OCEAN DATA AND INFORMATION NETWORK FOR AFRICA (ODINAFRICA).

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REGIONAL COORDINATOR REPORTS – DATA MANAGEMENT

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PART I: DATA MANAGEMENT IN ODINAFRICA: IMPLEMENTATION STATUS OF WORK PACKAGE 3A

1. INTRODUCTION

The third phase of the ODINAFRICA project (ODINAFRICA-III) started officially in July 2004 after the appointment of the Project Manager. Fast and foremost efforts were made to ensure continuity of activities initiated in ODINAFRICA-II. This also was meant to try to catch-up with the implementation of activities planned in ODINAFRICA-III. So far, the implementation of the various ODINAFRICA-III activities is progressing well.

This report provides details of the various activities that have already been implemented as well as planned/foreseen activities within the framework of Work Package 3a (WP3a) which deals with data management and related issues and activities.

2. OBJECTIVES AND PLANNED ACTIVITIES FOR WORK PACKAGE 3A

Any major project like ODINAFRICA should have very clear and focused objectives. These objectives will then guide the activities of the project. Consequently, for ODINAFRICA-III, each work package has its own clear objectives to guide the activities that will be implemented. The objectives for Work Package 3A are as follows.

- Further develop and strengthen National Oceanographic Data Centres (NODC) to manage data streams from the coastal ocean observing network.
- Upgrade computer systems and internet access to all NODCs
- Integrate biogeographic and hydrological data steams into NODC systems.
- Build capacity for data and information managers for new NODCs established as part of this project
- Rescue historical data, especially sea level data

In order to succeed in achieving the objectives above for data management, the main activities identified for the ODINAFRICA Work Package 3a are therefore as follows.

- Organise a training on webpage development and online service provision to all NODCs

- Organise training on marine biodiversity data management
- Find the best way to assimilate hydrological data steams into NODC systems
- Organise training for data and information managers for new NODCs
- Identify, and find the best way to rescue historical data, especially sea level data

3. ACTIVITIES IMPLEMENTED

The implementation of the major planned activities started immediately when ODINAFRICA-III started officially. So far several of the planned have been implemented and completed. Below are the details of the activities that have been implemented up to now.

(i)   Survey on the status of capacity of ODINAFRICA NODCs, 2004/2005. This survey was conducted in order to assess and understand the available capacity in ODINAFRICA Data Centres so as to ensure good planning of the execution of the project. The survey was done by using a questionnaire that was sent to all Data Centres. The report of this survey is available since January 2005 from the Project Manager.

(ii) Survey on the status, availability and accessibility of marine biodiversity data in ODINAFRICA countries, 2004/2005. This survey was done to enable the Project Management develop a better plan for implementation of the Marine Biodiversity Programme within the ODINAFRICA framework, including assisting in the development of better course content for the marine biodiversity data management course. The survey was also carried using a questionnaire, and the final report is available since January 2005 from the Project Manager.

(iii) Following the survey in (ii) implementation of the Marine Biodiversity Data Management Programme started. Two training workshops on marine biological/biodiversity data management for French and English speaking countries took place in Oostende, Belgium, in April and Grand Baie, Mauritius in August 2005, respectively. All ODINAFRICA countries participated in the training except only for Congo, Mozambique and South Africa.

(iv) In order to ensure that the new countries that joined ODINAFRICA in phase three are taken on board properly, an intensive training workshop on basic ocean data management for the new Data Managers from Algeria, Angola, Congo, Egypt and Namibia was organized in Oostende, Belgium, from 10-30 April 2005. In addition, the old data managers that needed remedial training joined this course

(v)   Development of a MEDI Africa product. This product was developed take stoke of all relevant Africa datasets. The product was finished in mid of April, 2005 and as soon as the migration of IODE server to the IODE project is completed the product will be available online at the ODINAFRICA webpage.

(vi) Training workshop on Webpage Development. This workshop took place from 5th – 9th December 2005 in Oostende, Belgium, for the old ODINAFRICA Data Centres. The aim was ensure that all Data Centres eventually has well designed webpages through which they could also offer various online services to the stakeholders. The new Data Managers had intensive webpage training during their Data Management training course referenced in (iv).

(vii)   Three positions Refresher/advanced course in ocean data management were offered by ODINCARSA for the old ODINAFRICA Data Managers. Ghan and Mozambique were nominated to take the opportunity. However, it was – Mozambique that finally attended the ODINCARSA course. The Data Manager from Ghana did not respond in time.

(viii)   Participation of ODINAFRICA in the eighteenth session of the International Oceanographic Data Exchange (IODE-XVIII), 26 – 30 April 2005 in Ostend, Belgium. Five ODINAFRICA countries i.e., Tanzania, Tunisia, Senegal, Madagascar, and Mozambique participated in the meeting and actively represented ODINAFRICA. ODINAFRICA Data Centres are members of the IODE network of Data Centres.

(ix) First small group workshop for marine biodiversity data entry/assimilation. This workshop took place at Oostende, Belgium in March 2006. It focused on the molluscs group of animal.

(x) Survey on the status, availability and accessibility of Hydrological data in ODINAFRICA countries. This activity is ongoing. A questionnaire was been distributed to all Data Centres in December, 2005. So far only seven countries which are Benin, Cote d Ivoire, Egypt, Mauritania, Mauritius, Mozambique, and Togo. The survey is aimed at developing a better programme for assimilation of hydrological data into ODINAFRICA Data Centres.

(xi) Data archaeology. Survey on the existence of any ocean data that needs to be rescued in ODINAFRICA countries is ongoing. This activity will cover all oceanand coastal data that are in grey literature or in danger of being lost. However, sealevel data will be given more priority. This survey was done through an email to all Data Centres in December, 2005. So far only three countries which are Cote d Ivoire, Egypt, and Mozambique have responded indicating existence of data for rescue. The survey is aimed at assessing the existing amount of data that needs to be rescued and find the best way forward for implementing this activity.

4. ACTIVITIES PLANNED IN FUTURE

There are still several other activities planned to be implemented within the framework of work package 3a and wherever possible in collaboration with other work packages as appropriate. These activities are as follows.

(i) Advance Data Management Training course is planned to be held from 25-29 September 2006. This course is intended to be a refresher to the old Data Managers but also to expose them to the new developments in data management. The OceanTeacher has also change significantly and the old Data Managers need to be trained to be able to make full use of that important resource.

(ii) Second training workshop on Webpage Development. This training course is planned for 2-6 October 2006 and will be conducted in collaboration with Work Package 4.

(iii) Development of regional Marine and coastal atlases. This activity will be implemented under the coordination of WP4.

(iv) Second and third small group workshops for marine biodiversity data entry/assimilation. These workshops planned to take place in October 2006 and in 2007 each to focus on a different group of animal of interest.

5. SUMMARY

The implementation of the ODINAFRICA project is progressing well with respect to WP3a. All planned activities, so far, are being implemented in a timely manner and successfully.

PART II: SYNTHESIS OF THE NATIONAL REPORTS

1. GENERAL SUMMARY

This is a synthesis of the national reports that were submitted for the purposes of the Second ODINAFRICA Seminar to be held 24-26 April 2006, Oostende, Belgium. The synthesis is part of the Regional Coordinator's Report for Work Package 3a. This means the synthesis is focused only on data management issues and other general or cross-cutting matters.

2. SUBMISSION OF NATIONAL REPORTS

All ODINAFRICA countries were supposed to submit their national reports presented in the format that was carefully prepared by the ODINAFRICA Project Management to enable grasp of targeted information from the participating countries. The format that the countries were requested to adhere to in preparing their national reports was as follows:

Part I: Data Centres Summary
- Provide details of the location of the data centre
- Provide name and address of the Head of the data centre
- Provide information on activities implemented by the data centre- including databases developed and maintained (give details of size of database-eg number of records in databases)
- Provide information on products and services offered by the data centre, and statistics on the usage of the products and services
- Provide information on capacity availability at the data centre (staff and equipment).
- Provide information on capacity building requirement for the data centre (staff and equipment) with justification

Part II: Future Development (for all Work Packages)
- Provide recommendations for further development of your data and information centre
- Provide information on how ODINAFRICA can contribute to strengthening of your data and information centre to better enable them serve their users.

All ODINAFRICA countries except only of the two, that is Madagascar and South Africa submitted their reports. However, several countries did not adhere to the format which makes the work of synthesizing the reports difficult. However, efforts have been mad to ensure that all reports were read and properly summarized by following the format for the reports. **Tables** 1 and 2 were developed and used to extract the information from the country reports as per the provided format, and later, the two tables were used to write this synthesis.

3. DATA CENTRES SUMMARY

3.1 Location of the Data Centres and the Names and Addresses of Heads

Two countries did not indicate the locations of their Data Centres. These are Comoros and Guinea. Otherwise, six countries did not provide details about the names and addresses of the Heads of their Data Centres. These countries are Comoros, Cote d Ivoire, Ghana, Congo, Mauritania and Nigeria.

3.2 Activities implemented by the Data Centres including databases developed and maintained (give details of size of database-eg number of records in databases)

Most countries indicated clearly the activities that were implemented by their Data Centres. However, five countries did not do so in their reports. These are Benin, Congo, Egypt, Gabon and Namibia. For some this may be due simply because of not adhering to the format since they indicated for instance various services and products that they are offering.

The various activities implemented by ODINAFRICA Data Centres were reviewed and harmonised to come up with a single list of all activities that were implemented in ODINAFRICA Data Centres. It was found that ODINAFRICA Data Centre have implemented a large variety of activities in there countries. However, as expected, database development and management emerged as a leading activity of ODINAFRICA Data Centres, and this involves management of databases for many different types of data and information depending on the countries. ODINAFRICA Data Centres implemented 15 different activities as shown in the list below (Countries in brackets).

(i) Database development (Guinea, Seychelles, Tunisia)
- Hydrologic database (Comoros, Tunisia)
- Biodiversity database (Tunisia, Togo, Angola)
- Socio-economics database (Benin)
(ii) Updating of databases and metadatabases (Ghana, Nigeria, Tanzania, Tunisia)
(iii) Creation of inventories (Algeria)
(iv) Organising relevant national meetings (Angola, Comoros, Cote d Iviore, Mozambique)
(v) Collection of data (Cote d Ivoire, Guinea, Nigeria, Tanzania)
(vi) Compilation of sealevel data (Ghana)
(vii) Compilation of meteorological data (Angola, Ghana, Mauritania, Mauritius, Seychelles)
(viii) Data processing (Guinea -ODV, Kenya, Mauritania, Morocco)
(ix) Generation of data summaries (Kenya)
(x) Compilation of coastal resources and Marine Protected Areas data (Kenya – GIS)
(xi) Handling of ARGO data (Mauritius)
(xii) Processing of cruise reports (Mozambique)
(xiii) Digitization of information/data from grey literature (Mozambique, Togo)
(xiv) Compilation of records for MEDI-Africa (Nigerai, Seychelles)
(xv) Improvement of communication with stakeholders – creation of mailing list (Nigeria)
(xvi) Webpage development and updating (Tanzania)

Few countries provided details of the volume, size or number of records of their databases. These include Kenya, Tanzania, Togo, and Tunisia. Tunisia presented its data nicely by showing a glowing trend in the amount of the data managed.

3.3 Products and services offered by the Data Centres, and statistics on the usage of the products and services

For the purpose of easy understand of the impact of ODINAFRICA through the various products and services offered, products and services will be treated separately although it understood that sometime it is difficult to distinguish between the two.

3.3.1 Products

ODINAFRICA Data Centres have generated a large variety of products to serve their varied stakeholders. As evident in the activities implemented the major product in terms of number of variety of data types and number of countries involved is databases. Three countries, i.e., Comoros, Cote d Ivoire and Namibia did not indicate development of any product. Based on the received national reports, a total 28 different types of products were developed by ODINAFRICA Data Centres as follows.

   (i)   Databases on (Benin, Cameroon, Congo, Egypt, Gabon, Ghana, Guinea, Kenya, Mauritania, Tunisia, Togo, Senegal, Nigeria)
   -   Principal species of fish and products of the sea of commercial value
   -   Experts in marine and fresh water sciences
   -   Cruises and research projects
   -   Fisheries and fisheries stocks
   -   Socio-economics of coastal zones
   -   Environmental parameters and pollution
   -   Principal migratory cetacean species
   -   Heavy metals
   -   Physico-chemical parameters
   -   MEDI
   -   Profiles of Institutions
   -   Trawling cruises
   -   Meteorological data
   -   Natural resources
   -   Hydrological data
   -   Trade associations and NGOs involved in marine and coastal zones issues
   -   Historical sealevel
   -   Libraries and resources centres
   -   Biodiversity
   (ii)   Booklets (Cameroon, Congo)
   (iii)   CD-ROMs (Cameroon – anthropogenic characteristics of the coast, Ghana)
   (iv)   Master plan of maritime fisheries (Congo)
   (v)   Reports (Congo, Egypt, Ghana, Mauritania)
   (vi)   Checklists of (Egypt)
   -   Fisheries
   -   Polycates
   -   Copepoda
   (vii)   ODV products (Ghana, Mauritius, Morocco)
   (viii)   Surfer products (Ghana)
   (ix)   Arc Explorer products (Ghana)
   (x)   Tide prediction software (Guinea, Mauritius)
   (xi)   Charts of (Guinea, Nigeria, Mauritius, Seychelles)
   -   Sedimentological
   -   Bathymetrical

- Biological productivity zone in the EEZ
- Meteorological
- Waves
- Swells
- Fishing

(xii) Maps (Mauritius, Nigeria, Seychelles, Tanzania)
(xiii) Newsletters/bulletins (Mauritius)
(xiv) Frequency and tracking of cyclones (Mauritius)
(xv) Brochures (Mozambique, Seychelles)
(xvi) Websites (Senegal, Seychelles)
(xvii) Base-mapping products (Tanzania)
(xviii) Data summaries (Tanzania)

3.3.2 Services offered

Apart of developing the various products that are aimed serving the stakeholders, ODINAFRICA Data Centres are also do offer various direct or indirect services to their stakeholders. Based on the national reports received 11 countries i.e., Angola, Benin, Cameroon, Comoros, Cote d Ivoire, Egypt, Guinea, Mauritania, Mozambique, Namibia, and Tunisia did not indicate directly the services they offer/offered. However, a total of 16 different types of services were offered by ODINAFRICA Data Centres as follows.

(i) Production and provision of maps as per the request of the customers/stakeoholeders (Algeria, Mauritania, Senegal)
(ii) Provision of data and datasets (Congo, Ghana, Mauritania, Morocco, Nigeria, Senegal, Seychelles, Tanzania)
(iii) Designing of databases (Congo)
(iv) Online publication of information (Congo)
(v) Production and provision of Charts on various themes on marine and coastal resources and environment as per the request of the customers (Congo)
(vi) Provision of relevant training (Congo)
(vii) Searching for and provision of information to customers (Gabon, Seychelles, Tanzania, Togo)
(viii) Online help desk for customers (Gabon)
(ix) Dissemination of relevant documents (Gabon)
(x) Fisheries statistics (Gabon)
(xi) Digitization and provision of maps (Kenya)
(xii) Computer/network administration (Kenya)
(xiii) Data analysis (Mauritius)
(xiv) Forecasts of fish population (Mauritius)
(xv) Access to internet (Senegal, Togo)
(xvi) Design and printing of awareness products (Tanzania)

3.3.3 Statistics on the use of products and services offered

Only very few countries e.g., Tanzania gave some figures on the use of the products and services develop and offer. Some other few countries gave only general statements. Ghana mentioned that the statistics on the use of the products and services are not encouraging. On the other hand, Senegal stated that the frequency of use of the products and services is constantly high. This is one of the areas that ODINAFRICA would wish to strengthen in the future to be able to monitor the impact of the project.

3.4 Capacity availability at the Data Centres in terms of staff and equipment

The capacity available in ODINAFRICA Data Centres in terms of staff and equipment as provided in the reports is summarized in two tables below. The Data Center that has the largest number of staff (Table 3.4.1) is Mauritania which has 11 personnel working at the Data Centre. The one which have the minimum number of staff are Algeria, Gabon, Ghana and Seychelles that have only two staff working at each of them. Five countries, i.e., Benin, Comoros, Congo, Cote d Ivoire and Morocco did not indicate the number of staff working at their Data Centres.

Table 3.4.1: Staff available at ODINAFRICA Data Centres

S/No.	No. of Staff available	Country
1	2	Algeria, Gabon, Ghana, Seychelles
2	3	Tanzania, Tunisia
3	5	Angola, Guinea, Mozambique, Senegal
4	6	Cameroon, Mauritania, Nigeria
5	7	Egypt
6	8	Kenya
7	9	Namibia, Togo
8	11	Mauritania

As for equipment the Data Centre that have the many largest number of computer facilities are Guinea and Togo which have 8 computers each, and the Data Centre which has fewer number of computers are Ghana and Senegal that have only 1 computer each (Table 3.4.2). A total of 8 countries did not provide any details in number of their equipment. These are Benin, Cameroon, Comoros, Congo, Cote d Ivoire, Mauritania, Morocco and Nigeria.

Table 3.4.2: Equipment available in ODINAFRICA Data Centres

S/No.	Type of equipment	Quantities available	Country
1	Computers	1	Ghana, Senegal
		2	Algeria, Kenya, Seychelles
		3	Egypt, Mauritius,
		4	Tanzania
		5	Tunisia
		7	Namibia
		8	Guinea, Togo
2	Printers	1	Gabon, Ghana, Mozambique, Namibia, Senegal, Seychelles
		2	Algeria, Egypt, Tanzania, Tunisia
		4	Togo
3	Scanner	1	Algeria, Egypt, Gabon, Mozambique, Senegal, Seychelles, Togo, Tunisia
4	Backup Disk	1	Togo
5	Others		Guinea, Togo

3.5 Capacity building requirements for the Data Centres in terms of staff and equipment with justification

ODINAFRICA Data Centres were also supposed to identify their capacity building requirements in terms of staff and equipment in their national reports and provide

justification for each. Based on the reports submitted thirteen countries which are Algeria, Angola, Benin, Comoros, Congo, Cote d Ivoire, Egypt, Gabon, Mauritius, Morocco, Mozambique, Namibia, and Togo did not indicate any capacity building requirements in terms of staff. Otherwise, several capacity building requirements in terms of staff were identified by various ODINAFRICA Data Centres in their reports. These were compiled to come up with the list below with 10 requirements.

(i)   Incentive for the staff of the Data Centre to ensure success of ODINAFRICA (Angola, Cameroon)

(ii)   2 staffs, one for secretarial duties and other one for data entry (Ghana)

(iii)   More (advanced) training for Data Centres staff to enable them provide better services and cope with advances in science and technology (Guinea, Mauritania)

(iv)   Training on communication skill to enable Data Centre server better their customers (Kenya)

(v)   Training in website development and online service provision (Kenya, Senegal)

(vi)   One additional trained Data Manager to assist in increasing working load (Nigeria)

(vii)   Training in GIS (Senegal)

(viii) Long-term training in oceanography (Seychelles)

(ix)   One full time Data Manager to manage the increasing working load (Tanzania)

(x)   One computer engineer to manage the data bases (Tunisia)

With regard to capacity building requirement in terms of equipment the following 11 countries did not identify any requirements Algeria, Angola, Benin, Comoros, Congo, Cote d Ivoire, Gabon, Morocco, Mozambique, Namibia, and Seychelles. Otherwise, several capacity building requirements in terms of equipment were identified by the other countries as follows.

(i)   High speed Internet Connection (Cameroon)

(ii)   Upgrade and replacement of old equipment – computers (Cameroon, Ghana – 1 computer, Guinea – 2 computers, Kenya – 2 computers and 1 printer, Mauritania – 1 computer and 1 color printer, Mauritius, Nigeria – 1 computer, Tanzania – 1 computer, Togo – 3 computers, Tunisia – RAM extensions)

(iii)   Data storage facilities (Cameroon)

(iv)   Photocopier (Egypt)

(v)   Telephone line (Egypt)

(vi)   Maintenance of equipment (Egypt)

(vii)   Software
        -   GIS software (Ghana, Senegal)
        -   Software (Togo)
        -   Upgrade from ArcView 3.0 to ArcView 9.X (Tunisia)
        -   Oracle 9i (Tunisia)
        -   Oracle application server (Tunisia)

(viii) GPS – standard and differential mode (Guinea, Togo)

(ix)   Portable radiometer (Guinea)

(x)   Air conditioners – two (Guinea)

(xi)   Power generator – one unit (Guinea)

(xii)   VSAT subscription fee assistance (Nigeria)

(xiii) Large map scanner (Tanzania, Togo)

(xiv)   Plotter – A0 size (Togo)

(xv)   Compass (Togo)

(xvi)   Water level recorder (Togo)
(xvii)   Debimeter to measure flow of rivers (Togo)
(xviii) Mini-laboratory to measure physico-chemical parameters of water (Togo)
(xix)   Spatial data of Image Spot, Landsat, Radar (Togo)
(xx)   Server computer (Tunisia)
(xxi)   Workstation computer (Tunisia)

4. FUTURE DEVELOPMENTS

4.1 Recommendations for further development of the Data Centres

ODINAFRICA Data Centres were requested to provide recommendations that would boost their further development. A total of 19 countries i.e., Algeria, Angola, Cameroon, Comoros, Congo, Cote d Ivoire, Egypt, Gabon, Guinea, Kenya, Mauritius, Morocco, Namibia, Nigeria, Senegal, Seychelles, Tanzania, Togo and Tunisia contributed some ideas. These recommendations have been compiled into 5 groups i.e., (i) Visibility, products and services of NODCs, (ii) Swift and effective functioning of Data Centres, (iii) Networking and outreach, (iv) Capacity building and training and (v) Efficient execution of the project, as shown in Table 4.1.1 below. In compiling, emphasis was on recommendations that were meaning to all Data Centres.

Table 4.1.1: Recommendations for further development of Data Centres

1. Visibility, products and services of NODCs   - Ensure Website is developed and is up and running (Algeria)   - Need to upgrade/improve internet connectivity because most communications are done through the internet (Comoros)   - Products to be made available on the internet and website (Egypt)   - Data Centres should focus on the development of products, including online products, that are based on the requirements of the local stakeholders (Tanzania).   - Subscription at www.sciencedirect.com. (Togo)
2. Swift and effective functioning of Data Centers   - Need to motivate National Staff working for Data Centre and the project by providing some allowances (Angola, Senegal).   - Support for operational expenses provided for the Data Centre is not sufficient for effective implementation of the project (Angola).   - Increase the financial resources of few NODC working effectively (Togo)   - Financial allocation for all activities (sub-projects) planned should be made on a single activity contract (Angola).   - During the transition from ODINAFRICA-II to ODINAFRICA-III, ODINAFRICA-3 started rather early in some countries but late in others. Late receipt of funds for ODINAFRICA project delayed the start of activities (e.g., received in February in Côte

d'Ivoire)

- The time provided in the contract for the implementation of the activities is less than one year and this raises a lot of problems because the staff do not work full-time for the project (Côte d'Ivoire)

- Increased prices of fuel have affected the budgetary costing because it has increased the communication cost on land Côte d'Ivoire).

- To assist in regulating the conflicts, constraints and overlapping in the acquisition of the data (Congo)

- The current orientation of the African Data Centres is aimed to cover more than one marine discipline. This may cause some dispersions in their effort, so it is recommend that Data Centres focus more on the discipline in which they have the appropriate skills and expertise (Tunisia)

- To establish and make operational the technical working groups on the management and the dissemination of oceanographic information (Congo).

- The trained staff is rotated to other sections or outer islands as per the regulations of the institutions (Mauritius).

- Resolve the issue of status of the Data Centre to enable it function properly (Morocco).

- Resolve the problem in using ODINAFRICA funds/budget (Morocco)

3. Networking and outreach

- Make the local network on data exchange operational (Cameroon)

- Development of the exchanges between the various stakeholders (Gabon)

- Support to NGOs in the dissemination of information and products from the data centre (Cameroon)

- Support to media for information dissemination (Cameroon)

- Establish close linkage to data-producers programs or networking (Tunisia)

Data Centres should be more involved in international data management programs (Tunisia)

4. Capacity building and training

- Increase capacity building of the local experts, which is a necessity for efficient management of data handling and analysis of the NODC (Egypt)

- Provide advanced training for the staff of the Data on the methods and management tools, including data quality control (Tunisia, Guinea

- Training on development of web based services including web mapping (Kenya, Seychelles)

- Need for creation of a group of experts to address gaps in climate and ocean modelling, as was reiterated in last IOCWIO VI meeting (Seychelles)

- Grant training opportunities to the other collaborators of the Data Centres apart of only from the regular training organized by the ODINAFRICA network (Togo)
5. Efficient execution of the project - There's so often breakdown in communicating to the Project Manager, leading to proposal dates being extended (Namibia). - The Namibia Data Center should receive additional funds for operations i.e. for visiting and communicating to other marine activity centers e.g. University of Namibia's Marine research center at Hentis Bay. - An additional national financing should reinforce the capacities of the centers within the framework of the establishment and the execution of activities for the satisfaction of the stakeholders needs (Senegal). - CNDIO-Gabon did not achieve all the goals which were planned. The objectives were not achieved because of little credit which the authorities grant to the ODINAFRICA project. Consequently, there is not any local contribution from the government to the Data Centre.

4.2 How ODINAFRICA can contribute to strengthening the Data Centres

Apart of providing recommendations for further development, ODINAFRICA Data Centres were also requested to provide information on how ODINAFRICA can contribute to strengthening them to better enable them serve their users. A total of 15 countries contributed some ideas. These are Angola, Cameroon, Congo, Gabon, Ghana, Guinea, Kenya, Mauritius, Mozambique, Namibia, Senegal, Seychelles, Tanzania, Togo and Tunisia. The various ideas that were relevant for all Data Centres were compiled into 6 groups which are (i) Effective implementation of the project, (ii) Outreach, (iii) Direct support to Data Centres, (iv) Training requirements, (v) Networking and (vi) Sustainability and future orientation of the Network, as shown below in Table 4.2.1.

Table 4.2.1: How ODINAFRICA can contribute to strengthening Data Centres

1. Effective implementation of the project - The financial mechanism for sending money from IOC to NODCs is very slow and complex. This needs to be reviewed. Release of funds on time for running of ODINARICA activities is recommended (Ghana, Angola) - ODINAFRICA should grant sufficient funding for the activities on the ground. This will enable the involvement of more stakeholders. (Gabon, Ghana, Mauritius)
2. Outreach Support country to organise meetings and training workshops on product development and awareness (Cameroon)
3. Direct support to Data Centres - Provide (more/replacement) equipment facilities to the Data Centres (Congo, Guinea, Kenya, Mauritius, Seychelles, Tanzania) - Continue to provide seed money (Seychelles)

- To assist in the creation and the operation of national Data Centre and ensuring its Internet connectivity (Congo)

- The first payment provided for activities planned (workshop of data management and marine biodiversity) for 2006 is not done (Angola).

- Assist NODCs to provide free access to computers and free internet to the users for their research (Togo)

- Assist in improvement of internet connectivity by supporting installing of VSAT (Togo)

Assist in accessing data and information in holding by the navy (Guinea).

- Arrange to transfer all oceanographic data and information existing outside the country to the NODCs (Cameroon)

4. Training requirements

- Training of additional Data Managers is recommended, for example in a situation when the trained staff is on study leave (Ghana, Mauritius, Tanzania).

- Assist in accessing data from remote sensing devices such as satellite altimetry (eg, SPOT, Radar satellite images) and training for derived products and services from the acquired dataset (Mauritius).

- Assist in access and interpretation of model outputs for Forecast of climate change and other natural and geophysical hazard (Mauritius).

- Acquisition of GIS Software and training its application and remote sensing (Mauritius, Mozambique).

- Training in Tide gauge equipment maintenance (Mauritius).

- Training in Sea level data assimilation, archiving, quality control (Mauritius)..

- Training in local tide forecast (Mauritius).

- Training to access and manipulate Hydrographical and seismic data (Mauritius)

- Provide long-term training e.g. in Oceanography, Marine Science and Information Science (Seychelles).

- Organise training (and remedial training) in geographical and oceanographic databases management (Togo)

- Ensure more training to the Data Centre staff mainly for the data quality control (Tunisia)

- ODINAFRICA should continue the reinforcement the capacities of the Data Managers to enable the Data Centre to respond adequately to the requests of the users and thus ensure sustainable management of the resources and the marine and coastal environment (Senegal).

- The ODINAFRICA needs to organize training seminars based on assessment of Data Managers' needs (Mozambique, Tanzania).

- Review the criteria of selection of Applicants to the training course due the different level between countries members of ODINAFRICA III Project (Angola).
5. Networking - ODINAFRICA, as an African network, must continue the reinforcement of the linkage of ODINAFRICA countries and also the linkages with the IOC/UNESCO and its programs like IODE (Senegal). - Assist NODCs to organize semi-annual open days (Togo) - Sensitize students on the training and career opportunities in oceanography (Togo) - strengthen the linkage between the Data Centres and international data organizations or programs such as ICAM, IGOOS, OBIS (Tunisia) ODINAFRICA should ensure the promotion of the exchanges by support seminars, conferences, symposia etc, which will contribute in the establishment and capacity building (Guinea)
6. Sustainability and future orientation of the network - The reinforced and rolling programmes of ODINAFRICA would contribute to the reinforcement of the NODCs and enable them to better serve the stakeholders (Guinea). - Put in place a good system to track data from national, regional and international institutions (Cameroon) - Support 2 or 3 key national institutions on data collection and exchange by providing equipments, software and internet access facilities (Cameroon) - Help in the orientation of the Data Centre by the identification of responsible Data Centres in a specific discipline at the African level (Tunisia)

SECOND ODINAFRICA SEMINAR

24-26 April 2006, Ostend, Belgium

Table 1: Summary of National Reports

S/No.	Country	Activities implemented including databases & number of records	Products and services offered and statistics		Capacity availability		Capacity building requirement	
			Products	Services	Personnel	Equipment	Personnel	Equipment
1	Algeria	Started developing databases of institutions, marine science professionals, available datasets An inventory of the air photographs and satellite images covering the Algerian coast is under development	Planing development of marine resources and environment atlas	Provision of maps and charts at various scales to stakeholders	2 people	2 computers 2 printers 1 scanner 1 tracer		
2	Angola	Developing a database of INIP in Oceanography/meteorological and data Developing a database of marine biodiversity with emphasis fisheries resource. National coordination meeting held in Luanda from 20 October 2004 during which the Angola's Oceanographic Data Centre was focused Participation at the Training Course on Oceanographic Data Management and Marine Biodiversity held in Ostende/Belgium between 11-29 April and 18-14 April 2004 respectively.	2 products based on the Nansis programme connected to surfer: (i) Horizontal distribution of temperature, salinity and oxygen (ii) Vertical distribution of temperature, salinity and oxygen:		5 people	Not yet cleared from customs		

3	Benin		1) Database of the principal species of fish and products of sea of commercial interest of the continental shelf of the BENIN					
			2) Database of the Experts of the field of waters fresh and marine from Benin					
			3) Database of the principal campaigns carried out in the coastal zone and the continental shelf of Benign since 50 years					
			4) Database of the Maritime fisheries to Benin composing (given on total capture, machines of fishing effort of fishing)					
			5) Data base put marine weather					
			6) Data base economic socio- in the coastal zone					
			7) Data base on environmental parameters for coastal and marine					

			8) Data base on the principal species of Cetacean which migrate in maritime water Beninese. 9) Data base on heavy metals in certain water levels of the coastal zone. 10) Data base on the marine physicochemical parameters and certain water levels of Benin 11) MEDI updated with 26 recordings.					
4	Cameroon	Metadatabase: A Medilite file has been developed with Meta data for Cameroon	Almanac/Field guide on coastal and Marine fishes in Cameroon CD ROM with Natural and anthropogenic characteristics of the coastal zone Updated Directory of Marine and freshwater professionals in Cameroon		1 data manager 3 junior scientists 2 support staff	1 office with facilities for internet connection	Incentives for junior and support staff for the smooth running of the Centre	Internet connection with high debit to allow easy file loading Upgrade of equipment Data storage materials

| | | | Updated Bibliography on Fisheries and Oceanography Research in Cameroon

Profiles of institution participating in ODINAFRICA in Cameroon | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 | Comoros | National workshop to evaluate the national needs as regards products and services to be developed by the center, held in Moroni on January 17, 2005

Development. and maintenance of the hydrological data. They are physicochemical data of marine water (salinity, temperature, alkalinity). | | | | | | |
| 6 | Congo | | Diagnostics of the fisheries in the maritime of Congo,

Plan for the establishment of the management of the maritime fisheries in Congo,

Identification of the endangered marine species in Congolese coastal water | The following locally collected data types can be provided freely at request to stakeholders: Oceanography, biological, climatological, pedologies, botanical, palynologies, vegetation ecology

Design of fishing information and | | | | |

			National inventory of the Researchers in marine science and coastal zones Inventory of the Oceanographic cruises and trawling carried in the Congolese continental shelf (since 1957) Inventory of the national Institutions involved in marine science and coastal zone Inventory of the Trade associations and NGOs main roads of the sea and the coastal zone Catalogue database of the library A database historical of the sea level A situation report on the coastal zone at the national level, including the profiles of changes of the features of coast	oceanographic databases Setting on line of information available Production of charts on various themes on the marine and coastal environment Provision of relevant training Support the council on the management of the fisheries and others in the field of the coastal zone Training in oceanographic data management				

7	Côte d'Ivoire	1) Permanent exchange with the regional coordinator of the work package concerned 2) Collection of the data of the CNDO 3) Participation in the training workshop on data management in Belgium. 4) Establishment of a partnership with the Port authority of Abidjan for the management of the oceanographic data. 5) Organized a national workshop					
8	Egypt		1) Checklist of Egyptian Mediterranean Fishes 2) Checklist of Egyptian Mediterranean Polychaetes 3) Tides at Alexandria, Egypt, for the period 1993-2000 4) M2-Tides in the Mediterranean 5) Checklist of Egyptian Red Sea		7 people	3 computers. 2 printers 1 scanner Network	1) Photo Copier 2) Telephone line 3) Maintenance of equipments

			Fishes				
			6) Checklist of Copepoda in the Gulf of Aqaba				
			7) Hydrographic studies of some lagoons near Hurgada				
			8) The circulation of the Levantine Basin				
			9) Current System Survey at Exploratory drilling site Hurgada-red sea				
			10) Topography, tides and physio-chemical characteristics of the Egyptian Mediterranean shelf waters off Sinai				
			11) Investigations of Al-Homayrasite south Sinai governorate-Egypt (Final Report)				
			12) Topography, tides and physio-chemical characteristics of the Egyptian Mediterranean shelf waters off Sinai (Vol				

			5)				
			13) Concentrations of the major ions in sea water of deferent salinity				
			14) A study of the circulation of the Levantine basin (project) January, 1989				
			15) Physical Oceanography data for Red Sea (1990-2000)				
			16) Check list of Egyptian Mediterranean Sea Fishes				
			17) Hydrographic studies of some lagoons near Hurgada				
			18) Circulation models applied on the eastern Mediterranean Sea				
			19) A comprehensive bibliography of the physical oceanography of the Mediterranean Sea				
			20) Hydrography				

			21) Environmental Pollution Data for Red Sea and Med. Sea 22) Environmental chemical parameter for Red Sea and Med. Sea 23) Biodiversity of Red Sea and Med. Sea 24) Fisheries 25) Microbiology data of Red Sea, Med. Sea and Lakes 26) Suez Gulf tide 27) Data of several national and international cruises in Red Sea and Med. Sea				
9	Gabon		1). A national repository of the users of the sea and littoral, ready for publication 2). a repository of specialists in oceanology 3). a repository of	1) searching for information 2) dissemination of relevant documents 3) an online help desk 4) statistics of maritime and	2 people	1 printer 1 inverter (broken down for 1 year) 1 scanner Communication and connection of telephone line with a connection to	

No	Country						
			the libraries and resource centre of the marine science 4). a catalogue of the scientific and technical publications 5). a network and news bulletin, which the first issue was published in June 2004.	continental fishings in Gabon (1994-2003) 5) statistics of the ports Gabonese (2001-2003) 6) activities of conservation of the marine tortoises in Gabon (2003-2004)		Internet not yet installed by the project	
10	Ghana	- Updating of Metadata – The metadata was updated during the major updating of the ODINAFRICA metadatabase. - Compilation of Sea level data – Sea level data from the Takoradi tidal gauge station has been compiled starting from August 2004 to June 2005. This represents 11 Excel files. - Compilation of Meteorological data. Meteorological data from Meteorological Station at Tema harbour from August 2004 to	- Ocean Data View (ODV) products - Surfer products - Arc Explorer products, such as, Medi, Metadata - Marine Atlas of Ghana - Data Centre Documents and Matrix - Environmental Data series - Species Data Base (biogeography)- Sets of CD-ROMS of ocean data	Provision of ocean data such as tide tables **Statistics on usage of the products and services are not encouraging. It is difficult to quantify it at this stage**	2 people	1 computer 1 printer	2 personnel, 1 for secretarial duties and 1 for data entry.	1 Computer GIS software

		April 2005 has been compiled. This represents 9 Excel files.						
11	Guinea	- Collection and processing data - Structuring of the METADONNEES - Structuring of the existing oceanographical database - Management of the data which involved establishment of a structuring of the entering numerical data on the coastal zone - Processing of certain data on the coastal zone using the Océan Data View software	- Atlas of the Self Currents of Guinea - Atlas of the Coastal Currents of Guinea - Network of maregraphic observation - Programme of prediction of the tides - Tide databases - hydro Data – weather - Sedimentological Chart of the Guinean Exclusive Economic Zone - Bathymetric charts of the coastal zone and the self-service of Guinea - Marine databases - Knowledge of the zones of Biological productivity of the ZEE		5 people	- 1 functional tide gauge - 2 computers - 6 portable computers - Various software	personnel's competences need to be reinforced	- 2 GPS in standard and differential modes - a portable radiometer - 2 air-conditioners - 1 power generating unit of about 7 kcVa - 2 computers

			- Charts of localization of the sites of great biological productivity - Inventory of the avifauna in the wetlands - Environmental information system on bay of Sangaréah					
12	Kenya	- Data of temperature, oxygen, salinity, nitrate, phosphate and silicates at varying standard depths extracted from the World Ocean Circulation Experiment (WOCE), World Ocean Database 2001, and the satellite-derived datasets of the Coastal Zone Color Scanner. - Plots giving summaries of these data in contour charts and graphs, cross section plots, annual means, monthly means and minimum and maximum. - Marine protected area monitoring data in collaborating with the KWS marine park monitoring teams. - Coastal resources data in GIS format	- Distribution of hydrological datasets (minimal)	- Digitizing and production of GIS maps (majority) - Administration of computer systems	- 4 people (Data manager, Project assistant, 2 Part time scientific staff) - 4 shared staff (website developer, IT staff, messenger, cleaner)	- 2 computers - Shared equipment (printer, PCs, plotter, digitizer)	- Training on communication skills to prepare awareness and education materials - Website development	- 2 computers - 1 printer
13	Mauritania		- database of hydrometeorological		11 people	- 3 office (48M²)	Reinforcement of the	- 1 computer - 1 color printer

			and environmental - statistics of fishings (captures, species, efforts of fishing, licences of fishing of the ships, numbers artisanal boats, frequencies of sizes of the species... etc.) - biological data of the principal species (size, weights, maturity, contents stomachic... etc.) - data of stocks assessment (determination of the fished species, parameters size-weight, a number... etc.) - National database of professionals of marine water - Cruise Reports: e.g., reports of the cruises of the N/O of the CNROP, Fridtj of NANSEN, the Russian N/O and others - weather data of two stations of			- data-processing equipment 1 conference room (40 M²) - Data processing Park of the CNROP.	capacities of data manager is required	

			Nouadhibou and Nouakchott since 1960 - data of atmospheric pressure of the Azores and the North of Mauritania. - hydrological database which dates to the Fifties - database of the population of the seals monks (monachus monachus) species - database on resource distribution					
14	Mauritius	- Extraction of all data in a rectangular block bounded by 50ºEast – 95ºEast and 10ºS to 25ºS from World Ocean Database 2003, compilation and conversion into excel format for subsequent local research - Marine Data for the Mauritius EEZ have been extracted from the Maritime Meteorological Dataset 2003 edition, from the KOBE Collection. ARGO data are also being regularly	- Products of salinity, temperature, nitrate, silicate, oxygen, phosphate against depth have been worked out using the Ocean Data view Software - Coastal sensitivity Atlas - Coastal land use map	provides data on Sea level, waves and surface temperature to students of University and research scientists regularly, and other stakeholders. Analyses of Waves, Tides and SST as regularly requested by end users	6 people (4 part-time technical officers, 2 part-time senior scientists)	Local area network and internet facilities 3 computers Telephone/fax/email		- Equipments are getting old and need replacement and in some cases require extra numbers.

		extracted for the area of interest and assembled in compact discs.	- Marine Atlas of South Eastern Coasts - Marine climatological charts based on data collected locally. - Maps of fish specimens - Statistical bulletins on coastal fisheries - Automated treatment of sea surface temperature which leads to objective production of analysed charts with isotherms at regular intervals and gridded data field on a monthly basis. - Frequency distribution of surface wind speed and direction in the form of wind along the coastal areas. - Wave charts of frequencies of total wave height - Swell charts on	- Production of fishing charts - Forecasts of fish population				

			data based on the wave rider buoy - Tidal predictions - Frequencies of occurrence and tracks of cyclones, distribution for the months of the year - Precipitation given as frequencies or percentages of the number of hours during which precipitation was observed. - Frequencies of various degrees of cloud cover (total and low) and heights.					
15	Morocco	Creation of products from ODV database	Various ODV database based products Website	Provision of various ODV based dataset to and products to stakeholders				
16	Mozambique	- Processing of cruises report of Mozambique channel - digitalisation of information about the data from department of Biology and Physics of the Eduardo Mondlane University; Fishery Research Institute (IIP); National Institute of	- Brochure on Meta data (2005) - Brochure on data products and quality control (2006)		5 people (1 full time staff and 4 collaborators from partner institutions)	1 CD RW 1 Scanner 1 printer 1 whiteboard.		

		Hydrograph and Navigation (INAHINA); National Direction of Water; National Institute of Meteorology (INAM). Organised a national workshop in April 2005						
17	Namibia				9 People (4 researchers, 1 senior technician, 3 technicians and 1 technical assistant.	7 computers 1 printer		
18	Nigeria	**1. Medi- Africa -** compiled and sent the Nigeria Metadata to the IOC designated compilers for uploading to the Medi-Africa site. **2 Mailing List expansion –** expanded mailing list to accommodate the representatives of institutions collaborating with the NODC. **3. Data and metadata collections -** collected Metadata and datasets in the area of Fisheries, Biology, Economics and statistics. Forms requesting individuals and organizations to summit to the center data and meta data have been distributed.	- Efforts are being geared towards the preparation of various topographic and bathymetric maps. - Near-shore bathymetric maps have been collated and achieved - A national database of Oceanographic and meteorological data and information from the Next Generation Water Level measuring system	- Provision of data to government depts, researchers and students. - Provision of data to the Hydrographic Division of the Nigerian Navy for the production of tide tables annually.	6 People (4 senior officers, 1 secretary and 1 office assistant)		- 1 trained data manager	- 1 computer to replace the old one. - Assistance for VSAT subscription (USD2400 quarterly)
19	Senegal	- data collection/acquisition (oceanographic and	- a catalogue of the metadata of the	- provision of data of good quality to	5 people	1 office of 16 m² 1 Computer	- Training in GIS	- GIS software

		environmental) in real or differed time at the national level starting from the network of partners - creation and maintains it métadatabases and databases	natural resources of Senegal - a catalogue on the metadata of marine and environmental - an atlas on the temperatures and salinities of surface of the sea over the period 1971 - 1990 - a Web site for better informing the users of data and products of oceanographic data available to the center - several other databases	students, researchers, projects - with the cartography of coastal zone having to shelter projects of establishment of hotels, emissary of station of purification, etc... - access to Internet to more than 20 people of the CRODT.		1 Printer 1 Scanner	- training in webpage development .and online service provision	
20	Seychelles	- Meta database developed with MEDI. This Includes 125 records (inclusive of data sets, Books and scientific papers). - Database of national institutions involved in ocean related activities: Fisheries Database, Fishermen and Marine Species Database - National database of marine professionals: being developed - National meteorological databases: rainfall	- National and other Ocean Resource Atlases: Fisheries Potential Mapping Atlas – ongoing - National and other Environmental Atlases: Sensitivity? mapping Atlases - Charts of potential fish spawning aggregation sites - Maps of Sea	- Provision of raw data: ongoing - Information to public: Ongoing	2 people	- 1 Office - 2 computers - 1 Scanner - 1 CD Writer - 1 printer - 1 shared telephone line - Broadband Internet connectivity (24-hours)	- Long-term training in oceanography	

| | | | cucumber exploitable areas

- Potential fishing ground maps for tuna and swordfish fishing

- Website (s) about the data centre: Yes, being revamped

- Brochure: produced 2004 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | - National and other Biodiversity databases: Research driven - mainly birds, turtles, plants (invasive plants) and National Parks. | | | | | | |
| 21 | Tanzania | (i) Updating of IMS/TzNODC webpage and maintenance

(ii) Collection of data and information from various researchers, Government Institutions, NGOs, Parastatals etc

(iii) Updating of TzNODC databases and data quality control. | (i) GIS maps on various themes that are usually produces based on the requests from stakeholders.

(ii) Various base-mapping products

(iii) One data summary on the "Temporal variation in seawater temperature, macroalgal abundance and coral settlement density off Zanzibar town, Tanzania". | (i) Provision of data to the various users/stakeholders as per their requests

(ii) Looking for appropriate information required/requested by the users

(iii) Designing and printing of awareness products mainly posters. | 3 people | 4 computers
2 printers | 1 full time Data Manager | 1 Large map scanner
1 Computer |
| 22 | Togo | - Digitization data available on paper format from data providers and processing. The data cover a range of several years. The main components | 1. - Referential of Togo coastal and marine environment, edition 2003 | - Computer services are opened to the general public (students learning | 9 people | - 8 computers (3 by ODINAFRICA, 5 by the university)

- 1 scanner | | - 3 computers to replace aging ones provided by ODINAFRICA. |

		include: (i) Data of the natural environment (morphology, climatology, oceanography, fauna and flora) (ii) Socio-economical and cultural Data (History, culture, health, industry, agriculture, breeding, fishing, population, etc.) (iii) Marine biodiversity (animal and vegetable) ; number of records : 1500 (iv) Images (degradation of sites, faunas, terrestrial and marine flora)	2 - Inventory of the researchers and the institutions, edition 2003. It consists of 27 researchers and engineers and 17 institutions.	Geography, Marine Biologic Sciences, Economic history and Law visit very regularly and get access to the the various data files) - Partners and other stakeholders come for additional information and conference papers.		- 4 Printer (2 by ODINAFRICA, 2 by the University) - Disc Back up (120 GB) - GPS FX 312, ECP 25 m		- Plotter A0 - Scanner A0 - GPS(Spatial data acquisition GPS FX 312, ECP 25 m) - Compass - Water level recorder (Limnigraphe) - Debimeter (to measure flows of the rivers) - Mini laboratory (to measure physicochemical parameters of water) - Software - Images Spot, Landsat, Radar (Spatial data)
23	Tunisia	Several data bases were developed and maintained: **- The Hydrological database**: It includes different modules: a dynamic reading of the files, such as generated by	- The databases - Coastal and Marine Atlas		3 people	5 computers 1 Scanner 2 Printers 2 Arc View	1 computing engineer for database management	- Server for data distribution at national level - Workstation for images and GIS data

		measuring sensors, format conversions, quality control following the MEDAR/MEDATLAS protocols, and interfaces with specialized software for data handling (i.e. ODV) and metadata generation. **- The phytoplankton and heavy metals database:** consists of a Web-based tool for data addition and consultation. This tool can detect instantaneously the sanitary position of coastal areas and permits, in some toxicity cases, to identify the responsible agent and to assess the geographic dispersion of a toxic event. Contains data since **- The Trawling survey database:** Trawling survey database includes more than 700 experimental hauls performed between 1999 and 2006 with about 7600 species catch and 27000 biological data. **- Biodiversity dataset:** This product is currently in the final steps of development.				1 Arc/Info 1 Surfer		handling - RAM Extension for Old PCs - Upgrade from Arcview.3 to Arcview.9 - Oracle 9i - Oracle application Server
24							

SECOND ODINAFRICA SEMINAR

24-26 April 2006, Ostend, Belgium

Table 2: Summary of National Reports

S/No.	Country	Location	Name and address of the Head	Recommendations for further development	How ODINAFRICA can contribute to strengthening
1	Algeria	The center is currently lodged at the ISMAL (Institut des Sciences de la Mer et de l'Aménagement du Littoral) under the ministry for the higher education and scientific research	Dr. Mokhtar GUERFI. Institut des Sciences de la Mer et de l'Aménagement du Littoral – **ISMAL**- Campus Universitaire, BP 19, Dély Ibrahim, Alger (Algérie) Tel: + (213) 21 91 89 08 Fax: + (213) 21 91 77 90	Website under development	
2	Angola	Hosted by the Nacional de Investigação Pesqueira (INIP)	Domingos Azevedo Rua Mortala Mohamed, Ilha de Luanda; P. O. Box 2601 Luanda **Tel:** + 244 2 309077 **Fax:** + 244 2 309330 or +244 2 309731 **Email:** @yahoo.com.br	There is need to motivate National Staff working with the project by giving some allowances for a better output. Operational expenses for the Data and Information Centre should be more than 5,000 US dollars a year for full Project implementation due to the expensive of Internet service. For each existing NODC, financial allocation for all sub-projects planned for a year should be made on a single activity contract.	In the most workshops or training courses programmed the criteria used for the Applicants were not favourable for Angola. The first payment provided for activities planned (workshop of data management and marine biodiversity) for 2006 is not done. The work planned to be carried out by the Data Centre through Internet connection was not done due absence of computer with high capacity and due the financial support. The NODC is working with INIP Internet system and we are presently waiting on the Internet service provider to settle all ODINAFRICA problems.

					We are requesting to ODINAFRICA manager to review the criteria of selection of Applicants to the training course due the different level between countries members of ODINAFRICA III Project. 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. Is that possible to review it.
3	Benin	Hosted by the Centre de Recherches Halieutiques et Océanologiques du Bénin **(CRHOB)**	SOHOU Zacharie Adresse: CRHOB/CBRST, Avenue Maro-militaire Bâtiment Annexe Immeuble Soglo 03 BP 1665 Cotonou Tel. office: (229) 21 32 62 14/ 21 32 12 63 Tél.dom: (229) 21 35 28 64; Mobile: (229) 97 07 20 57 E-mail: z.sohou@odinafrica.net zsohou@yahoo.fr		
4	Cameroon	**University of Douala, Faculty of Sciences** P.O.Box 24 157 Douala Cameroon Tel/Fax: (237)340 75 69 URL: www.u-douala.cm	**Mr Essome Guillaume Léopold** Faculty of Sciences University of Douala P.O.Box 24 157 Douala Cameroon Mob: (237) 936 71 86 Email: essomekoum@yahoo.fr	Moving of the data centre from Limbe to Douala has affected the continue development of Meta data since the new data manager was trained on data management only during the training workshop which took place from 11 to 29 April 2005 at Oostend, Belgium To train 1 or 2 scientists to take care of the tide gauge	Arrange to transfer all oceanographic data and information existing outside the country to the NODC Support 2 or 3 key national institutions on data collection and exchange by providing equipments, software and internet access facilities

| | | | | Identify appropriate site for the installation of tide gauges and other observing systems

Make the local network on data exchange operational

Update and generate maps of all coastal risk zones

Elaboration of maps and model on extreme events

Complete data collection on coastal biodiversity
Identify biodiversity hot spots
Produce coastal biodiversity maps

Identify and assess needs of institutions dealing with marine and coastal areas management

Update national directory of freshwater and marine Professional

Map fishing zones and increase surveillance

Support to NGOs in the dissemination of information and products from the data centre

Train and sensitize the public on the use of oceanographic data and products

Support to media for information dissemination | Support country to organise meetings and training workshops on product development and awareness.

Put in place a good system to track data from national, regional and international institutions |
| 5 | Comoros | | | We need to make more efforts to | |

				catch up with other nations, more especially as there was a first phase of the project (of 1995 to 2000) of which we did not take part. Need to upgrade/improve internet connectivity because most communications are done through the internet.	
6	Congo	Hosted by the Centre de la DGRST /IRD de Pointe - Noire	Not yet decided	To create and maintain various national databases To assist in regulating the conflicts, constraints and overlappings in the acquisition of the data Continue the management of the oceanographic data To establish and make operational the technical working groups on the management and the dissemination of oceanographic information.	To assist in the creation and the operation of national Data Centre and ensuring its Internet connectivity Provide equipment for the Data centre
7	Côte d'Ivoire	Based at Centre de Recherches Océanologiques		A gap in financing between ODINAFRICA-2 and ODINAFRICA-3. ODINAFRICA-3 started rather early in certain countries but late in Ivory Coast. Activities stalled. 3.2. Late receipt of funds for ODINAFRICA project delayed the start of activities (received in February). The time provided in the contract for the implementation of the activities in Ivory Coast is less than one year and this raises a lot of	

				problems because the staff do not work full-time for the project. Increased prices of fuel has affected the budgetary costing because it has increased the communication cost on land.	
8	Egypt	Hosted by the National Institute of oceanographic and Fisheries	Dr. Ahmed El Nemr National Institute of Oceanography and Fisheries 641 El Horia Street, Ap#15, Alexandria, Egypt. Tel:/Fax: 20-3-5740944 E-mail: ahmedmoustafaelnemr@yahoo.com	1) The metadata of all oceanographic parameters available will be completed. 2) All historical data of the Egyptian national waters will be retrieved from the overseas institutions and a database created at the NODC. 3) Atlases of the oceanographic variables of the Egypt will be prepared. 4) An exchange data policy among ocean data producers and with regional and international bodies will be formulated. 5) Data having its primary purpose acquired will be made available for other research scientists and users for further exploitation. 6) Ocean products will be made available regularly on the internet and website. 7) Newsletter will be prepared at regular intervals to highlight the NODC progress and publicity. 8) A questionnaire will be prepared	

				and sent to the marine communities in order to assess the type of data necessary for collection and monitoring. 9) Increase capacity building of the local experts, which is a necessity for efficient management of data handling and analysis of the NODC.	
9	Gabon	Hosted by Institut de Recherche en Sciences Humaines (IRSH)	Dr. Magloir-Désiré **MOUNGANGA** Institut de Recherche en Sciences Humaines B.P 10.961 Libreville GABON **Tel:** (241) 07 52 69 73 **Email:** moungang@nomade.fr	CNDIO-Gabon did not achieve all the goals which were planned. 1) Development of the national metadatabase, and the oceanographical databases. 2) Development of the exchanges between the various stakeholders. 3) Promotion of oceanographical research in Gabon. 4) Reinforcement of the institutional, human and material capacities of the country. The objectives were not achieved because of little credit which the authorities grant to the ODINAFRICA project. Consequently, there is not any local contribution from the government to the Data Centre.	To know the needs for all the stakeholders, an exhaustive inventory is essential, and thus it is necessary for ODINAFRICA to grants sufficient funding for the activities on ground. This will enable involvement of can a greater number of stakeholders.
10	Ghana	Located within the premises of the Marine Fisheries Research Division			Training of additional Data and Information Managers is recommended. Currently, the two people are on study leave and it is affecting the effective running of the Centre

					Release of funds on time for running of ODINARICA activities is recommended. Usually funds release is less than activities budgeted for and it is recommended that adequate funds are release for activities.
11	Guinea		DIAKITE Satigui Sciences de l'environnement BP: 1615 CERESCOR République de Guinée Tél.60 52 46 89 Email: satigui2001@yahoo.fr or s.diakite@odinafrica.net	The establishment of a system of observation at the national level covering all the continental shelf of the Republic of Guinea Renewal of the processors of the data and information on the littoral zone and the ocean collected in the various engineering departments of the country collaborating with the CNDO The CERESCOR remains the greatest service provider which has more data and information but whose average equipments of observation and treatment needs to be completely replaced in order to enable it continue playing the part it has always played in stock management and scientific activities of maritime research in zones of the Republic of Guinea The advanced training for the staff of the data and information centres on the methods and management tools of ocean data and information on the spot or online	The reinforced and rolling programmes of ODINAFRICA will surely contribute to the reinforcement of the Guinea CNDO which will enable it to better serve the users of the data and marine information. ODINAFRICA should equip the CNDO with equipment for data collection and processing and information navy and coastal ODINAFRICA should ensure the promotion of the exchanges by the means of actions of support such as seminars, conferences, symposia etc, in a writing which will ensure the establishment and the reinforcement of the capacities (infrastructure, equipment, human and informational resources) Assist in accessing data and information in holding by the navy.

				To facilitate the access to the regional and international networks of data and information navy and oceanic etc.	
12	Kenya	Hosted by Kenya Marine and Fisheries Research Institute (KMFRI)	Mr. Harrison Ong'anda Kenya Marine and Fisheries Research Institute P.O. Box 81651, 80100 Mombasa Tel/Fax: 254 (0)41 475157 Email: honganda@kmfri.co.ke	- Training on development of web based services including web mapping	- Provide more computer facilities
13	Mauritania	Hosted by the National Fishing and Oceanographical Research Center			
14	Mauritius	Hosted by the Mauritius Meteorological Services	Mohamudally Beebeejaun Saint Paul road, Vacoas, Mauritius Tel: (230) 686-1031 Fax: (230) 686-1033 Email: m.bbjohn@odinafrica.net	- The trained staff is rotated to other sections or outer islands as per the regulations of the institutions. - Physical parameters (bathymetry and current pattern): Surveys are carried out as and when required. A complete survey of the physico-chemical parameters over a span of 3 years is required over the island. - Hard structures on shoreline: a complete survey of hard structures need to be carried out to establish the behaviour of same in the coastal environment. - Inland hydrogeological survey. This needs to be undertaken so as to assess the state of the lagoon due to seepage of inland sources of pollution. - Riverine and estuarine ecological surveys including water quality. A study need to be undertaken.	- Lack of adequate personnel. Necessary funds are not available to increase the outputs by allowing extra duty allowances. - Equipments are getting old and need replacement and in some cases require extra numbers. - Data access from remote sensing devices such as satellite altimetry and training for derived products from the acquired dataset. - Data access for the Mauritian coasts from SPOT or other satellites. These data are essential to monitor shoreline changes and coastal erosion. - Acquisition and training in Radar satellite images for the EEZ surveillance

					- Access and interpretation of model outputs for Forecast of climate change and other natural and geophysical hazard - Training and acquisition of GIS Software and its application - Training in Tide gauge equipment maintenance - Training in Sea level data assimilation, archiving, quality control. - Training in local tide forecast - Training to access and manipulate Hydrographic and seismic data.
15	Morocco	Hosted by the Laboratoire d'Océanographie & Limnologie Département de Biologie Faculté des Sciences	H. EL OUIZGANI Laboratoire d'Océanographie & Limnologie Département de Biologie Faculté des Sciences, BP 8106 - Agadir (Maroc) Mob. 212 66 17 20 47 Tél. 212 48 22 07 59 Fax 212 48 22 00 01	Resolve the issue of status of the Data Centre to enable it function properly. Resolve the problem in using ODINAFRICA funds/budget	
16	Mozambique	Hosted by the Instituto Nacional de Hidrografia e Navegação (INAHINA), is located at Karl Marx Avenue 153-5/12, Postal Code 2089, Maputo - Mozambique	Instituto Nacional de Hidrografia e Navegação (INAHINA), is located at Karl Marx Avenue 153-5/12, Postal Code 2089, Maputo – Mozambique Telephone: 258 21 430186/8 Fax: 258 21 430185		- Training in GIS for processing images and remote sensing to allow us to interpret image
17	Namibia	Hosted by National Information and	Dr. Ben Van Zyl	- There is a need to expand data	- The ODINAFRICA needs to

				collection both meteorological and oceanographic offshore.	organize training seminars based on assessment of data and information managers' need.
		Research Centre (NatMIRC) Located at Strand Street, Swakopmund, Namibia	National Marine Information and Research Centre (NatMIRC) P. O. Box 912, Swakopmund Namibia Tel: +264 64 410 1000 Fax: +264 64 404385	- There's so often breakdown in communicating to the Project Manager, leading to proposal dates being extended.

- Since Namibia's participation in 2004, the first contribution for equipment towards the upgrading of the data and information center was only confirmed mid-February 2006. We managed to purchase two PC's for the library as these were urgently needed and the third one for the data manager has also been ordered. As proposed the center should receive additional funds for operations i.e. for visiting and communicating to other marine activity centers e.g. University of Namibia's Marine research center at Hentis Bay.

- This highlights the need to speed up communication between the Project Manager and the Data Centers for proper implementation of the project. | |
| 18 | Nigeria | Hosted at the Marine Geology/Geophysics Division of NIOMR headquarters building in Victoria Island Lagos. | | - The center will continue to create awareness through workshops and seminars organized under the ODINAFRICA project locally | |
| 19 | Senegal | Hosted by the Oceanographic Research Center of Dakar-Thiaroye (CRODT),), located in the Park of Research ISRA/HANN. | Mr. Anis DIALLO, CRODT/CNDO-SN, Park of Research ISRA/HANN, B.P. 2241 Dakar, Senegal | - It is essential that the people who work in the centers, are motivated with more dynamic implications of the institutions of the national network. | - ODINAFRICA, as an African network, must continue the reinforcement of the linkages of Member States of the project on the one hand, the linkages |

				- An additional national financing should reinforce the capacities of the centers within the framework of the establishment and the execution of activities for the satisfaction of the stakeholders needs.	with the IOC/UNESCO and its programs like IODE. - ODINAFRICA will also have to continue the reinforcement the capacities of the participants so that the Data Centre can respond adequately to the requests of the users and thus ensure sustainable management of the resources and the marine and coastal environment.
20	Seychelles	Hosted by the Seychelles Fishing Authority at Fishing Port, Victoria	Mr. Rondolph PAYET Managing Director Seychelles Fishing Authority Fishing Port, Victoria PO Box 449 Telephone: +248 670300 Fax: +248 224508 Email: management@sfa.sc	- Further training opportunities in web development - Provision of new equipment such as printer and computers - Need for creation of a group of experts to address gaps in climate and ocean modelling, as was reiterated in last IOCWIO VI meeting	- Continue to provide seed money - Provide support for basic infrastructure - Provide long-term training e.g. in Oceanography, Marine Science and Information Science.
21	Tanzania	hosted by the Institute of Marine Sciences which is a unit of the University of Dar es Salaam which is based in Zanzibar.	Dr Desiderius CP MASALU University of Dar es Salaam Institute of Marine Science P O Box 668 Mizingani Road Zanzibar, TANZANIA Tel: +255 24 2230741 Fax: +255 24 2233050 Email1: masalu@ims.udsm.ac.tz Email2: odinea@ims.udsm.ac.tz Email3: d.masalu@odinafrica.net	The TzNODC should focus on the development of products that are based on the requirements of the local stakeholders. This includes online products. This means the TzNODC should develop this capacity in terms of skills of its personnel. Also, for those areas in which the TzNODC is already doing fine, it is important to improve them in terms of equipment. For example, the TzNODC needs a large map scanner to strengthen and broaden the scope of services it is offering	- Provide the training required and assisting in the acquisition of the required equipment. - Ensuring that a second batch of data as well as information managers are trained to fill in the gap.

					now to stakeholders.	
22	Togo	Hosted by the Centre de Gestion Intégrée du Littoral et de l'Environnement / Université de Lomé (CGILE/UL) P. O. Box : 1515 Lomé Togo Tel : 00 228 221 68 17/ 00 228 222 48 65 Fax : 00 228 221 85 95	Adoté Blim BLIVI CGILE/UL P. O. Box : 1515 Lomé Togo Mob: 00 228 905 39 14 Email : cgileul@yahoo.fr	- Optimization of the databases structures and internet access - Digitalization of the cartographic documents - Good relationship with other structures of information databases management - Development of public awareness of TOGO-NODC and its activities - Renewal of the equipment - Subscription at www.sciencedirect.com... - Increase the financial resources of few NODC working effectively - Grant training opportunities to the actors of the centres in the network (apart from the regular training organized by the network) - Add to the operational budget, a budget to data update (example of establishment of terminals for the coastal erosion control, make the hydrological stations on the coastal rivers more active) - Add firstly data processing tool (computers, software) to the NODC working according to the Project objectives	- to develop once semi-annual period two open working days - to initiate other trainings and remedial training in geographical and oceanographic databases management - to sensitize the students on the training opportunities on oceanography - to place two computers with free internet access to the users for their research - to install a VSAT for a better numerical output and access to the Internet
23	Tunisia	The data centre is hosted by the National Institute of Marine Sciences and	Malika Bel Hassen	We recommend a close linkage to	- strengthen the linkage

		Technologies; it is about 35 m² and profits from the facilities offered by the hosting institution.	Institut National des Sciences et Technologies de la Mer 28, rue 2 mars 1934- Salammbô 2025- Tunisia Tél: 00216 71 730 420 belhassen.malika@instm.rnrt.tn	data-producers programs or networking. Furthermore, the data centre should be more involved in international data management programs and their staff more trained to data management and mainly to data quality control. It is also worth noting that in the current orientation of the African data centres, we are aimed to cover more than one marine discipline, which may cause some dispersions in their effort, so we recommend to the data centres to focus more on the discipline where they have the appropriate skills.	between the data centres and international data organizations or programs such as ICAM, IGOOS, OBIS - Ensure more training to the data centre staff mainly for the data quality control - Help in the orientation of the data centre by the identification of responsible data centres in a specific discipline at the African level.
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