

The Government of Flanders
The Intergovernmental Oceanographic Commission of UNESCO



**OCEANOGRAPHIC DATA AND
INFORMATION NETWORK FOR
AFRICA (ODINAFRICA)**

**ANNUAL REPORT
2002**

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ANNEX I: SUMMARY OF NATIONAL REPORTS

ANNEX II (i) EXPENDITURES NATIONAL ACTIVITIES 2002

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1. PROJECT INFORMATION

Period Covered By Report: 1 January 2002- 31 December 2002.

Project Name: Ocean Data And Information Network For Africa (ODINAFRICA) Second Phase

Project Code: 513RAF2041

Project Objectives:

The second phase of the project for development of an Ocean Data and Information Network for Africa (ODINAFRICA-II) project aims at enabling member states from Africa to get access to data available in other data centres, develop skills for manipulation of data and preparation of data and information products, and develop infrastructure for archival, analysis and dissemination of the data and information products. This will ultimately lead to a reduction in situations where decisions are based on scanty information and under pressure of uncertainties, assist in disaster preparedness, and provide information for applied research (fisheries, aquaculture, mineral resources, exploitation levels and potentials etc)

The development of a network of functioning data and information centres which is envisaged by ODINAFRICA-II will address concerns expressed in various regional and international programme as outlined below:

- Provision of Internet access to marine scientists in Africa;
- Providing assistance in the development and operation of National Oceanographic Data Centres and establish their networking in Africa;
- Providing training opportunities in marine data and information management applying standard formats and methodologies as defined by the IODE;
- Assist in the development and maintenance of national, regional and Pan-African marine metadata and data holding databases;
- Assist in the development of marine data and information products responding to the needs of a wide variety of user groups;
- Reinforce the RECOSCIX-CEA and RECOSCIX-WIO networks as mechanisms for the dissemination of marine data and information to various user groups in Africa;
- Assist in the development of linkages with other international projects with similar objectives (eg GOOS-Africa; Gulf of Guinea LME, etc)

Participating Countries:

Benin, Cameroon, Comores, Cote D'Ivoire, Gabon, Ghana, Guinea, Kenya, Madagascar, Mauritania, Mauritius, Morocco, Mozambique, Nigeria, Senegal, Seychelles, South Africa, United Republic of Tanzania, Togo, and Tunisia (see Annex xxx for list of institutions and coordinators)

Project Funding:

- Government of Flanders, Belgium
- Intergovernmental Oceanographic Commission of UNESCO
- Participating institutions
- Experts for capacity building provided by marine science institutions in Belgium, India, United Kingdom, and the United States of America.

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ODINAFRICA Trainers.

The project has identified a group of experts to provide training and follow-up support for marine data and information management.

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1. ACTIVITIES PLANNED FOR 2002

During the year 2002, a total of about USD674724 was used out of an envisaged USD971570 which was initially budgeted for 2000 and 2001.

The common products which were expected from each institution included: directory of marine and freshwater professionals, meta database of marine data sets and sources, data archives, In addition each of the centers was expected to organize national workshops to identify data and information products requirements.

On the basis of this the ODINAFRICA Review and Planning workshop held in Nairobi, Kenya in November 2001 the national coordinators drafted national work plans and budgets which were reviewed by the regional coordinators to ensure that they fall within the acceptable parameters. The participants also discussed the budgets in detail and also agreed upon the joint activities budget. These are provided below:

1.1 National Work Plans and Budgets

| Activity | Benin | Cameroun | Comores | Côte d'Ivoire | Gabon | Ghana | Guinee |
|-------------------------------------|--------------|--------------|--------------|------------------|--------------|--------------|--------------|
| National Coordination Meeting | 2000 | 2000 | 0 | 1800 | 2000 | 2000 | 0 |
| Operational expenses | 6000 | 5000 | 6980 | 6000 | 4000 | 10020 | 5000 |
| Development of metadatabase | 3000 | 3400 | 2700 | 4000 | 2000 | 3000 | 2900 |
| Development of data archives | 3000 | 3700 | 2000 | 4000 | 5400 | | 3600 |
| National workshop on products | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Development of products | 2000 | 2500 | 3500 | 1800 | 3600 | | 2400 |
| Public awareness | 2000 | 2500 | 1800 | 2400 | 3600 | 1800 | 2400 |
| Internship | | | | 2510 | | | |
| Provision of hardware & Software | | | | | | 3000 | |
| TOTAL | 21000 | 22100 | 19980 | 25510 | 23600 | 22820 | 19300 |
| Remaining from 2001/2002 | 24193 | 24537 | 19246 | 39100 | 39100 | 26695 | 22214 |
| Balance | 3193 | 2437 | -734 | 13590 | 15500 | 3875 | 2914 |

| Activity | Kenya | Madagascar | Mauritania | Mauritius | Morocco | Mozambique | Nigeria |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| National Coordination Meeting | 0 | 0 | 0 | 0 | 0 | 0 | 1800 |
| Operational expenses | 4000 | 4700 | 6200 | 6500 | 4000 | 9000 | 6000 |
| Development of metadatabase | 0 | 0 | 2300 | 0 | 2000 | 0 | 2600 |
| Development of data archives | 1700 | 2000 | 2700 | 2000 | 5400 | 2700 | 2700 |
| National workshop on products | 4000 | 0 | 3000 | 2500 | 3000 | 3000 | 2300 |
| Development of products | 1800 | 7200 | 1800 | 0 | 3600 | 1800 | 2500 |
| Public awareness | 1800 | | 3000 | 4350 | 3600 | 1800 | 1800 |
| Internship | | | | | | | |
| Provision of hardware & Software | | 3000 | | | | | |
| TOTAL | 13300 | 16900 | 19000 | 15350 | 21600 | 18300 | 19700 |
| Remaining from 2001/2002 | 11655 | 12105 | 23623 | 15350 | 19900 | 18600 | 22695 |
| Balance | -1645 | -4795 | 4623 | 0 | -1700 | 300 | 2995 |

| Activity | Senegal | Seychelles | South Africa | Tanzania | Togo | Tunisia |
|-------------------------------------|--------------|--------------|-----------------|--------------|--------------|--------------|
| National Coordination Meeting | 1300 | 0 | 0 | 0 | 1000 | 1300 |
| Operational expenses | 6500 | 4000 | 2700 | 4400 | 9000 | 2500 |
| Development of metadatabase | 2600 | 0 | 0 | 0 | 2500 | 0 |
| Development of data archives | 2700 | 5100 | 1700 | 2700 | 2700 | 0 |
| National workshop on products | 4099 | 0 | 3000 | 6500 | 3500 | 4500 |
| Development of products | 3300 | 1800 | 3600 | 1800 | 4000 | 6500 |
| Public awareness | 1800 | 6200 | 0 | 1800 | 1500 | 1800 |
| Internship | 6000 | | | | | |
| Provision of hardware & Software | | 3500 | | | | |
| TOTAL | 28299 | 20600 | 11000 | 17200 | 24200 | 16600 |
| Remaining from 2001/2002 | 28299 | 17290 | 21950 | 11650 | 24299 | 26560 |
| Balance | 0 | -3310 | 10950 | -5550 | 99 | 9960 |

2.2 ODINAFRICA Joint Activities Budget 2002

| ACTIVITY | BUDGET |
|---|--------|
| Annual Project Management workshop | 65000 |
| Annual project Staffing costs –WIO (Consultant P-3 50% time) | 20994 |
| Annual project Staffing costs –CEA (Consultant P-3 50% time) | 20994 |
| Development of ODINAFRICA/IODE resource kit | 20000 |
| Regional Data Management Workshop | 65000 |
| Regional Data Management workshop follow-up (consultant) | 20000 |
| Regional Information Management Workshop | 60000 |
| Regional Information Management workshop follow-up (consultant) | 20000 |
| GODAR participation | 15000 |
| Support RECOSCIX-WIO network | 16000 |
| Support RECOSCIX-CEA network | 16000 |
| Participation in African Process- Abuja and Johannesburg | 10000 |
| Project Coordination- travel | 20000 |
| Public Awareness (posters, brochures etc) | 10000 |
| Support RECOSCIX networks- Document Delivery | 14000 |
| Catch up data and information management training (Benin, Cameroun, Cote d'Ivoire, Gabon) | 10000 |
| AFRIDIR development-WIO | 1000 |
| AFRIDIR development-CEA | 2000 |
| AFRIPUB/AFRILIB (QC and Merging) | 3000 |
| ODINAFRICA website/WINDOW | 7000 |
| | |

2. IMPLEMENTATION STATUS OF 2002 WORK PLAN

2.1 Implementation of National Activities

. National Oceanographic Data and Information Centres have now been formally established in most of the countries participating in the project. These are networked through the ODINAFRICA project and an electronic mailing list was provided to encourage communication between the partner institutions. Support from the project enabled the centres to cater for a wide range of activities such as operational expenses (including internet connection), development of meta databases and data archives, development of data and information products, and public awareness creation on the projects products and services. The level of development, and the activities implemented by the national data and information centres vary widely depending on the focus of the centre, staffing levels, and resource availability. (*Summaries of National implementation status are given in Annex I*).

2.2. IMPLEMENTATION OF JOINT ACTIVITIES.

2.2.1 Document Delivery (including improved access to Electronic journals)

The ODINAFRICA Information Services Centre in Mombasa provides a document delivery service to experts from the ODINAFRICA institutions. The documents are sourced through a network of more than 13 marine science libraries worldwide. 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). The ARIEL electronic document delivery software is now used at the regional to reduce delays in delivery. The project office is coordinating the participation of information centres in Kenya, Senegal, Seychelles, and Tanzania in trials of electronic document delivery using PROSPERO. This software is free and will be an alternative to ARIEL which the project has been unable to supply to all the institutions because of budgetary limitations.

During 2002 the centre has embarked on exploring possibilities to access electronic journals. Following discussions with the International Network for the Availability of Scientific Publications (INASP), the centre is now participating in the Programme for the Enhancement of Research Information (PERI). This is a programme of support to information production, access and dissemination for research partners in developing and transitional countries utilizing new information and communication technologies (ICTs). Through this we have been able to access several journals free of charge. The project office, in collaboration with the marine information management resource persons is also investigating the possibility of having access to other journals not covered by PERI.

2.2.2 Aquatic Sciences and Fisheries Abstracts (ASFA) database

The ASFA publisher (Cambridge Scientific Abstracts- CSA) in collaboration with the UN-partners FAO and IOC-UNESCO have over the last couple of years distributed ASFA CDs to Low Income Food Deficient Countries in Africa. Through the project, 26 institutions received the ASFA CDs, while an additional 6 have been provided free access to the ASFA Internet Database Services (IDS). The project has worked closely with the ASFA secretariat based at FAO to identify the institutions to benefit from this offer. The project was renewed for another two years during the last ASFA board meeting held in at the FAO headquarters in Rome, Italy in July 2002.

Three ODINAFRICA national marine information centres have been designated as ASFA input centres. These are: Kenya Marine and Fisheries Research Institute –KMFRI (Kenya), Centre de

Recherches Oceanologiques – CRO (Côte d'Ivoire), and the Sciences et Technologies de la Mer-INSTM (Tunisia). The last ASFA board meeting welcomed an offer by the Flanders Marine Science Institute (VLIZ) to transfer a collection of African marine science literature to KMFRI for inclusion in the ASFA database. The IOCINCWIO/ODINAFRICA Project office will liaise with VLIZ and KMFRI to develop a Trust Fund proposal to cover the cost of this work for submission to the next ASFA board meeting for consideration. KMFRI is also responsible for inclusion of IOC publications in ASFA.

2.2.3 Catalogue of Aquatic and Fisheries Science publications from/about Africa (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. The AFRIPUB database has more than 6200 records, with about 700 records entered since the beginning of 2002. These publications include books, journal articles, technical reports, theses, etc. The database is maintained at the ODINAFRICA Information Services Centre in Mombasa.

2.2.4 Union catalogue of holdings of libraries of the ODINAFRICA marine information centres

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. Training, equipment and library management software (INMAGIC) has been provided to librarians/documentalists from each of the marine information centres to enable them prepare their library databases. The librarians from Seychelles (Ms Josette Confait) and Senegal (Ms Arame Keita) have been contracted to check the quality of the databases for the English and French speaking institutions respectively before they are merged into a union catalogue. They are working under the supervision of the project office.

2.2.5 Directory of Marine and Freshwater Professionals in Africa (AFRIDIR)

AFRIDIR, which is part of the global directory of marine and freshwater professionals maintained by IOC-UNESCO has more than 1000 records. The database is currently undergoing a major clean and editing at the ODINAFRICA Information Services Centre in Mombasa.

2.2.6 Directory of Marine And Freshwater Research Institutions & 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 organisations, 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. This database is accessible on the ODINAFRICA web site and has records of 284 institutions from all parts of Africa

2.2.7 ODINAFRICA website

The ODINAFRICA website (www.odinafrica.net) provides a forum for exchange of information on the project's activities and is maintained by the project office in Mombasa

2.2.8 WINDOW Newsletter

The newsletter is prepared at the ODINAFRICA Information Services Centre in Mombasa and camera-ready copy sent to IOC-UNESCO headquarters for printing and circulation. It is mailed to over 1600 addresses worldwide. In 2002 two issues were produced in June and October, while another is in preparation.

2.2.9 ODINAFRICA Marine Information Management Training Course (29 April- 10 May 2002 Tunis, Tunisia)

The ODINAFRICA information management course was a follow-up to the first training course held in Cape Town in 2001 and covered a wide range of topics including: Utilizing INMAGIC (cataloguing, web-upload, serials management), setting up user services, information seeking in electronic environment, and exploitation of information resources in marine sciences. The participants submitted reports on assignments given in 2001, which included Business Plans and Acquisition Strategies for their libraries. They also prepared work plans for the ODINAFRICA Marine Information Centres for the next inter-sessional period. They will be expected to prepare catalogues of their library holdings using INMAGIC as well as updating entries in the Global Directory of Marine and Freshwater professionals.

2.2.10 ODINAFRICA Data Management Training course (29 April- 10 May 2002 Tunis, Tunisia)

The ODINAFRICA data management course was a follow-up to the first training course held in Casablanca in 2001 and previous courses held within the framework of ODINEA in Eastern Africa. The topics covered included: setting up and use of Internet links (internet explorer, outlook express); fundamentals of data analysis (document and spread sheets formatting, creation of hydrographic datasets, gridding), development of meta database and data archives; use of GIS (creation of GIS files, image and data synthesis); preparation of project proposals. The participants gave reports on activities implemented since the last training course and during the course prepare a work plan for your ODINAFRICA National Oceanographic Data and Information Centre for the next inter-sessional period.

2.3 SMALL QUICK DISBURSEMENT PROJECTS

The UNESCO-Flanders Trust Funds through which the ODINAFRICA and the Hydrology programme of UNESCO draw their budgets accrued about US\$150000 in interest on the capital amount transferred to UNESCO in 2001. These funds were availed for use in funding small activities within the two programmes. The following institutions participating in ODINAFRICA were successful in getting funding for their proposals:

- Tanzania - Oceanographic and coastal database for sustainable management of coastal and marine resources in Tanzania: US\$ 25,842
- Cameroon- National workshop on data and information management Limbe, Cameroon: US\$ 6,600
- Guinee - Elaboration de guides d'information pour une meilleure connaissance de la zone côtière guinéenne : US\$ 11,153
- Togo- "Small window on oceanography for students" (Togo): US\$ 8000

3 LINKAGES WITH OTHER PROGRAMMES/PROJECT

3.1 African Ocean Portal

ODINAFRICA is actively participating in the development of the African Ocean Portal is part of the UNESCO/IOC OceanPortal. The portal will provide access to information and data on all aspects of ocean/coastal research and management for the benefit of various communities such as decision makers, the private sector, the research and education community and the general public. The OceanPortal's main objective is to provide a communication forum for all layers of society with an

intellectual, economic or political interest in the oceans and coastal areas. The OceanPortal takes into consideration the need to provide a targeted, personalized communication and information provision service using both pull (enabling users to locate information for themselves) and push (suggesting information to users based on their preferences) technology.

The first meeting for the Editorial Board for the African Ocean Portal was held at the IOC HQs in Paris, France from 13-17 May 2002. The session brought together experts from several Member States and organisations in Africa. Dr Desiderius Masalu of the Institute of Marine Sciences, Zanzibar, Tanzania was elected Chief Editor, with Ms Regina Folorunsho of the Nigerian Institute for Oceanography and Marine Research as the Assistant Chief Editor. Other content editors are: Dr Julius Francis and Dr Desiderius Masalu (WIOMSA), Mr Jorge Banze (SEACAM), and Dr Yacouba Sankare (ODINAFRICA Information Services Centre –Abidjan). Considerable progress has since been made in developing the portal.

The IOCINCWIO Project Office in Mombasa will host the second session of the Editorial committee, during which the site will be finalised before official launch.

3.2 GLOSS website for Africa

ODINAFRICA provides technical support for the development and maintenance of the Global Sea Level Observing System (GLOSS) website for Africa (www.ioc.unesco/glossafrica). The information on the site is provided by the GLOSS Regional Coordinators in Africa, and includes: information on the status of sea level stations in Africa, capacity available for sea level related activities, ongoing and planned activities, national and regional GLOSS contacts etc

3.3 Western Indian Ocean Marine Applications Project (WIOMAP)

The second meeting of the Western Indian Ocean Marine Applications Project (WIOMAP) was organized jointly with the World Meteorological Organisation (WMO) and reviewed the latest version of the project document. The participants noted that care should be taken to avoid duplication by enhancing collaboration with other initiatives in related themes include ocean data management, climate monitoring and prediction, communication and coastal management (such as PUMA, ODINAFRICA, GOOS Africa, and IOGOOS). Explicit recognition of existing technology and communications development in the region which can contribute to the project should be included. Initial emphasis should be on requirements and services in coastal areas, since these are of primary concern to the countries of the region. While the initial focus of the project is on marine meteorology and physical oceanography, there are potential longer term requirements and benefits related to non-physical oceanography. This should be clearly recognized in the document. The range of new satellite data and products for the marine environment, based on new technological capabilities, which are becoming available in the region should form part of the project strategy. In view of the large number of suggestions made, it was agreed that small drafting groups be formed to revise specific parts of the document, including in particular: the introductory sections dealing with project justification; capacity building sub-project; project costing and staffing; and observing systems enhancement. The revised draft should be circulated for review and finalized by March 2003.

3.4 Indian Ocean Global Ocean Observing System

The first conference of the Indian Ocean Global Ocean Observing System (IOGOOS) was held in Mauritius in November 2002 to develop a regional programme to enhance oceanographic activities in the Indian Ocean. The conference was split into the following workshops: I) Ocean and Climate, ii) Coastal Observations, iii) Data Management, iv) Satellite Applications, and v) International Science and Technology collaboration round table. A Memorandum of Understanding (MOU) for the creation of an Association of marine operational and research agencies/institutions/authorities in the Indian Ocean region (IOGOOS) was signed by representatives of 19 organisations. Members of IOGOOS will

collaborate and work together to develop programmes for the implementation of GOOS in the Indian Ocean. The project office will be involved in the implementation of the IOGOOS activities.

The meeting appreciated the success of the ODINAFRICA project in assisting African countries to establish national oceanographic data (and information) centers that now provide a full range of user focused data and information services and products. The participants felt that the ODIN strategy should benefit the entire region and therefore recommended the development of an ODIN project for IOCINDIO, complementing ODINAFRICA. The meeting noted that resources allocated to data and information management were often minimal and strongly urged the Member States participating in IOGOOS to increase the levels of support to ensure sustained and quality data and information management at the national and regional level

3.5 Understanding and Management of Small Scale Fisheries in the West Indian Ocean (WIO)

The project on “Advancing the Understanding and Management of Small Scale Fisheries in the Western Indian Ocean” was initiated by IUCN and NORAD as part of implementation of the Jakarta mandate in the Western Indian Ocean. The project was launched at a workshop held in Mombasa, Kenya from 10-11 December 2002 and attended by 35 experts from 9 countries of the WIO region. ODINAFRICA was represented by the national coordinator for Kenya Mr Harrison Ong’anda. The theme areas of the Jakarta Mandate covered by this program were: (i) Marine protected areas, (ii) Sustainable management of marine resources, (iii) Integrated coastal management, (iv) Mariculture, and (v) Alien species.

Objectives of the Workshop were:

- To review the work undertaken to date by the IUCN/NORAD programme in compiling information on small-scale fisheries for the WIO
- To prepare recommendations for the next phase of the programme, including revising long-term objectives as necessary, identifying types of products and their application, clarifying geographical scope and discussing sustainability issues
- To establish effective co-ordinating mechanisms to ensure appropriate complementarity with all related initiatives

The participants recognized ODINAFRICA as a key partner in the data management component of the project.

4. EXTERNAL EVALUATION OF THE ODINAFRICA PROJECT

The Government of Flanders commission two experts Dr G. L. Holland and Dr H.S. Wheeler to perform an evaluation of the Flanders UNESCO Science Trust Fund (FUST) through which the ODINAFRICA project is funded. The primary purpose of the evaluation is to provide advice to the Government of Flanders and UNESCO concerning the extension of the FUST agreement. Visits to Brussels and to the UNESCO Headquarters were carried out jointly by the two consultants. The effectiveness and efficiency of the FUST projects within the International Hydrological Programme and the ODINAFRICA project within the Intergovernmental Oceanographic Commission, respectively, were evaluated using the annual reports and other documentation supplied. Separate field trips for the two consultants, to Cairo and to Zanzibar, respectively, completed the evaluation process.

Although the FUST Agreement on ODINAFRICA dates only from 1998, the foundation had been laid many years earlier, in an East Africa project developed jointly by IOC, Vrije Universiteit Brussel (VUB) and the Limburgs Universitair Centrum (LUC).

4.1 Major findings

UNESCO and the Government of Flanders each have their own financial and administrative rules and regulations to respect and these are not necessarily easy to harmonise and co-ordinate. Some evidence of difficulties faced is apparent in the minutes of the Steering Committee and the members are to be commended on the resolution of potential issues.

In ODINAFRICA, regional networking, considered of immense importance to the development of an African renaissance in the future, is being promoted through the increased connectivity of data centres, through improved communication amongst regional scientists and through the distribution of scientific publications and journals. Similarly, networking within a country is essential for the development of a sustainable infrastructure. The activities funded by FUST in Tanzania were found to be well integrated into the national priorities and objectives. The funding and equipment provided by FUST have been catalytic in the transfer of capacity and in the development of national responsibilities in the context of coastal area management and the indigenous support has been real and sustainable. Progress in the modernisation of marine data management is having a beneficial impact on other national resource responsibilities in Tanzania.

One of the objectives of the FUST is the multiplication effect of its program. For the IOC, apart from the funds levered from the regular budget, ODINAFRICA, although widely acclaimed at governing body meetings, does not seem to have attracted other major partners from Member States.

4.2 Lessons learned

The FUST Steering Committee has recognised the need for the Trust Fund to be able to accept complementary small-scale activities using the accrued interest on unexpended moneys. This suggestion has considerable merit.

Although many of the regional objectives in ODINAFRICA are common, there are significant differences in national priorities and how each participating national centre can best manage the allocated funds.

Communication is a particular source of difficulty for ODINAFRICA. Problems occur with data and information transfer and with the vulnerability to disruptions caused by electronic virus infections. These problems also impact on communications from the region to the outside partners. Language issues are apparent, but appear to be being slowly overcome.

The ODINAFRICA programme suffered a substantial delay on two separate occasions due to the late arrival of funds. There were too many differences between the planned budgets and those finally implemented, although overall objectives remained constant.

The participating countries in Sub-Saharan Africa are not at the same level of capability or capacity and training courses need to take these differences into account. As more countries join, the problem will be accentuated and future plans may need to be amended to allow for multi-tier training approaches. More use could be made of indigenous expertise for initial training purposes.

The Tanzanian visit demonstrated a lack of visibility for the Government of Flanders at the local level, which should be addressed as ample opportunities exist for co-operation. There seemed little knowledge of how to make contact with potential Flemish scientists. The partners see the support of Flemish counterpart expertise as essential in providing access to state-of-the-art methods, awareness of current research developments, and in supporting training.

4.3 Synopsis of Recommendations

- Complementary proposals, below an agreed maximum amount, should be supported from the accrued interest on the Trust Fund.
- Part of the management fee for the Trust Fund, combined with the considerable expertise present in the UNESCO Bureau for Extrabudgetary Funding, should be used to find additional funding partners.
- The efforts to increase the participation of African States must be continued.
- The cost and advantages of satellite communication should be investigated.
- An effort should be made to increase the number of contributing institutes in developed countries.
- Regional managers and the ODINAFRICA Co-ordinators should be funded to organise regional activities and workshops and to prepare materials for basic instruction.

The evaluators found that the first phase of the FUST Agreement has been successful, despite some delays in the completion of projects due to start-up difficulties in the transfer of funds. Individual projects under the Agreement have been well managed and the desired results have been achieved. Important contributions have been made to the general programme objectives, as well as to the specific project deliverables.

The evaluators agree that the success of the respective programmes warrants the continuation of the Agreement.

5. REVIEW OF ODINAFRICA IMPLEMENTATION STATUS

The third ODINAFRICA II planning and review workshop, was held at the International Conference Centre, Botanical Gardens, Limbe, Cameroon from 18-21 November 2002. The meeting was attended by ODINAFRICA National Coordinators from Benin, Cameroon, Comores, Cote D'Ivoire, Gabon, Guinea, Kenya, Madagascar, Mauritius, Morocco, Mozambique, Nigeria, Senegal, Seychelles, South Africa, United Republic of Tanzania, Togo, Tunisia as well as representatives of the Ministry of Scientific and Technical Research and the Institute for Agricultural Research for Development in Cameroon. Invited experts from Belgium who have been providing capacity building support for both data and information management for the project also attended the meeting. The participants reviewed the implementation status of the project and adopted work plan and budget for the year 2003. The workshop was officially opened by the Mr Vounsia Andai, the Technical adviser on Social and Economic Affairs in the Governor's Office on behalf of the Governor of the South West Province His Excellency Nzegge Onyong Charles and attended by the Director General of IRAD Dr Ayuk Takem Jacob. Participants were also addressed later in the day by the Minister for Environment and Forestry Chief Tanyi Mbianyor Clarkson Oben.

Welcoming the participants, Dr Jean Folack, the ODINAFRICA National Coordinator for Cameroon, expressed Cameroon's pleasure in hosting the workshop. He reiterated Cameroon's commitment to the successful implementation of the second phase of the ODINAFRICA project. The Secretary General of the Limbe Urban Council Mr Moleliluma welcomed the participants on behalf of the people of Limbe Municipality. He wished them successful deliberation and invited them to take advantage of their presence to visit the marvelous tourist sites around in and around Limbe.

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 Cameroon for its kind hosting of the ODINAFRICA Review and Planning Workshop. Recalling that at the first meeting in Dakar, Senegal the participants had recognized that they were about to embark on a difficult and complex undertaking, Mr Pissierssens thanked them for the commitment they exhibited in implementation of the project. He urged the participating governments to ensure that the national

experts are given the best environments and conditions to make the countries benefit from their expertise. Noting that one of the core priorities of UNESCO today is “bridging the digital divide”, he pointed out that ODINAFRICA is addressing this through provision of access to new technology in general and the internet in particular. He emphasized the need to start thinking beyond the current phase of ODINAFRICA and stressed that the sustainability of the centers will only be possible through the forging of close alliances with other programmes at the national level and regional levels.

In his opening address the Governor of the South West province His Excellency Nzegge Onyong Charles informed the participants that Cameroon has a coastal zone rich in biodiversity with many varying features. The Cameroon government therefore pays particular attention to the protection and conservation of the coastal and marine environment. He stressed the importance of multilateral cooperation as a means of addressing the problems of natural disasters, degradation of the environment and poverty in Africa. In this regards he lauded the initiative by African countries under the auspices of the Intergovernmental Oceanographic Commission of UNESCO to establish a project on management of marine data and information. This is a major step towards sustainable management of marine and coastal ecosystems as it will put useful data products and services at the disposal of users such as maritime transport companies, fishing industry, and planners. He thanked the government of Flanders, IOC-UNESCO, and the other partners who have ensured the success of the project and wished the participants very successful deliberations (Full text of the speech available in Annex II).

5.1 Work Plan for 2002

There were delays in processing of contracts for 2002. This was partly due to implementation of the new UNESCO Financial Management Systems (FABS). Nevertheless the level of implementation remained high (95% for joint activities and (70%) for national activities) due to the assistance provided by several UNESCO Field Offices such as Nairobi, Windhoek, Dakar, Yaounde, Dar es Salaam, Rabat, and Conakry who were able to process contracts during the first semester of 2002 when FABS was not operational. In the case of Comoros, Madagascar and Mozambique there was a delay in implementation due to late submission of accounts for 2001, while Gabon and Morocco did not submit their work plans and budgets for 2002 on time.

The participants expressed appreciation to the UNESCO Field Offices that had assisted in the processing of contracts. The participants agreed that all efforts should be made to ensure that accounts are submitted on time so as to reduce delays in 2003. Some ODINAFRICA National Coordinators requested more time to implement activities covered by the current contracts due to delay in receipt of funds. They were advised to check with the UNESCO Field Office that processed the contract to confirm if this is possible and what steps need to be taken. However, even if accepted, such extension should not go beyond end of February 2003, as this will interfere with the processing of contracts for 2003 and finalization of project accounts for 2002.

The participants reviewed the implementation status in order to assess how far the objectives of the project have been accomplished. National Oceanographic Data and Information Centres have now been formally established in most of the countries participating in the project. These are networked through the ODINAFRICA project and an electronic mailing list was provided to encourage communication between the partner institutions. Support from the project enabled the centres to cater for a wide range of activities such as operational expenses (including internet connection), development of meta databases and data archives, development of data and information products, and public awareness creation on the projects products and services.

The participants noted with concern the delays in implementation of the data and/or information centres in Cameroon, Cote d’Ivoire, Gabon, Guinea and Morocco caused by various reasons. The ODINAFRICA National Coordinators for these countries expressed their strong commitment to improve the level of implementation of the project activities, in collaboration with the Regional Coordinators and the IOC Secretariat.

5.2 External Evaluation

The participants welcomed the positive report of the External Evaluation of the project discussed ways of implementing the recommendations in order to improve the functioning of the project. The participants thanked the Director and staff of Tanzania data and information centre, located at the Institute of Marine Sciences-Zanzibar, for their efforts in ensuring a positive evaluation of the project.

5.3 Improvement of internet access

Internet connectivity provided by the project has enabled the institutions to access a much broader range of data and information resources. However they have not all been able to make optimal use of this because of poor telephone connections. The participants welcomed the initiative taken by the secretariat to explore some of the options that could be used to improve connectivity such as VSAT or ADSL and requested that these efforts be continued. In this regards, the ODINAFRICA National Coordinators were requested to explore the different options available in their countries and provide information on their efficiency and costs to Mr M Odido by 31 December 2002. The participants recommended that the interest of the FUST funds, which is available for "Small Quick Disbursing Projects," could be used to improve Internet connectivity. The Secretariat was requested to prepare a proposal in this regard. Efforts should also be made to link with other initiatives for improving connectivity in Africa.

5.4 Capacity Building

The training and follow-up support has equipped the data and information managers with the tools to effectively manage their centres and develop relevant data and information products for their users. However wide disparities in knowledge, capability and background of the trainees as well as the difference in sizes and focus of the libraries and data centres provided a challenge to the resource persons.

The assessment done by Dr Murray Brown (the main data management trainer) provides a succinct overview of the hitches that need to be addressed in order to streamline the training for data managers. Several options were considered to assist the institutions, which are lagging behind. These include use of advanced students to train others. A glossary of technical terms should be prepared and distributed during the training course. This will particularly be useful for the students who are not proficient in English. The participants recommended that efforts should be made to identify French speaking resource persons to assist with the data management training.

The participants recognised that the centers have specialized in different fields, and recommended that they should exchange capacity between themselves as a practical way of skills and capacity improvement. Regional workshops can be organized using experts from the region as resource persons so as to bring trainees to the same level. The next data management course should therefore focus on training of trainers and development of products. At least five days should be dedicated to products development. It may be necessary for Dr Brown to visit some of the institutions and assist in further training and set up or troubleshooting of systems.

The participants recommended that a similar detailed survey be undertaken for the information management group and the results be used to design remedial measures to be used to assist the institutions that are lagging behind. The Flemish resource persons agreed to investigate ways and means to undertake the survey that should be finalised prior to any further information training in 2003. The survey should investigate what has been accomplished in the information centres, and test the skills of the information managers. The ODINAFRICA National Coordinators should also ensure that the libraries have access to the all the allocated project funds and resources to assist in their operations.

It was emphasised that the people selected for the data and information management training must have appropriate background to enable them follow the course. In order to ensure sustainability, those that attended the training courses should also train other people in their institutions. The institutions should allow the personnel to dedicate more time to project activities.

5.5 Development of products and services

The participants noted the large number of databases and products described in the national reports and requested that these be availed for inclusion in merged databases. The databases and other services and products offered by each centre should be catalogued and the information provided to all the partners. In order to improve networking, the databases developed at national level (such directories, meta databases, library catalogues etc) should be availed via the Internet to encourage broader usage. The products will also be put on CD and distributed.

In particular library catalogues from the English speaking institutions should be sent to Ms Confait (Seychelles), while those from the French speaking countries should be sent to Ms Keita (Senegal) for quality control. The directories of experts should be sent to the ODINAFRICA Information Services Centre in Mombasa. The INMAGIC manual prepared for the training courses should be translated into French and Portuguese to assist the librarians from French and Portuguese speaking countries.

The participants recommended that no new contracts (for 2003) should be processed for any institution that has not submitted inputs to these three core databases as committed in the 2002 contracts.

The participants emphasised that the preparation of data and information products and their dissemination to users should now be the focus of the project. A minimum suite of products to be prepared by each institution should be defined. The national and regional coordinators should ensure that products coming out of the centres are of high quality. In particular all the institutions should aim at producing National Marine Atlases. The first ODINAFRICA-GODAR product comprising data sets relevant to ODINAFRICA partner countries was distributed during the session. The participants thanked the experts who had contributed to the finalisation of this effort. It was further suggested that the next focus for the ODINAFRICA-GODAR should be repatriation of data collected by European countries.

5.6 ODINAFRICA Information Services Centres

The participants discussed at length the need for continuation of the ODINAFRICA Information Services Centres (RECOSCIX) in Mombasa and Abidjan. All the national centres now have access to ASFA, either on CD or through the Internet database services, and electronic journals can now be accessed over the Internet much faster. A thorough assessment on the need for both centres should be undertaken and their terms of reference revised, taking into account new trends in information management technology, especially as related to document delivery and access to literature. The participants agreed on the need to upgrade equipment at the ODINAFRICA Information Services Centre in Mombasa in order to make it more efficient. The participants thanked KMFRI for the support it has continued to provide to the information services centre.

The journals subscription should be maintained pending the investigation on the possibility of establishing or joining a consortia through which the institutions will be able to access e-journals. However the number of journals could be reduced depending on the usage statistics and availability of journals through the INASP or other initiatives. The availability of the electronic journals should be widely published to encourage more usage in the region. It was also recognised that the wide usage of e-journals in the region will depend on the quality of Internet access and hence this should be addressed as a priority.

5.7 Establishment of a repository/E-journal

The participants noted that the trend is increasingly towards the creation of virtual libraries. It is important that the ODINAFRICA libraries and information centres are aware of these developments that could form the basis for the information component of the next phase of ODINAFRICA. In this regards a feasibility study on the establishment of a repository and e-journals should be conducted. The study will identify the facilities required, and mechanisms for peer review for the articles. The possibility of collaboration with POGO in this endeavour should be investigated.

5.8 Improving Networking

In order to improve networking, the ODINAFRICA institutions were encouraged to initiate joint activities, which would enable them to share resources and expertise. The ODINAFRICA National Coordinator for Tunisia, Prof Amor El Abed who is also the Director General of the Institut National des Sciences et Technologies de la Mer (INSTM), informed the participants of about the proposal to create the Institut Afro Japonais des Sciences et Techniques de l'Océan (AJIOST). The association, which will be based in Tunis, Tunisia will formulate collaborative research programmes between African coastal countries and Japan. It will particularly involve the countries participating in ODINAFRICA, and will rely on the network of National Ocean Data and Information Centres (NODCs) and African experts developed with the framework of the ODINAFRICA project. Prof El bed informed the participants that both the Tunsians and Japanese authorities have responded favorably to the proposal to create AJIOST. The participants unanimously approved the proposal in principle. The draft proposal will be circulated to the participants for review, and the final document incorporating the needs of ODINAFRICA will be to the Tunisian and Japanese governments to consider for funding.

5.9 Collaboration with other programmes

Collaboration with other programmes and organisations should not be restricted to participation in workshops with no follow-up. The ODINAFRICA National Coordinators were therefore requested to establish links with national contacts for GOOS Africa, IOGOOS, NEPAD and other initiatives in order to strengthen linkages with them for implementation of joint activities.

The ODINAFRICA coordinators, data managers and information managers were urged to register on the African Ocean Portal and provide content. They were also requested to register on the ODINAFRICA website and use this as a forum for exchange ideas with other centres on their activities.

The participants welcomed the presentation on the activities of the IOCEA Project Office and recommended that there should be closer coordination between the IOCEA, IOCINCWIO and ODINAFRICA project offices, as well as the Information Services Centres.

The participants recommended that a strong team should represent the African Member States at IODE-XVII. Those who are interested will submit their requests to the secretariat which will select the participants to be provided support through the project on the basis of recommendations from the ODINAFRICA National and Regional Coordinators, and taking into account other factors such as ability to source complementary funding.

The participants welcomed the offer of Belgium to host an IODE Project Office, and strongly recommended the acceptance of the offer, taking into consideration the excellent facilities that will be provided to the IODE Project Office.

The ODINAFRICA National Coordinators were requested to get in touch with the representatives of the countries to the IOC Assembly and provide them with details of the project.

5.10 Planning for ODINAFRICA-III and final review workshop for ODINAFRICA-II

The participants further recommended that a drafting meeting for the next phase of ODINAFRICA (ODINAFRICA-III) be held back-to-back with the IODE-XVII in March 2003 in Paris, France. This meeting will also be used to discuss preparations for the training courses and the planning and review workshop. The Regional Coordinators in preparation for the meeting should prepare a draft working document for ODINAFRICA-III, and a list of all national and regional products.

Noting that the next session of the ODINAFRICA Planning and Review workshop will be the last one for the current phase of the project, the participants recommended that the session, together with the training workshops for data and information management, be held in Flanders, Belgium possibly in September 2003. This will provide an opportunity for the data and information centres to demonstrate to the achievements of the project to the Flemish authorities. In this regard each of the ODINAFRICA data and information centres will be required to prepare posters and products for during the session.

6. WORKPLANS AND BUDGETS FOR 2003.

The budgets for joint activities and national activities are provided below was approved by the session.

6.1 JOINT ACTIVITIES PLANNED 2003

| 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 | 65,000 |
| Information Management Remedial actions | 30,000 |
| Data Management Remedial (workshops) | 30,000 |
| Regional Information Management Workshop follow-up (Consultant) | 10,000 |
| GODAR participation | 15,000 |
| Support RECOSCIX-WIO network | 16,000 |
| Support RECOSCIX-CEA network | 16,000 |
| Upgrade RDC equipment | 10,000 |
| Journal subscription | 20,000 |
| Consortia investigations (and keeping E- source, journal sites) | 3,000 |
| Project Coordination- travel CEA | 13,000 |
| Project Co-ordination – travel WIO | 13,000 |
| Support RECOSCIX networks - Document Delivery | 14,000 |
| ASFA subscription | 8,000 |
| Translation of INMAGIC manual/guidelines | 1400 |
| Evaluation/assessments of MIM centers capabilities | 30,000 |
| AFRIDIR development | 2,000 |
| AFRIPUB/AFRILIB (QC and Merging)- WIO | 6,000 |
| AFRIPUB/AFRILIB set up in Paris | 1,000 |
| Feasibility study for repository/E-publishing | 3,000 |
| WINDOW (including translation) | 6,000 |
| Software maintenance (INMAGIC- including conversions, MINDEX follow-up) | 8,000 |
| Participation in IODE-XVII (including ODINAFRICA-III drafting session) | 20,000 |
| TOTAL REQUESTED | 552,388 |

Funds available Flanders: US\$487577

UNESCO Regular Programme budget: US\$ 20000

6.2 ODINAFRICA NATIONAL BUDGETS 2003

| | BENIN | COMORES | GABON | KENYA | MADAGASCAR | MAURITIUS | MOROCCO |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| National Coordination workshop | 1500 | 1200 | 2000 | | | 2800 | 2000 |
| Operational expenses | 4000 | 4000 | 4000 | 6500 | 4000 | 3700 | 8500 |
| Development of Metadatabase | 2500 | 2000 | 2000 | | | | 3500 |
| Development of Data Archives | 2500 | 2700 | 5400 | | 2700 | | 3000 |
| Workshop on products | 2500 | 3000 | 3000 | 3000 | 9300 | 3000 | |
| Development of products | 2000 | 1800 | 3600 | 1800 | 1800 | 2000 | 4600 |
| Public Awareness | 2000 | 1800 | 3600 | | 1800 | 1000 | 2000 |
| Equipment upgrade | | | | | | 3600 | |
| Special training/internship | | | | | | | 12000 |
| TOTALS | 17000 | 16500 | 23600 | 11300 | 19600 | 16100 | 35600 |
| | MOZAMBIQUE | NIGERIA | SENEGAL | SEYCHELLES | TANZANIA | TOGO | TUNISIA |
| National Coordination workshop | | | 1300 | | | 1300 | |
| Operational expenses | 5800 | 6200 | 4000 | 4000 | 3200 | 4000 | 2500 |
| Development of Metadatabase | | 2300 | 2000 | | | 2000 | 3000 |
| Development of Data Archives | 2700 | 3200 | 2700 | 1300 | 2000 | 2700 | 10000 |
| Workshop on products | 3000 | 2900 | 3000 | 6000 | 3000 | 3000 | 1000 |
| Development of products | 1800 | 1900 | 1800 | 1800 | 1800 | 5800 | 9500 |
| Public Awareness | 2700 | 1800 | 1800 | 2100 | 1800 | 1800 | |
| Equipment upgrade | 5000 | | | 3500 | | | |
| Training/internship | 1200 | | | | | | |
| TOTALS | 22200 | 18300 | 16600 | 18700 | 11800 | 20600 | 26000 |

| | CAMEROON | COTE D'IVOIRE | GHANA | GUINEA | MAURITANIA | SOUTH AFRICA |
|--------------------------------|--------------|---------------|--------------|--------------|--------------|--------------|
| National Coordination workshop | 2000 | 1200 | 2000 | 1200 | 1200 | |
| Operational expenses | 4000 | 4000 | 5600 | 3000 | 4000 | 5200 |
| Development of Metadatabase | 2900 | 2000 | 2000 | 1500 | 2000 | 4500 |
| Development of Data Archives | 2400 | 2700 | 3000 | 2000 | 2700 | 7200 |
| Workshop on products | 2700 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Development of products | 3000 | 1800 | 4000 | 3000 | 1800 | 1600 |
| Public Awareness | 2000 | 1800 | 2200 | 4500 | 1800 | 1000 |
| Equipment upgrade | | 8000 | | | | 1800 |
| TOTALS | 19000 | 24500 | 21800 | 18200 | 16500 | 24300 |

Cote d'Ivoire and Mauritania did not submit work plans and budgets for 2003. We have used the figures in the original revised project document.

For Ghana we have made adjustments on the budget they submitted, taking into account the common collection of products each centre must have at the end of the project.

ANNEX I: SUMMARY REPORT OF NATIONAL ACTIVITIES IMPLEMENTED.

1. Benin.

Two national coordination workshops were held to plan and review ODINAFRICA activities at the national level. A pilot coordinating committee with representatives from seven institutions was created. Priority was given to development of a directory of marine and freshwater professionals, bibliography of marine and fisheries sciences for Benin, and a review of all surveys done on the continental shelf of Benin between 1960-2000. Other products prepared include an atlas of commercial fishes of the Benin continental shelf, directory of national institutions involved in marine related activities, and preparation of publicity brochures for the national oceanographic data and information centre. Languages training was organised for the NODC staff to enable them learn English. The centre has collaborated closely with other institutions, which generate relevant data and information such as the Meteorological Centre, Fisheries Centre, Benin Environmental Agency, and the Applied Ecology Laboratory. The implementation of activities of the centre was hampered by delays in transfer of funds and poor internet connectivity.

Funds utilized:

Activity Financing Contract no. 805.006.2 for US\$19000 (UNESCO Dakar Office)

Fee Contract no. PO 4500003549 for US\$2000 (UNESCO, Paris)

2. Cameroon.

The centre has embarked on development of a meta database for Cameroon. This will cover the following areas: Meteorological, Fisheries, Bio-statistics, Fish Catch/Effort Data, Environmental parameters, Marine Pollution, Coastal Processes, Fish Smoking and Conservation. Aspects covered include temporal and geographical coverage, attributes, and origin of data. There are about 27 national institutions with diverse types of data sets collected within the coastal and marine environments of Cameroon. Work on development of a National Directory of Marine and Freshwater Professionals and Institutions in Cameroon has commenced and a bibliography of documents available at IRAD's Fisheries and Oceanographic Research Station in Limbe has been prepared. The activities of the centre, including the national coordination workshop, have been widely reported in the local press.

Problems in the year were mainly related to delay in disbursement of funds. The funds allocated for operational expenses were insufficient. The centre recommends that an advance on the funds should be paid to enable development of some of the products. Some of the planned activities, including data management assignments, were not completed on time due to poor internet connectivity.

Funds utilized:

Activity Financing Contract for US\$19600 (UNESCO Yaounde Office)

Fee Contract for US\$2500 (UNESCO Yaounde Office)

3. Comores

The national coordination meeting was held in early 2002 and the Centre National de Documentation et de Recherche Scientifique (CNDRS) was designated as the Comores National Oceanographic Data and Information Centre. The session also approved a work plan and budget for 2002. However funds for the year were only received in September 2002. Comores has therefore requested for an extension of the contract period to March 2003 to enable them implement all planned activities. The NODC was active throughout the year developing directory of marine institutions and experts, library catalogue, bibliography of marine science literature from Comores, and an inventory of relevant datasets available in other organizations and institutions in the Comores. The centre is also working on a coral reef database for Grande Comore and Moheli islands, fisheries database, and a turtles database for the Moheli island in collaboration with other organizations. A workshop on impact of climate change on tourism was organised jointly with the Climate Change committee. Frequent power cuts hampered implementation of activities. The purchase of a generator has improved the

situation. There are plans to produce maps and CDROMs

Funds utilized:

Activity Financing Contract for US\$13000 (UNESCO Dar es Salaam Office)

4. Cote d'Ivoire

The National Oceanographic Data and Information Centre was re-established at the Centre de Recherches Oceanologiques (CRO) in Abidjan following consultations with other partners. Catch up training for data centre staff was carried out by Dr Murray Brown from 20-31 March 2002. The information management staff had a catch-up training prior to the annual ODINAFRICA marine information management course in Tunis, Tunisia in April 2002. The funds for 2002 were received towards the end of August 2002, though the contracts were signed and returned in May 2002. The development of a meta database commenced with development of the database structure and collection of information from researchers and institutions. The relevant data was downloaded from international datasets to create an ocean database for Cote d'Ivoire. The library database was developed in INMAGIC and also contains publications of CRO. Work on conversion of the older database from CDS/ISIS to INMAGIC is in progress. The ODINAFRICA National Coordinator participated in the African Ocean Portal workshop held in Paris, France in May 2002.

The centre has not been able to implement all the planned activities due to the unstable situation in Cote d'Ivoire, delays in receipt of funds and poor internet connection. The email system has not work well most of the time leading to a breakdown in communication with the Regional Coordinator and other ODINAFRICA institutions.

Funds utilized:

Activity Financing Contract for US\$21200 (UNESCO Dakar Office)

Fee Contract no. PO 4500005752 for US\$1800 (UNESCO Paris)

5. Gabon

The implementation of ODINAFRICA activities in Gabon has been slow due to the absence of the previous national coordinator who has been away on study leave. A new ODINAFRICA National Coordinator Mr Pierre Maganga (Director Général du Droit de la Mer) was appointed in July 2002. He organised a coordination workshop for Gabon in Libreville in November 2002. The participants decided that the National Oceanographic Data and Information Centre will be hosted by the Centre National de la Recherche Scientifique et Technologique (CENAREST). The participants also approved a work plan and budget for 2003 and requested for refresher training for information management and catch-up training for data management.

Funds utilized:

Activity Financing Contract for US\$2000 (UNESCO Libreville Office)

6. Ghana

The rehabilitation and furnishing of the national oceanographic data and information centre continued during the year and a national coordination workshop was held to launch the centre. Progress has been made with development of the library database (over 300 records) and the directory of marine and freshwater experts. Both have already been submitted for inclusion in merged ODINAFRICA databases. The meta database has also been developed. The data centre has produced "The Environmental Data series" which contains coastal sea surface temperatures and salinity. Brochures have also been produced and distributed widely for public awareness.

Funds utilized:

Activity Financing Contract for US\$15000 (UNESCO Dakar Office)

Fee Contract no. PO 4500004203 for US\$2000 (UNESCO Paris)

7. Guinea

The centre was able to organise a coordination meeting attended by representatives of 18 national institutions and NGO's and a workshop to identify data and information products requirements. A total of 107 records from 7 national institutions have been prepared for the directory of marine and freshwater professionals. The directory is available on zip and floppy disk. 193 sources of marine data and information have been identified and included in the national meta database. The development of the library catalogue continues with 700 records entered. Problems encountered during the year include delays in transfer of funds, and poor internet connectivity. The centre would also like to request for additional training for the data manager.

Funds utilized:

Activity Financing Contract for US\$15000 (UNESCO Conakry Office)
Fee Contract for US\$2400 (UNESCO Conakry Office)

8. Kenya.

Three day training course was conducted to promote the use of aquatic data in decision making. KeNODC plotted the sampling positions and derived isoplanes for various factors for the Ungwana Bay fisheries stock assessment research project. The results of the project will be used to determine the optimal fishing grounds. The centre also prepared environmental profile for the Diani-Chale marine reserve and the surrounding terrestrial area using GIS. This will assist in drawing up a management plan. In-house training on INMAGIC was organised for KMFRI library staff. Other activities implemented include: updating of directory of marine and freshwater professionals; updating of the catalogue of marine science publications from/about Africa; digitising of various maps into GIS form; publication of KeNODC brochure; and updating of meta database. The data centre plans to focus on strengthening the use of GIS and modelling to prepare data products.

Funds utilized:

Activity Financing Contract no. 810.728.2 for US\$9900 (UNESCO Nairobi Office)
Fee Contracts no. 810.759.2 and xxx for US\$3400 (UNESCO Nairobi Office)

9. Madagascar

The progress in implementation of activities was affected by the uncertain situation in Madagascar in early 2002. The renovation of offices for the National Oceanographic Data and Information Centre was completed at a cost of US\$10000 provided by the government of Madagascar. The NODC participated in the oceanographic cruise focussed on planktonology and hydrography in the Mozambique channel, organised in collaboration with IRD. The first version of the CD on Marine Species (fauna and flora) of the Tulear region, which contains about 750 records was produced and distributed. Good progress has been made in development of the library catalogue, with 4200 records already entered. Posters and brochures were produced for public awareness. The directory of marine and freshwater professionals will be completed by the end of the year 2002. The major problem facing the centre is poor internet access. Delays in processing of the contracts for 2002 also affected the implementation of some of the planned activities, such as a national workshop and the development of a national marine atlas, which have been deferred to 2003.

Funds utilized:

Activity Financing Contract no. PO 4500003553 for US\$7100 (UNESCO Paris)

10. Mauritius

The ocean data and information management network comprises eight institutions (Mauritius Meteorological Services, Department of Environment, University of Mauritius, Central Informatics Bureau, Albion Fisheries Research Centre, Mauritius Oceanographic Institute, Central Statistics Office, and the

Remote Sensing Centre). Albion Fisheries Research Centre is responsible for the information component, while the Meteorological Services is responsible for the data management component as well as overall coordination. Substantial progress was made in 2002. This included the downloading of data collected from the relevant geographical area from the World Ocean Database, development of a meta database detailing data/information held by the various government institutions, production of posters and brochures for publicity, production of sea surface temperature plots for the areas of interest, and development and launch of a website. Directory of marine and freshwater experts in Mauritius, and a library catalogue for Albion Fisheries Research Centre have also been completed. The two coordination workshops held in the course of the year proved very useful in ensuring closer collaboration between the institutions dealing in the field of marine science in Mauritius. The ocean teacher software was distributed widely and training provided to local institutions to enable them make use of it. The project is collaborating with other initiatives in the participating institutions such as PUMA, ARGO, IOGOOS, WIOMAP, IMAP, and GOOS Africa.

Funds utilized:

Activity Financing Contract for US\$12500 (UNESCO Dar es Salaam)

11. Mauritania

No annual report submitted.

Funds utilized:

Activity Financing Contract for US\$17200 (UNESCO Rabat Office)

Fee Contracts no. PO 4500004574 for US\$1800 (UNESCO Paris)

12. Morocco

The ODINAFRICA institutions in Morocco did not receive funds for work in 2001 and 2002 since they did not submit their work plans and budget on time. However the following activities have been implemented: (i) creation of directory of experts and institutions active in marine and freshwaters, and a catalogue of professional associations in the maritime fisheries and aquaculture; (ii) development of databases on fish landings, aquaculture production and environmental quality. The ODINAFRICA institutions have actively participated in coastal and marine observation initiatives, which will generate substantial amounts of data for inclusion in the databases.

The implementation of ODINAFRICA activities were however slowed down by the departure of Mr Immassi Said who had been the information manager and the heavy work load of Prof Naciri Miriam, the data manager. The delay in holding a national coordination workshop also resulted in difficulties in accessing data and information from other stakeholders.

Funds utilized: Nil

13. Mozambique

Several activities were implemented including updating of the website; updating the meta database with information from various organizations; public awareness through lectures at educational institutions; ocean data management training students from Mondlane University; preparation of posters and calendars. CENADO received data sets on observations in the Mozambique channel by RV Pelagia (Netherlands) in April 2001. The information centre added 82 new records to the INMAGIC database. It also produced two issues of a quarterly bibliographic bulletin to inform library users of the new acquisitions. The data manager who has attended previous ODINAFRICA training sessions has proceeded on a long vacation. This has negatively impacted on the implementation of ODINAFRICA activities at CENADO. Though an oceanographer has been assigned to take over the tasks, he lacks the necessary training. It will therefore be necessary for him to be trained in the data management techniques.

Funds utilized:

Activity Financing Contract no. PO 4500003551 for US\$7800 (UNESCO Paris)??? CONFIRM

14. Nigeria

The creation of a national collection of datasets from the World Ocean database 98 has been implemented. Other datasets catalogued include: meteorological and oceanographic data obtained from Lagos for 1993-1996; and monitoring data from Victoria Island 2000-2002. The centre also participated actively in collaborative projects with other national organisations. The library subscribed to 76 journals in various marine science related fields. Other activities implemented include the development of a library catalogue in INMAGIC, completion of a business plan and acquisition policy for the library, and a directory of marine and freshwater professionals. A national coordination meeting was held in August 2002, and a workshop on products development is planned for December 2002. Delay in provision of funds hampered the implementation of some activities planned for 2002.

Funds utilized:

Activity Financing Contract no. PO 4500002156 for US\$19700 (UNESCO Paris)

15. Senegal

The data and information centres located at CDROT and DOPM respectively were very active in 2002. ODISEN- a database of all marine publications available in the two institutions was developed using NMAGIC. The directory of marine and freshwater professionals in Senegal (SENDIR) was developed using WINISIS package. Six other marine databases covering diverse fields such as Coastal Stations and Cruises, Coastal Resources, Environmental Parameters and a meta database (MEDI-SENEGAL) have been developed. These databases have been submitted for inclusion in the merged ODINAFRICA databases. The data centre also participated in studies of the ocean environment organised by several institutions in Senegal. A national workshop was held in November 2002 to present the progress report to stakeholders and adopt work plan and budgets for 2003.

Funds utilized:

Activity Financing Contract for US\$19000 (UNESCO Dakar Office)

Fee Contract no. PO 4500003543 for US\$3300 (UNESCO Paris)

16. Seychelles

The Seychelles NODC has focussed its efforts on up-dating the national oceanographic databases, especially the directory of marine experts, coastal resources database, fisheries database, and the library catalogue. The centre also assisted in the quality assessment and corrections of library catalogues from other ODINAFRICA institutions in Ghana, Kenya, Madagascar, Mauritius, Mozambique and Tanzania. Changes in software used for the library catalogue in recent years (CDS-ISIS to Filemaker and then INMAGIC) has affected the quality of the catalogues. The web pages for the centre are now available on the internet, and brochures with details of the products and services offered by the centre have been produced and widely circulated. The data manager gave a presentation on ODINAFRICA during the first conference of the Indian Ocean Global Ocean Observing System held in Mauritius in November 2002. A national workshop is planned for December 2002.

Funds utilized:

Activity Financing Contract for US\$12000 (UNESCO Dar es Salaam Office)

17. South Africa

A total of 515 individual research surveys have now been entered into the new data inventory. Other datasets: an data inventory of current meter deployments (321 entries) and weather station services (248 entries). The following data types has been received: Sea Surface Temperatures; Thermistor String Data; Satellite Data (SST and SeaWifs); ADCP Current Data; Aanderaa Current Data; Wave height data; Wind data (from weather stations and lighthouses); Continuous and discrete CTD data; and Temperature Profile data. Data products in the form of graphs and tables showing temperature averages, minimum and maximum observation and frequency plots as well as current roses and wind vectors are available on the local intranet and will be published on M&CM's official web page (<http://www.environment.gov.za/mcm/>). Data products for some of the projects that are being partially funded by the industry and M&CM have been published on the internet at: <http://www.oceanafrica.com>. A Metadata Authoring Tool (MATT), written using HTML and JavaScript has been developed to assist scientists in documenting their data sets. MATT can be customised to meet the requirements of national or regional research programmes, and can be downloaded free form the BENEFIT website: <http://www.benefit.org.za/>

The INMAGIC applications has provided an effective tool for rebuilding the information centre's (Gilchrist Library) catalogue. All monographs were barcoded on INMAGIC to implement a user-friendly lending system. The journals will be barcoded by June 2003. The information centre was provided with an older version of the INMAGIC software and this has hampered the use of the software for library management and database development.

Funds utilized:

- Activity Financing Contract for US\$9000 (UNESCO Windhoek Office)
- Fee Contract for US\$2000 (UNESCO Windhoek Office)

18. Tanzania

The Institute of Marine Sciences (IMS) has now established ten databases within its data and information centre. These are: (i) institutions (ii) scientists (iii) coastal districts information (iv) Marine Protected Areas (v) GIS layers available (vi) datasets (vii) Software (viii) Documentation (ix) Programmes and Projects (x) IMS publications. All these are available on-line. The amount of data and information available has increased tremendously. Library users at IMS can now search for references electronically as most of the library material has been entered in the INMAGIC database. The library web page has also been linked to the main university library. The data centre provides GIS maps with various information to requesting clients using the available layers. In addition, detailed maps on resources and important features for all coastal districts is available on-line. The major focus of the centre is now to provide more services and products to clients. The work of the centre was hampered by shortage of resources and problems with hackers

Funds utilized:

- Activity Financing Contract for US\$14200 (UNESCO Dar es Salaam Office)

19. Togo

The centre has progressed well on the assignments given to both the data management and information management personnel by the resource persons. The library catalogue has been developed in INMAGIC, directory of marine and freshwater professionals and institutions in Togo has been created, and a meta database has already been developed. Collection of bathymetry, meteorological and socio-economic data is in progress. The national coordination workshop provided an opportunity to publisize the activities of the centre and get input from other institutions in the country. The meeting was widely published in the local press and was also attended by the ODINAFRICA national coordinator for Gabon. A project on "Small Window on Ocean for Students" has been approved for funding within the framework of ODINAFRICA and the activities to be implemented will improve the student's knowledge and understanding of the marine environment and resources.

The centre has developed close collaboration with the ODINAFRICA institutions in Benin and Gabon. The information and data managers from Togo visited the NODC in Benin in September 2002 to discuss collaborate work and define geographical extent of the databases the two centres will be working on jointly. A return visit to Togo was made by the staff of the Benin NODC in November 2002.

Funds utilized:

Activity Financing Contract for US\$20200 (UNESCO Dakar Office)

20. Tunisia

The metadabase now has over 100 records. Marine maps and aerial photographs and satellite imageries of the Tunisian coast are available. An access database with details of institutions and their facilities is under construction. A database of marine and freshwater professionals with over 60 records has been developed. Bathymetric data for the Tunisian coast has been digitised from marine maps. The three GIS databases maintained at the centre cover the Gulf's of Gabes (135 layers), Tunis (122 layers) and Hammamet (87 layers). They are updated regularly with data on distribution of pelagic living resources, temperature, salinity and other parameters observed during experimental cruises. A database of benthic resources has been developed and currently has 126 records. The library has over 40,000 documents and a subscription to 30 journals. Development of the INMAGIC database continues with 600 records already entered. The centre has embarked on the development of a national marine atlas.

Funds utilized:

Activity Financing Contract for US\$10000 (UNESCO Rabat Office)

Fee Contract no. PO 4500003546 for US\$6500 (UNESCO Paris)

ANNEX II (i) EXPENDITURES NATIONAL ACTIVITIES 2002

| Item | OBLIGATION NUMBER | UNESCO OFFICE | AMOUNT US\$ |
|---|-------------------|----------------------|---------------|
| Benin Activity Financing Contract | 805.006.2 | UNESCO Dakar | 19000 |
| Benin Fee Contract | PO 4500003549 | UNESCO, Paris | 2000 |
| Cameroon Activity Financing Contract | | UNESCO Yaounde | 19600 |
| Cameroon Fee Contract | | UNESCO Yaounde | 2500 |
| Comores Activity Financing Contract | | Dar es Salaam | 13000 |
| Cote d'Ivoire Activity Financing Contract | | UNESCO Dakar | 21200 |
| Cote d'Ivoire Fee Contract | PO 4500005752 | UNESCO Paris | 1800 |
| Gabon Activity Financing Contract | | UNESCO Libreville | 2000 |
| Ghana Activity Financing Contract | | UNESCO Dakar | 15000 |
| Ghana Fee Contract | PO 4500004203 | UNESCO Paris | 2000 |
| Guinee Activity Financing | | UNESCO Conakry | 15000 |
| Guinea Fee Contract | | UNESCO Conakry | 2400 |
| Kenya Activity Financing Contract | 810.728.2 | UNESCO Nairobi | 9900 |
| Kenya Fee Contracts | 810.759.2 | UNESCO Nairobi | 3400 |
| Madagascar Activity Financing Contract | PO 4500003553 | UNESCO Paris | 7100 |
| Mauritius Activity Financing Contract | | UNESCO Dar es Salaam | 12500 |
| Mauritania Activity Financing Contract | | UNESCO Rabat Office | 17200 |
| Mauritania Fee Contracts | PO 4500004574 | UNESCO Paris | 1800 |
| Mozambique Activity Financing Contract | PO 4500003551 | UNESCO Paris | 7800 |
| Nigeria Activity Financing Contract | PO 4500002156 | UNESCO Paris | 19700 |
| Senegal Activity Financing Contract | | UNESCO Dakar | 19000 |
| Senegal Fee Contract | PO 4500003543 | UNESCO Paris | 3300 |
| Seychelles Activity Financing Contract | | UNESCO Dar es Salaam | 12000 |
| South Africa Activity Financing | | UNESCO Windhoek | 9000 |
| South Africa Fee Contract | | UNESCO Windhoek | 2000 |
| Tanzania Activity Financing Contract | | UNESCO Dar es Salaam | 14200 |
| Togo Activity Financing Contract | | UNESCO Dakar | 20200 |
| Tunisia Activity Financing Contract | | UNESCO Rabat | 10000 |
| Tunisia Fee Contract | PO 4500003546 | UNESCO Paris | 6500 |
| TOTAL FOR NATIONAL ACTIVITIES | | | 291100 |
| | | | |

ANNEX II (ii) EXPENDITURES JOINT ACTIVITIES 2002.

| JOINT ACTIVITIES | OBLIG NO | OFFICE | AMOUNT |
|---|-----------|------------|---------------|
| Annual Project Review Management Workshop – contract local arrangements | | Paris | 33500 |
| Annual Project Review Management Workshop - airtickets | | Paris | 28089 |
| Annual Project Review Management Workshop –DSA | | Paris | 5382 |
| Project Staffing and Management Costs (Consultant) - CISSE | | Conakry | 10500 |
| Project Staffing and Management Costs (Consultant) - CISSE | | Conakry | 10500 |
| Project Staffing and Management Costs (Consultant)- ODIDO | 810.729.2 | Nairobi | 20994 |
| Project Coordination travel first semester WIO (incl. Training courses and IOC-EC) | | Nairobi | 12000 |
| Project Coordination travel first semester CEA | | Conakry | 6400 |
| Project Coordination travel second semester WIO | | Nairobi | **7800 |
| Project Coordination travel second semester CEA | | Conakry | **9800 |
| Project Coordination ANGWENYI travel Ocean Portal | | | 2300 |
| ODINAFRICA MIM/DM training course airtickets for participants and trainers | | Nairobi | **63900 |
| ODINAFRICA MIM/DM training course DSA for participants and trainers | | UNDP Tunis | **65500 |
| ODINAFRICA MIM training course contract MINDEX | 810.732.2 | Nairobi | 7600 |
| ODINAFRICA MIM/DM training course contract local arrangements | 810.733.2 | Nairobi | **24000 |
| ODINAFRICA data management catch up travel Murray Cote d'Ivoire | | | 3000 |
| ODINAFRICA data management Murray travel | | | 3510 |
| ODINAFRICA MIM/DM training courses travel P Pissierssens | | | 2300 |
| ODINAFRICA Data Management Contract Murray Brown (1) – additional US\$4000 from TFgen | | Paris | 3000 |
| ODINAFRICA Data Management Contract Murray Brown (2) – additional US\$8200 from TFgen | | Paris | 3849 |
| Support RECOSCIX Document delivery contract LUC | | Paris | 8000 |
| Support RECOSCIX network RDC WIO | 810.727.2 | Nairobi | 16000 |
| Support RECOSCIX network RDC CEA | | Dakar | 8000 |
| ODINAFRICA project office expenses | 810.737.2 | Nairobi | 5000 |
| ODINAFRICA WINDOW/website contract for newsletter | 810.736.2 | Nairobi | 6000 |
| ODINAFRICA WINDOW/website- contract website updating | 810.755.2 | Nairobi | 1000 |
| AFRIDIR Development WIO contact conversion of library catalogues to INMAGIC | 810.787.2 | Nairobi | 1000 |
| AFRIDIR Development CEA contract for AFRIDIR update (WIO and CEA) | 810.788.2 | Nairobi | 2000 |
| AFRILIB/AFRIPUB (QC and merging) WIO | 810.785.2 | Nairobi | 1500 |
| AFRILIB/AFRIPUB (QC and merging) CEA | 810.786.2 | Nairobi | 1500 |
| SWETS Blackwell outstanding invoices | | Paris | 2300 |
| Participation in IOGOOS conference | | Nairobi | 7400 |
| TOTAL | | | 383624 |