication and purchase of consumables. However, they cannot be used to pay for temporary assistance personnel, pay overtime or another allowance to the data centre personnel, provide fellowship, study or travel grants.

Example: Support for national co-ordination workshop; support for operational expenses.

2. Fee Contracts

Concluded by UNESCO with a 'Contractor' having a specialized skill, in order to obtain special goods or services, such as the preparation or assignment of an unpublished manuscript or original work, the development of a new or improved product or process, or the provision of other services specially suited to UNESCO in return for a lump sum (which includes the contractors remuneration) and by a specified deadline.

- Example: Contract to develop regional directory of marine scientists.

3. Letter of Agreement

Concluded by UNESCO with an individual for the purpose of enabling the individual to participate in a scientific conference or related event, or to undertake an internship with a professional training objective. The support usually includes an air ticket (or cost thereof) and local accommodation expenses.

Procedures for Fee or Activity-Financing Contracts.

- Each of the participating institutions will submit a Work Plan and detailed estimate of expenses at the beginning of the calendar year. If the UNESCO contribution is more than half the cost of the whole activity, then the whole budget including finances from all sources should be submitted, indicating the elements for which UNESCO funding is sought.
- When agreeing with IOC on the establishment of a contract, make sure that a clear agreement is made on the name and address of the contractor. Payments can be made **only** to the contractor as detailed on the contract.
- The Regional Co-ordinator will draft a contract on the basis of the provided work plan and submit the draft to the Head of Ocean Services at IOC;
- After review and appropriate administrative approvals within IOC, the draft contracts will be forwarded to the Science Sector Administrative Officer (SC/AO) to certify that the draft contract and proposed obligation comply with administrative and financial regulations;
- The contract will be signed by the Executive Secretary IOC (ADG/UNESCO) and SC/AO in triplicate (3 copies) and returned to the Head of Ocean Services, IOC;
- The Head, Ocean Services will subsequently fax the contract to the Contractor and mail the 3 originals with the request to sign and date the contract. It is important to note that the date of signature should fall before the date as stipulated in Article II (a). If this is not the case, then the contract will become null and void. The faxed contract, after signature, should be returned to IOC, attention Head, Ocean Services, as soon as possible, by fax. The 3 originals, upon receipt, should be signed, respecting the stipulation of Article II (a) and returned to IOC, attention Head, Ocean Services, as soon as possible to:

Mr. Peter Pissierssens
Head, Ocean Services Section
UNESCO-IOC
1, rue Miollis
75732 Paris Cedex 15
FRANCE
Fax: 33-1-45 68 40 46
Tel: 33-1-45 68 58 12
E-mail: p.pissierssens@unesco.org

- The Contractor should not make any modifications in the final version of the contract as sent to the Contractor by fax and/or mail. Any modification will make the contract null and void.
- Any communication with IOC on a contract should mention the Contract Number (e.g., SC 226.034.0). Without this number any request for information will be delayed.
- Read carefully the terms and conditions of the contract to confirm that they conform to the work plan and budget submitted and approved by UNESCO. If this is corrected, then sign the space provided on the last page, and return, together with a covering letter (on the institutions letterhead) giving the detailed work plan, budget, and **payment instructions** (e.g., bank details when payment is through bank, or instructions to use local UNESCO or UNDP office

when this is preferred). The person signing the contract and forwarding letter must be authorized to do so by the institution.

FINANCIAL CONSIDERATIONS

4. Activity Financing Contract

- An Activity-Financing contract will usually provide for two payments: one advance payment of up to 90% of the total amount, and one final payment of the remaining 10%;
- The first payment will be made to the Contractor upon submission of a '**detailed and signed estimation of expenses**'. This estimation of expenses should cover the full amount of the contract, and not only the first payment;
- As soon as the '**detailed estimation of expenses**' is received, the first payment will be made by bank transfer, by cheque or through the nearest UNESCO or UNDP office. Note that the quickest method will be through the UNESCO or UNDP office. Bank transfers or cheques may take 3-4 weeks to reach the Contractor. Note that our contracts are specified in US dollars by default. If payment should be made in another currency, then UNESCO/IOC should be informed prior to the establishment of the contract;
- At the time when UNESCO/IOC requests a payment to the UNESCO administration, an e-mail will be sent to the Contractor to inform him/her of the payment request. It is the responsibility of the Contractor to monitor the arrival of the payment. If a payment has not arrived 4 weeks after the reception of the payment request, the Contractor should contact UNESCO/IOC and request tracing the payment. This request should always be accompanied by the contract number, as well as details of the requested payment method (as provided to UNESCO/IOC when the contract was established);
- In order to receive the final payment, the contract requires the submission of a '**signed detailed financial statement showing the utilization of the funds**'. Note that the statement should be an itemized list of all expenditures made within the framework of the contract, showing the date, description of the expenditure and amount. The statement should further include the sum of expenditures in the currency of payment. Note that the amount spent should preferably amount to the total of the amount specified in the contract. It should never be less than the advance payment. If the total amount spent is less than the advance payment, then the balance will have to be returned to UNESCO/IOC in the currency of the payment by UNESCO/IOC. This is a time-consuming and costly undertaking and should therefore be avoided. If you are close to the expiry date of the contract and expect that the funds cannot be spent before the closing date, then request UNESCO/IOC to amend the contract by postponing the closing date (this is not always possible though). The contract may also stipulate that, to receive the final payment, the Contractor should submit '**receipts and/or invoices showing the utilization of the funds provided through this contract**'. Note that these should be ORIGINALS. If originals cannot be available (possibly because they are demanded by the Contractor's institution administration) then, ON AN EXCEPTIONAL BASIS, certified copies can be accepted. However, this should be verified with UNESCO/IOC first.

5. Fee Contract

- A Fee Contract provides for one payment upon submission, and acceptance by UNESCO/IOC, of the product, as described in Article I of the Contract;

DEFAULTING ON A CONTRACT: CONSEQUENCES

- If a contract sent to the Contractor for signature, is not signed by the Contractor by the date as specified in Article II (a), then the contract will be null and void. It will thus be cancelled;

- In the case of an Activity Financing Contract: If, together with the signature, the Contractor has not submitted the detailed estimation of expenses, as stipulated in the contract under Article I and Article III.2, then UNESCO/IOC will send one reminder by fax and/or e-mail. If the requested detailed estimation of expenses is not received by UNESCO/IOC within one week after the reminder, then the contract will be cancelled;
- In the case of an Activity Financing Contract: if the detailed financial statement and/or receipts and invoices are not received by UNESCO/IOC by the stipulated date, then UNESCO/IOC will send one reminder by fax and/or e-mail. If the requested documentation is not received within 4 weeks then, as per Article III.4, UNESCO/IOC will request reimbursement of full or partial payments made (including the advance payment);
- Until the reimbursement has been received by UNESCO/IOC in full, no contract can be made with the same Contractor.

ANNEX X

PROGRAMMES OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO

The Intergovernmental Oceanographic Commission of UNESCO was established in 1960 to promote international co-operation and to co-ordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision making processes of its Member States.

The Commission's work is implemented through three main line actions and UNESCO Cross Cutting themes as follows:

Main line of action 1: Reducing scientific uncertainties about coastal and global ocean processes in the context of marine ecosystems.

Main line of action 2: To further develop, within the Global Ocean and Global Climate Observing Systems (GOOS and GCOS), the monitoring and forecasting capabilities needed for the management and sustainable development of the open and coastal ocean.

Main line of action 3: Development and strengthening of a global mechanism to ensure full and open access to ocean data and information for all

PROJECT ON CROSS-CUTTING THEMES

The Executive Board of UNESCO (at its 160th Session) endorsed the Director-General's proposal to designate two "cross-cutting themes, namely (i) eradication of poverty, especially extreme poverty, and (ii) the contribution of the new information and communication technologies to the development of education, science, culture and the construction of a knowledge society", as priority area for the next biennium, which must be addressed by all Sectors.

As results, interdisciplinary and intersectoral projects connected with the two crosscutting themes mentioned above have been developed and were selected by the college of ADGs. IOC is leading/participating in three inter-sectorial projects.

- **Eradication of Poverty, especially extreme poverty**

Reduction of natural disaster in Asia and the Caribbean (US\$375,000).

- **The contribution of information and communication technologies to the development of education, science and culture and the construction of the knowledge society**

1. UNESCO Knowledge Portal (US\$2,000,000) (UNESCO/IOC Regional Ocean Portals) for Africa and Caribbean and South East Asia.
2. The application of remote-sensing for integrated management of ecosystems and water resources in Africa (US\$400,000).

Note: Each Main Line of Action has a Policy and TEMA/Regions component. Out of the budget allocation for each Policy or TEMA/Region action, one fraction will be used for the Policy or TEMA/Regions requirements of the associated Line of Action; another fraction will be used to meet the needs of the overall IOC Policy and IOC TEMA/Regions Programme.

IOC DECENTRALIZATION MECHANISMS

IOC has a long-standing policy of supporting the regional implementation of the Programme through the establishment of Regional Subsidiary Bodies (*Sub-Commissions*), which are supported by two IOC Sub-commission Secretariats. These are:

- IOCARIBE Sub-Commission and Secretariat, located in Cartagena, Colombia;
- WESTPAC Sub-Commission and Secretariat, located in Bangkok, Thailand.

In addition, IOC has set up regional project/programme offices in the field. In the last years, following the offer and support of Member States (Australia and Kenya), IOC established two offices in Perth and Mombasa (IOCINCWIO Project Office).

During the second semester of 2001, following an offer by Nigeria, a Project Office for the IOCEA region is planned to be established in Lagos, Nigeria.

Another Programme Office is the IOC Science and Communication Centre on Harmful Algae, located in Copenhagen, Denmark.

DETAILED PROGRAMME FOR EACH MAIN LINE OF ACTION

Main line of action 1. Reducing scientific uncertainties about coastal and global ocean processes in the context of marine ecosystems

Background

IOC has been addressing, through its Ocean Science Programme, critical scientific uncertainties in relation to the management and sustainable use of the marine environment and the ocean's role in global change by facilitating, promoting and co-ordinating appropriate research and related capacity-building activities. New perspectives in marine environmental protection require new integrated approaches in research, as well as management. An interdisciplinary science approach involving the understanding of coupled chemical, biological, physical, global and coastal ocean processes in the ecosystem context is now essential. The major challenge is the development of scientific mechanisms for an ecosystem approach to the management of marine and coastal environments, including fisheries. As an integral part of this challenge, there is an urgent need to develop robust, useful indicators of the health of ocean ecosystems.

Strategy

The Ocean Science Programme will be developed further to address global interdisciplinary science issues and to provide specifically, an enlarged knowledge base on the response of ocean ecosystems to human-induced and natural changes in the chemical and physical environment, including those induced by climate change and variability.

The IOC Ocean Science Programme will: (i) participate in and co-sponsor global programmes that address a wide spectrum of scientific issues related to the ecosystem approach to the management of marine and coastal environments; (b) investigate specific scientific issues that require in-depth study by convening study groups, panels and small *ad hoc* groups that are sponsored either jointly with the existing or emerging global programmes or initially by IOC alone; (c) ensure that all of its activities are pertinent to regional concerns and involve participation of scientists from developing nations; (e) further strive that all its activities respond to the scientific needs of the international global and regional conventions and programmes; and (f) globally disseminate the scientific knowledge base thus developed through reports, publications, symposia, Internet-based websites, workshops and training activities. In the framework of the Integrated Coastal Area Management (ICAM) programme and other IOC programmes addressing coastal issues (such as Harmful Algal Blooms (HABs) and Coral Reef Monitoring), intersectoral projects will be developed in the area of water resources in coastal regions,

integrated river basins management, the use of ICAM approaches to coastal biosphere reserves, and the development of coastal urban pilot projects, together with IHP, MAB, CSI and MOST.

MLA 1 Will be divided into 5 actions:

Action 1: Policy (see cross-cutting actions)

Action 2: TEMA and Regions (see cross-cutting actions)

Action 3: Oceans and Climate

Modalities of Action

1. Development of ocean climate research through the support provided to the World Climate Research Programme (WCRP);
2. Participation to CLIVAR in order to better understand climate variability and enhance capability of nations to make climate forecasts over time scales of seasons to decades;
3. Study and modeling of the ocean carbon cycle with a view to better understand global change.

Expected Results/Outcomes

- Payoff of WOCE;
- Improved knowledge of climate variability;
- Enhance capability of Member States to make climate forecasts over time scales of seasons to decades;
- Continuation of SCOR IOC Advisory Panel on Ocean CO₂;
- Improved understanding of ocean CO₂ processes;
- Impact of proposed options for limiting the growth in the concentration of atmospheric CO₂.

Action 4: Oceanic and Coastal Processes in the Ecosystem Context

Modalities of Action/Actions

1. Participation in and co-sponsorship of global programmes that address a wide spectrum of scientific issues related to the ecosystem approach to the management of marine and coastal environments;
2. Scrutiny of specific scientific issues that require in-depth analysis by convening study groups, panels and small *ad hoc* groups that are sponsored either jointly with the existing or emerging global programmes or initially by IOC alone;
3. Implementation of regional and sub-regional activities in capacity building encompassing development of techniques, and monitoring/information systems through workshops, intercalibration exercises, and guidelines;
4. Further ensure that its activities respond to the scientific needs of the international global and regional conventions and programmes; and
5. Disseminate the scientific knowledge base developed globally through reports, publications, symposia, Internet-based web sites, workshops and training activities.

Expected Results/Outcomes

- Development of a comprehensive review and generation of a scientific framework for the use of environmental indices to help hindcast/nowcast and forecast changes in the abundance and distribution of pelagic fish in selected areas;
- Activate a scientific network related to the issue of small pelagic fishes and climate change and a system to facilitate the transfer of information, tools and knowledge to developing regions through training workshops;
- Review of the current state of knowledge in different marine and terrestrial disciplines relevant to the development of indicators for marine ecosystems to characterize ecosystem changes induced by fisheries;

- Lead the development of a series of possible molecular, cellular, physiological, and community indicators of coral bleaching that are reliable in their ability to detect early stress signals and an analysis of a suite of mechanisms by which coral reefs adapt and acclimatize to global environmental change;
- A better understanding of the factors that regulate the dynamics of Harmful Algal Blooms (HABs) in the context of physical and chemical forcing, ecosystem dynamics, and human influences for improvement of strategies for monitoring and prediction of HABs;
- Improved methods for assessing groundwater discharge for the evaluation of the water/salt balance in the coastal zone including data bases models;

Action 5: Marine Science for the Need of Integrated Coastal Area Management

Modalities of Action

1. Investigation of interdisciplinary coastal processes to improve the scientific basis for the management of coastal seas;
2. Development of scientific methodologies and techniques to suit the needs of coastal managers;
3. Development of an Internet information system on marine sciences and observation in support of ICAM;
4. Study of human communities and ecosystem interactions, in coastal areas, and in particular in coastal urban environment, through the development of indicators;
5. Training on science/policy interface in coastal areas, as well as technical training in the use of scientific techniques.

Expected Results/Outcomes

- A set of scientifically-based tools and techniques for the need of Integrated Coastal Area Management (ICAM) and coastal stakeholders;
- Increased management capabilities of Member States through the study of human communities and ecosystem interactions, in coastal areas, and in particular in coastal urban environment;
- Publication of a major global synthesis of how coupled physical-biological-chemical-sedimentary-ecosystem dynamical processes work in the coastal oceans, to improve the scientific basis for the management of coastal seas;
- Pilot project studies on interdisciplinary coastal processes.

Main line of action 2 to further develop, within the Global Ocean and Global Climate Observing Systems (GOOS and GCOS), the monitoring and forecasting capabilities needed for the management and sustainable development of the open and coastal ocean.

Background

The IOC, leading a partnership with WMO, UNEP and ICSU, began implementing GOOS in 1998. GOOS is part of an Integrated Global Observing Strategy (IGOS), with the space agencies of the world as partners. GOOS has an open ocean subsystem to improve weather and climate forecasting, and a coastal one to provide information needed to manage and restore healthy coastal ecosystems and living resources; forecast and mitigate the effects of natural hazards; enable safer and more cost-effective marine operations; and protect public health. The open ocean one is the ocean component of GCOS, which is co-sponsored by IOC, UNEP and FAO and led by WMO. GOOS produces data and information meeting the needs of many users. It has subsystems for observations, data communications and management, modeling and applications. The growing observation network comprises remote-sensing from satellites; coastal instruments including tide gauges; buoys, drifters and other platforms; ships-of-opportunity (including commercial ferries); and long time-series records of variability. The initial GOOS incorporates existing operational elements. It is growing by developing pre-operational pilot projects to demonstrate utility and cost-effectiveness; building capacity for developing countries;

stimulating enabling research; and interacting with users to determine the most useful products. Much of the application of GOOS will take place through the new Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM).

Strategy

The strategy includes the implementation of pilot projects to demonstrate and validate the GOOS concept; the involvement of more developing countries in the implementation of GOOS; improving the ability of regional groups to participate in and benefit from GOOS; expanding implementation by incorporating national activities; and soliciting increased extra-budgetary support.

MLA 2 is divided into three actions:

Action 1: Policy (see cross-cutting actions)

Action 2: TEMA and regions (see cross-cutting actions)

Action 3: Implementation of the Global Ocean Observing System (GOOS)

Action 3 is sub-divided into two Activities:

Activity 1: Design and implementation of monitoring and forecasting for the open ocean and climate

• Modalities of Action

The design for the open ocean and climate aspects of GOOS is being developed by the Ocean Observations Panel for Climate (OOPC). Implementation is taking place through the GOOS Initial Observing System (IOS), which comprises several pre-existing ocean observing subsystems making oceanographic or marine meteorological measurements from coastal stations, moored buoys, drifting floats, ships, and satellites. The observations are fed to operational and research agencies. The IOS will be improved by improving the operation of its different elements, such as the Ship of Opportunity Programme.

One key element of the IOS is the Global Ocean Data Assimilation Experiment, including the Argo profiling float project. Argo is being designed by an international Argo Science Team. Several countries have committed resources to Argo and many floats are already in the water; more floats will be deployed during the biennium. The data will be sent in real-time to operational centres for meteorological forecasts, and to researchers. Argo will be co-ordinated through the JCOMM Operations Centre, an IOC facility in Toulouse.

The IOC will continue to co-sponsor several key groups that contribute to the IOS, including:

- (i) the PIRATA project, whose buoys collect data from the equatorial Atlantic for weather and climate forecasting in Brazil and west Africa;
- (ii) the TAO/TIP Implementation Panel, whose buoys are part of the ENSO observing system that underpins forecasts of El Nino;
- (iii) the GLOSS Group of Experts, whose sea-level gauges collect data to calibrate satellite altimeters, and to underpin climate forecasts;
- (iv) the Ship of Opportunity Programme (SOOP) Implementation Panel, whose commercial ships collect subsurface data along shipping lines;
- (v) the Data Buoy Co-operation Panel, whose members deploy drifting buoys to collect Upper Ocean and meteorological data worldwide.

The OOPC will continue to work closely on design features with the Climate Variability (CLIVAR) programme of the WCRP, and with other groups on factors like acoustic topography; air-sea fluxes; altimeters; fixed-point Time Series; hydrography; carbon, and ocean colour; sea ice; and salinity.

JCOMM will convert design advice from OOPC into practical guidelines for the implementation of met-ocean services by Member States, working through groups on marine climatology, services, maritime safety, wind waves and storm surges, sea-ice, ship and buoy observations, and sea-level observations (via the GLOSS programme). JCOMM will also plan, initiate and implement a capacity building programme, by implementing the JCOMM Capacity Building Strategy.

The OOPC will consider how to improve ocean data management, with assistance from IODE. JCOMM will convert their advice into reality through its data management co-ordination group, which liaises with IODE and which will advise on actions required to implement, maintain and make available to users a fully integrated high quality ocean/atmosphere data stream.

- Expected Results/Outcomes
 - Expansion of the Global Ocean Data Assimilation Experiment (GODAE) and initial implementation of the Argo project as the basis for improved ocean and climate forecasting;
 - Fully tested GODAE models ready to assimilate Argo data between 2003 and 2005;
 - Improved functioning of all elements of the GOOS Initial Observing System, through a fully functioning JCOMM;
 - Expansion of the GOOS Initial Observing System, by the incorporation of national GOOS components;
 - Continued flow of climate and weather related information from the PIRATA and TAO buoys (e.g., for El Nino forecasts), plus improved severe event warnings;
 - Implementation of an initial ocean carbon observing system;
 - Refined set of initial requirements for ocean observation;
 - Improved advice to Member States on ocean data management requirements and practices;
 - Initial development of a network of open-ocean time series stations in support of GOOS;
 - Assisting Member States to meet the obligations for ocean monitoring under the UN Framework Convention on Climate Change;
 - Continued contribution to meeting the requirements for safety of life at sea.

Activity 2: Design and implementation of monitoring and forecasting for coastal seas

- Modalities of Action/Actions

The overall strategy of the Coastal Ocean Observations Panel (COOP) is to develop design plans for the implementation of GOOS in coastal seas. The COOP design will: (i) be user driven, producing products meeting the needs of many user groups; (ii) provide timely and free access to and exchange of data; (iii) provide more cost-effective use of existing data, expertise; and infrastructure; (iv) develop into an end-to-end system where data are traceable from original data to final product.

The COOP will integrate and refine design plans drafted by the (now dissolved) HOTO, LMR and Coastal GOOS Panels. It will formulate an implementation plan that is co-ordinated with the OOPC plan (Main Line of Action 2). It will define procedures for evaluating system components, the reliability of data streams, access to data, and applications. It will select observing system elements. It will meet representatives of the user community, to ensure that COOP plans result in useful products. And it will contribute additional subsystems to the GOOS Initial Observing System (IOS).

The COOP will work with a wide range of other groups having expertise on topics like: coastal research; ecology; sea level; terrestrial connections; harmful algal blooms; coral reefs; satellite remote

sensing; sea grass; fisheries; pollutants and indicators; ocean biological variability; Antarctic marine biology; tsunamis; and storm surges.

- Expected Results/Outcomes
 - Publication of the integrated coastal GOOS design and implementation plans, and a GOOS Handbook, to guide Member States in GOOS implementation;
 - A functioning set of coastal GOOS pilot demonstration projects;
 - Expansion of the GOOS Initial Observing System, e.g., by the incorporation of coastal observing subsystems.

Main line of Action 3: To further develop and strengthen a global mechanism to ensure full and open access to ocean data and information for all

Background

The IOC's International Oceanographic Data and Information Exchange (IODE) was established in 1961 to enhance marine research, exploitation and development by facilitating the *"exchange of oceanographic data and information between participating Member States and by meeting the needs of users for data and information products"*. Over the past 40 years, the IODE system has developed into a worldwide network of over 60 Designated National Agencies, National Oceanographic Data Centres, Responsible National Oceanographic Data Centres and ICSU's World Data Centres. This network has been able to collect, control the quality, and archive millions of ocean observations, and has provided services for its users in the Member States.

Established in 1965, the Tsunami Programme is a unique IOC programme entirely dedicated to the protection and safety of human life and property. Today, 27 countries of the Pacific are members of the Tsunami Warning System co-ordinated by IOC. The purpose of the system is to provide or improve all aspects of tsunami mitigation, including hazard assessment, warnings, preparedness and research through a system of international co-operation and co-ordination of activities.

IOC activities in international ocean mapping began in 1969 after the endorsement by the UN General Assembly of the Long-Term and Expanded Programme of the Ocean. The first activity was the compilation of the Geological and Geophysical Atlas of the Indian Ocean taking advantage of the data collected through the International Indian Ocean Expedition (IIOE). The Ocean Mapping programme is a cartographic basis of all IOC programmes and is consisting at present of 6 regional international bathymetric charts such as IBCM, IBCWP, IBCWIO, IBCEA, IBCCA, and IBCAO, incorporated in the General Bathymetric Chart of the Oceans (GEBCO). The main goal is to provide decision-makers, scientists and students on information concerning the relief of the World Ocean and its geological/geophysical parameters.

Strategy

In recent years new technologies have evolved that will enable the data centres to offer better, more comprehensive and faster services and products to its growing user communities. The application of these technologies to oceanographic data and information management requires the development of new standards and applications. Whereas IOC has provided substantial support, through its TEMA component of IODE, the "digital divide" between developing and developed countries requires a rapid response by the IODE programme to ensure developing countries can actively and fully participate in the evolving knowledge society. IODE will strengthen co-operation with ocean research and monitoring programmes to ensure that data and information needs of these communities are met. This will also involve expanding its sphere of action to support operational oceanography programmes such as GOOS and the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM). Global data and information heritage will also be safeguarded by ensuring a continuous archival and availability of these data and information.

Concerning the Ocean Mapping Programme, the main strategy will consist in organizing regular meetings of relevant Steering Groups such as CGOM, GEBCO and Editorial Boards for the regional Bathymetric projects, training courses on Marine Cartography, especially in developing countries, on the use of new technologies for bathymetric data and information management.

The success of the Tsunami programme is achieved through co-operation between the scientific research community of IUGG and operational experts dealing with seismic and tidal observations. Disaster prevention as regards to tsunami and assisting in the establishment of national tsunami warning systems is a key to success.

MLA 3 is divided into five actions:

- Action 1: Policy (see cross-cutting actions)**
- Action 2: TEMA and Regions (see cross-cutting actions)**
- Action 3: Further Development of the International Oceanographic Data and Information Exchange (IODE) System**

Principal Modalities of Action

- Development of standards and methods for oceanographic data and information management and exchange through IODE Groups of Experts and Steering Groups;
- Participation in JCOMM to provide technology and expertise related to oceanographic data and information exchange to fulfill JCOMM objectives;
- Expand the scope of IODE data types to encompass the widest possible coverage in support of MLA 1 and MLA 2;
- Develop and improve innovative oceanographic data and information exchange services and products through the Internet and related technologies;
- Assessment of new technologies towards their application for oceanographic data and information exchange;
- Development of co-operation with ocean research programmes and projects to ensure quality and long term preservation of data;
- Implementation of regional and sub-regional capacity building activities and support to ensure full participation of all Member States in global oceanographic data and information exchange;

Expected Results/Outcomes

- Worldwide use of standards for oceanographic data, metadata and information processing, exchange and dissemination (e.g., marine XML);
- Expanded IODE data centers network through development of new IODE data centers as well as co-operation with national research structures with data management capabilities;
- Improved national capacity with regard to ocean data and information management;
- Partnerships between IODE and ocean research and observation programmes/projects;
- User-oriented and easily accessible global oceanographic data and information system including the development of global/regional/national Ocean Portals serving the objectives of MLA 1 and 2;
- Continued rescue of historical oceanographic observations (GODAR);
- Repository for the long-term preservation of ocean data and metadata;
- Regional Oceanographic Data and Information Networks (ODIN) in support of national, regional and international priorities in relation to IODE, MLA 1 and MLA 2;

Action 4: Ocean Mapping

Principal Modalities of Action

Ocean Mapping in the 2002-2003 biennium will concentrate on the development of Bathymetric Data and Information Network in the different regions as well as specialized groups training activities or individual travel/grants.

Results/Outcomes

- Information concerning the relief of the World Ocean and its geological/geophysical parameters provided to decision-makers and scientists;
- Development of 6 regional international bathymetric charts such as IBCM, IBCWP, IBCWIO, IBCEA, IBCCA, and IBCAO as a contribution to GEBCO;
- Trained scientists in the field of marine cartography;
- Technical assistance for National Hydrographic Offices;
- Strengthened collaboration with the International Hydrographic Organization.

Action 5: Strengthening of Responsive Warning Systems for Tsunamis and other Natural Disaster Forecasting Systems

Modalities of Action

- Strengthening the tsunami warning system in the Pacific and using the expertise gained in the region to develop new warning systems in other tsunami prone areas;
- Participation in ISDR in order to contribute to the global strategy;
- Assist Member States of the Indian ocean in gaining financial support for the implementation of the Storm Surge Project proposal;

Expected Results/Outcomes

- Further strengthening of the tsunami warning system in the Pacific to become effective for the Pacific, as well as local tsunamis;
- Development of new tsunami warning systems in other regions based on the experience gained in the Pacific;
- Continuation of co-operation with IUGG and ICSU, as well as with ISDR in the area of tsunami mitigation;
- Improve capabilities of Member States in the tsunami preparedness;
- Launch the Storm Surges proposal in co-operation with Member States, funding agencies, governmental and non-governmental organizations.

CROSSCUTTING ACTIONS

Action 1: Policy

This Action is related to the servicing the IOC governing bodies and improvement of co-ordination within the UN System and seeks to improve the decision-making of the Commission, Assembly, and Executive Council in support of all global and regional aspects of marine science, observation and services. It also includes the participation of IOC in the follow-up of major international environmental conventions and public awareness activities, including the preparatory process for the **World Summit on Sustainable Development** (Johannesburg, South Africa, September 2002), building on the outcomes of the Global Conference on Oceans and Coasts at Rio+10, co-organized by IOC (Paris, 3-7 December 2001).

Principal Modalities of Action/Actions

1. In 2002-2003 IOC will organize the following statutory meetings:
 - Thirty-fifth Session of the IOC Executive Council, June 2002.
 - Thirty-sixth Session of the IOC Executive Council, June 2003.
 - Twenty-second Session of the IOC Assembly, July 2003.
2. The Commission may also conduct intersessional meetings as requested by the Assembly or Executive Council.
3. The Commission will also meet with its advisory bodies as requested by the IOC Assembly and Executive Council.
4. The Commission will produce and manage all statutory documents prepared for these meetings using the IOC e-library.
5. Interface will be maintained with the UN-system as a whole (through ICSPRO, the General Assembly's Informal Consultative Process on Oceans (UNICPOLOS) and the ACC and CSD processes) through staff missions and expert missions/arrangements in order to ensure the appropriate global presence of UNESCO and its IOC in the whole of the post UNCED process, including subsequent conventions.
6. The United Nations Convention on the Law of the Sea (UNCLOS) and other global agreements provide to IOC an adequate legal and institutional framework for the promotion and co-ordination of the marine scientific research (MSR). Under the UNCLOS regime, specific requirements are made to the IOC, such as to maintain a list of experts in marine sciences, and to assume general responsibilities for the promotion of the peaceful uses of the oceans, the transfer of technology and for the international promotion of MSR.
7. Preparation, publication and distribution of IOC information materials (books, synthetic reports, news bulletins, brochures, publications catalogues, etc.):
 - Dissemination of news and other information via the Internet;
 - Development of Information based products and services (GLODIR, ASFA, UN Atlas of the Ocean, Ocean Portals and Ocean science clearing house).

Expected results/outcomes

- Approval of biennial programme and budget;
- Resolutions on strategic or policy issues;
- Election of members to the IOC Executive Council;
- Election of the IOC Chairperson and 4 Vice-Chairpersons;
- Raised awareness amongst all Member States of the IOC;
- Collaboration with IOC's partners increased and highlighted (including the co-operation with IOC Advisory Bodies);
- Secure, storage, access and distribution of IOC statutory meeting documents;
- Increased co-ordination of UN agencies addressing ocean issues;
- Preparation of a comprehensive assessment of on-going research activities in Ocean Sciences and related services in conjunction with the partner organizations of the UN system and other appropriate international NGO's in the context of the General Assembly's Informal Consultative Process on Ocean;
- Technical assistance provided to the International Seabed Authority (ISBA), the Commission on the Limits of the Continental Shelf (CLCS) and the International Tribunal for the Law of the Sea (ITLOS);
- Organization of the meeting of the Advisory Body of Experts on the Law of the Sea (ABE-LOS);
- Improved production and distribution mechanisms for documentation and information materials through the IOC Documentation Center and the IOC e-Library;
- Dissemination of news and other information via the Internet, and e-mail services;
- A Global Directory of Marine (and Freshwater) Professionals with over 15,000 records;

- IOC Web Site and Ocean Science clearing house;
- Over 400 IOC publications available on-line;
- Free access to ASFA (over the Internet) for developing countries;
- At least 3 Newsletters produced and distributed on a regular basis (HAN, WINDOW, GOOS News);
- Enhance possibility for exchange between scientists and public at large;
- Wider public-awareness of the importance of the oceans to the welfare of humankind promoted;
- Published Conference Summary of the Oceans and Coasts at Rio+10 Conference, including recommendations to be forwarded to the World Summit on Sustainable Development.

Action 1 will also finance the policy-related activities of each Main Line of Action (mainly Ocean Science, GOOS, IODE). In particular for:

- *Ocean Science (MLA 1):*
 - Overall scientific and policy guidance of the Ocean Science Section will be provided by a panel of scientists with expertise in the principal disciplines and active in major international scientific programmes. This group should assess the Programme at least biennially and advise the IOC Secretariat on the direction, quality and alignment of the activities within the IOC/OSC.
 - Participation of OSC in Global Science Fora and inter-agency co-operation meetings, including joint group of experts such as GESAMP.
- *GOOS (MLA 2)*
 - Co-ordination and oversight of GOOS design and implementation through the operations of I-GOOS, the GOOS Steering Committee, OOPC, COOP, JCOMM, and the GOOS Project Office.
 - Development of closer linkages between GOOS developments and UN Convention requirements, especially UNFCCC and the Conventions and Actions Plans of UNEP's Regional Seas Programme.
- *IODE (MLA 3)*
 - Regular meetings of relevant Groups of Experts and Steering Groups involving data and information managers, as well as scientists to discuss ways to improve data flow.
 - Effective involvement of the IODE data center community in national/regional scientific programmes and interactions with OSC and GOOS.

Action 2: TEMA and Regions

TEMA

The Training, Education and Mutual Assistance in Marine Sciences (TEMA) programme is the capacity building programme central to the overall IOC strategy. TEMA supports the capacity building efforts focused on the IOC programmes. A strong TEMA ensures that the capacity building process links the IOC programmes to existing and planned national and regional programmes, thereby enhancing the success rate of capacity building activities.

As spelled out below in the Regional programmes action, the IOC's regional subsidiary bodies, and other regional groups like the regional GOOS groups and the regional project/programme offices, are mechanisms to stimulate in time the development of IOC programmes in the regions, help to make national efforts more sustainable and effective, and provide mechanisms to support TEMA and stimulate capacity building.

The TEMA strategy is oriented to support the development of permanent capacity building in ocean sciences, ocean services and observations by Member States of IOC, combining education, training and joint-research components. Scientific and technical autonomy is obtained at the state level when human resources are developed at all levels, through short, medium and long-term training programmes, including specialized graduate training. The concentration in short-term training usually mandated by lack of adequate funding, should be nested within a larger capacity-building framework that incorporates the education and scientific research institutions at regional and national levels. Given the large need, compared with the small size of the IOC budget, the aim is to widen the effectiveness of IOC's capacity building through partnerships with other organizations such as POGO, IGBP (via START), CEOS, and WMO (through JCOMM).

Modalities of Action

- Provision of training through fellowships (overseas or in the region), advanced specialized training courses, training on the job.
- Support of universities, research institutes, national and regional organizations, through the provision of advisors, instruments, and scientific literature.
- Communication through regional and global meetings and workshops, electronic information and communication systems, scientific journals, awareness raising.
- Development of Joint Research Projects (including research cruises) with a strong training component.

Results

- On the job training of individuals in both home and externally;
- Fellowships to individuals for scientific, technical, and engineering training/formal education;
- Regional co-operative development projects directed at limited attainable objectives; this may be more cost effective than via individual national projects;
- Assistance in securing resources needed for developing/enhancing infrastructure needed for specific activities;
- Short-term residential courses/workshops dealing with specialized subjects, which may result in the award of appropriate accreditation (e.g., limited diploma) or international recognition from an international institution or a research or academic institution;
- Courses taught by distance learning;
- Including strong capacity building components in global and regional research programmes;
- Creating awareness of the importance of IOC's programme activities and of the need for capacity building;
- A GOOS capacity building strategy adapted and implemented at the regional level for local use;
- Provision of Internet access to oceanographic data and information centres in developing countries;
- Development of a comprehensive CD-ROM and Internet based 'IODE Resource Kit' as a training tool and self-training support system for Oceanographic data and information management capacity building.

Regional Programmes

IOC has a long-standing policy of supporting the regional implementation of the Programme through the establishment of Regional Subsidiary Bodies (*Sub-Commissions and Regional Committees*). Two Sub-Commissions and five Regional Committees are currently active. Other mechanisms for regional implementation are also done through Memoranda of Understanding (MoU) with different organizations.

In addition, IOC has set up regional project/programme offices in the field. In the last years, following the offer and support of Member States (Australia and Kenya), IOC established two offices in Perth and Mombasa. The Perth Office serves a specific Programme, GOOS, in the Indian Ocean and South Pacific Region. The Mombasa office serves the ODINAFRICA Project and the IOCINCWIO Region. An additional Project Office is expected to be established in Lagos, Nigeria to serve the IOCEA region, following the offer of Nigeria to host the Office.

The IOC regional bodies are of special significance in terms of their particular concern with the needs of the developing countries. A substantial part of the IOC capacity building activities is implemented in the regions. Regional Subsidiary bodies will also support the development of GOOS through regional activities where several Member States share a common sea area. A GOOS regional policy was developed for approval by I-GOOS. The development of national GOOS activities will also be encouraged, in the expectation that strong national activities will contribute to strong regional activities.

Modalities of Action/Actions

- Principal actions involve at the development of plans to achieve the objectives spelled out above regular meetings of the regional committees of each regional body. Plans will be based on assessments of present capabilities, needs and opportunities.
- Pilot projects proposals will be developed as appropriate.
- Efforts will be made to link regional IOC programmes goals closely with the requirements of the UNEP regional seas programme, the GPA and other UN conventions (including Biodiversity, and Ramsar for wetlands), and to spin up interactions with regional fisheries agencies (ICES and PICES), and FAO regional fisheries bodies.

Results

- Better co-ordination at the regional level with other organizations, through joint programming;
- Consolidated presence in the regions;
- Development of regional pilot demonstrator projects;
- Development and application of capacity building programmes;
- Expansion of the GOOS Initial Observing System, by the incorporation of specialized regional observing subsystems;
- Close linkage between IOC's regional programme and UNEP's regional seas programme;
- Development of 'Ocean Data and Information Networks' (ODIN) in the different regions, following the successful model already being implemented in Africa within the framework of the ODINAFRICA project (2000-2004);
- Regional meetings will be held to gather support for regional GOOS development, based on the success of the EuroGOOS Conferences, the GOOS meetings within the WESTPAC Scientific Symposia, the IOCARIBE-GOOS meetings in association with Oceanology International Americas meetings, the Indian Ocean meetings sponsored by the IOC's Perth Regional Programme Office in Perth, and the like.

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