

## INTRODUCTION

### 1. Regional Hydrographic Commission Involvement

Angola is not an IHO member, but is an associate member of the Southern Africa and Islands Hydrographic Commission (SAIHC). Angola has been represented on at least the four latest SAIHC meetings. The number of attendees has varied from 1 to 4 with only one person participated in as much as two of these meetings. The delegates have been representing either the Ministry of Defense (MoD)/Navy or Ministry of Transport (MoT). The lack of continuity in the representation probably reflects the unclarified responsibilities for the hydrographic work that have existed in Angola. A National Report was presented at the Special SAIHC meeting in Maputo, Mozambique in 2006. On the two latest regular meetings (2007, 2005) no report has been presented.

### 2. Preliminary Liaison

The Advisory visit was arranged with the vital collaboration of IHSMA-IC (Hydrographic and Maritime Signalization Institute of Angola - Implementation Commission). During some preliminary meetings at the Portuguese Hydrographic Institute (IHPT) a provisional agenda was defined. The Team was invited to participate in the World Hydrography Day commemorations and to provide a presentation about hydrography in the planned workshop, which was expected to contribute significantly to emphasize the importance of hydrography and the implementation of a hydrographic office in Angola. The agenda was changed several times after the Team arrived in Angola and, regrettably, the commemorations of the World Hydrography Day had been canceled.

The IHSMA-IC collaboration, availability, and support in organizing the important visits was of vital importance. The meeting with the entities related with hydrographic and maritime activities and the audience to the Minister of Transport were of special relevance.

### 3. Points of Contact

The Team and the IHSMA-IC coordinators were received by the Minister of Transport, Mr. Augusto da Silva Tomás. The Team focused on the importance of developing the hydrographic capacity in a country such as Angola, with an extensive maritime activity and a long coastline, and the IHO concerns with the actual situation of surveying and charting. The Minister stated that the Angolan government is concerned about the actual status and mentioned that the development of the hydrographic capacity is considered to be a priority. A copy of the M-2 publication was handed over to the Minister.

The meeting with entities related to hydrographic and maritime activities was an excellent opportunity to: call the attention to the importance of the hydrography and the implementation of a HO in Angola; introduce and divulge the objectives of IHSMA-IC to some entities not aware of its creation; and, to collect some information to allow the perception of the actual situation. The list of attendees to this meeting is in Annex A.

Input to the IHO Yearbook is in Annex B.

## DESCRIPTION OF MARITIME ACTIVITIES

### 4. National Maritime Affairs

Most of the national maritime affairs are dependent of three ministries, as illustrated in the schema in Annex C. The MoT controls the Maritime and Harbours Institute (IMPA), which manages the harbour masters and the dependent entities. At the same level as IMPA, will be the future HO (IHSMA) and the Harbour Administrations. SONANGOL (the national oil company) reports to the Ministry of Petroleum. The Petroleum Bases and the Refineries are related to SONANGOL. The Directorate of Hydrography and Navigation (DHN), organized under the MoD, is another entity involved in hydrography.

### 5. Trade and maritime Traffic

The maritime traffic has increased significantly during the last few years, especially the traffic related to trade and offshore oil supply. In 2007, 4199 entered the Port of Luanda. The large number of ships waiting for docking in the Luanda harbour and the high number of harbour constructions and enlargement projects are significant signs of the growing activity.

#### a. Through Routes

There are several routes between Luanda and: South Africa; Namibia; Congo (Ponta Negra); and, Cameroon. Some routes from Asia to Europe and USA pass through Angolan waters.

#### b. Transshipment

Five ports have transshipment activities: Luanda is the main one; Lobito is a regional port that is expected to increase the activities with the ongoing reconstruction of the railroad to Zambia; Cabinda in the enclave; Namibe; and Port of Noqui, which is supporting Port of Matadi in the Congo.

#### c. Bulk Trades

15 bulk ships entered the Port of Luanda in 2007.

#### d. Feeder, Coasting and Local Trade

Most of the ships that entered Luanda Harbour (3,507) were linked to cabotage activities. The major part (3,443) were related to support to the offshore oil activities.

#### e. Offshore Supply and Support

A substantial part of the traffic is associated with the transport of personnel and material to and from the offshore oil platforms, see item 5.d.

#### f. Tourism – Cruise Liners

A few Cruise Liners without any regularity visit the Luanda Bay.

#### g. Tourism – Small Craft

Not significant.

#### h. Fisheries

The fishing activity is important for the Angolan economy. An investment to increase the 34 meters fishing vessels fleet has taken place recently. There are a lot of artisanal fishery vessels, small fishing boats and canoes. Some foreign vessels are fishing in Angolan waters. Trawling is no longer permitted.

#### 6. Responsibility for Safety of Navigation

IHSMA-IC is responsible for the maintenance of the channels and for the provision and maintenance of aids to navigation. The harbour masters are responsible for the debris and wrecks removal. IMPA has a program to implement a SAR system, but for the moment this is a harbour master responsibility. The Angolan Air Force and some private companies provide some support when needed. Information about MSI is provided in item 10.

#### 7. Defense Force Responsibilities

The Angolan Navy is responsible for the Directorate of Hydrography and Navigation, which has some hydrographic capabilities.

The Navy is responsible for the national defense, the control of the fishing activities and to counter the illicit activities, such as the drug traffic.

A national Coast Guard is under implementation.

#### 8. Coastal Zone Management and Environmental Protection

Angola does not have any marine parks. The Team did not have the opportunity to get acquainted with any environment policy or CZM strategy.

### **OUTLINE S-55 ANALYSIS**

The information in S-55 is from 2004 and submitted by IMPA that no longer has any responsibility for the activities. IHSMA will be responsible for the updating, see Action item.

#### 9. Status of surveys within the National Maritime Zone

No information of any surveying related to the oil activity off the coast was available.

A part of the river Congo has been dredged and surveyed by a contracted private company. The harbours of Luanda, Lobito and Cabinda have been surveyed by a Japanese private company 3 years ago. In Baia da Corimba a channel has been opened. In Soyo a channel will be dredged to 14 meter depth up to a LNG (Liquefied Natural Gas) terminal. In connection with building of bases for the supply of the oil industry (Sonils) several private companies have done surveys for the local areas. None of all these surveys has been updated in the official charts and the data is (so far) not available to and managed by IHSMA.

The Portuguese Hydrographic Institute will do some preliminary surveys in connection with construction of the new port of Amboim.

Some surveying will probably take place with the purpose of substantiate an application for extension of the national Continental Shelf (UNCLOS).

#### 10. Collection and Circulation of Nautical Information

MSI is organized as a part of IHSMA-IC, which collects the relevant information and promulgates the Navigational Warnings. Weather Warnings are promulgated by INAMET (National Institute of Meteorology). The messages are broadcasted by Luanda Radio. A separation between the local, coastal and oceanic warnings is not made. According to IHSMA-IC selected information is sent to NAVAREA coordinator by IHSMA-IC or by Petrol Platforms, however, according to the national report from South Africa (coordinator) at SAIHC meeting in 2007, no information was received from Angola.

As a part of our investigations related with the safety of navigation actual situation, the captains of two vessels, operating frequently in Angolan waters, were contacted. None of them could remember having received any navigational warnings from Luanda Radio during the last few years.

#### 11. Survey Capability

There is very limited survey capability available at IHSMA or other related institutions. No survey ships or launches exist and an adequate positioning system is lacking. A small 200 KHz portable single beam echo sounder is available at IHSMA.

#### 12. Independent Chart Production Capability

No chart production takes place in Angola. The existing nautical charts are based on the Portuguese charts edited before 1975, which in general have not been updated due to the lack of update information. UKHO has also several charts from Angolan waters, based on the Portuguese ones.

### **PROPOSALS FOR CO-ORDINATION AND CAPACITY BUILDING**

The intention of IHSMA-IC is to build up an institute that will take care of surveying, data management, chart production, MSI topics and, in addition, be responsible for the lighthouses, lights, buoys, etc. for the coastal area and harbours. For a commission that today has almost nothing, the planned development will be a huge challenge. A substantial support over a long period of time from outside will be necessary as the country lacks competence, capacity and infrastructure. An option that should be considered is to outsource for some time some of the tasks, for example part of the surveying and the updating and production of charts. The Team suggests that IHSMA-IC develops a realistic implementation plan, with a strong focus on the activities that require priority. IHSMA should avoid trying to do everything from the very beginning.

#### 13. National Hydrographic Committee

The joint meeting during the advisory visit with different institutions related to the maritime field clearly demonstrated the usefulness of exchanging information, especially at this time when the country is trying to implement and develop a hydrographic capacity. Some of the institutions already have some contact and cooperation. We strongly recommend that IHSMA-IC get involved with the other institutions with regular meetings once or twice per year. IHSMA-IC should appoint a person to be responsible for the contact with the other institutions and also represent Angola in the planned workshop in front of the next SAIHC meeting (travel fund available from CBC).

#### 14. Phase 1 Hydrographic Capability: MSI Organization and GDMSS

IHSMA-IC has already developed some contact with IHPT to get assistance in the implementation of a Notices to Mariners service.

Since some aspects of the MSI organization are not well known by the IHSMA-IC, it is recommended to have a meeting with Luanda Radio to familiarize with the actual MSI situation. IHSMA-IC should prepare a plan for implementation of a robust organization for MSI and GDMSS.

#### 15. Phase 2 Hydrographic capability: Survey

The construction activity in the coastal zone, included dredging of new and deeper approaches to harbours, has been high and is expected to be so also for the years to come. IHSMA should take the responsibility to be the national manager of all hydrographic data collected in Angolan waters. This implies the establishment of a data management system for storing and updating of bathymetric data and related information. Without a management system we are afraid that a lot of valuable data and information collected by private companies never will be made available to update the nautical charts and for other applications in general. Our advice is to give the highest priority to this task. Help from outside will be necessary to implement an adequate data management system.

##### a. Provision of Survey Data

The new information achieved from the different locations along the coast should be used to update the nautical charts. IHSMA-IC should collect the data and develop contacts with the entities that have the cartographic information (UKHO/ IHPT) to develop a plan to update the nautical charts. It should be noted that to be in line with the SOLAS V convention Angola have to provide the updating of the navigational charts.

##### b. Survey Capability

In order to gain experience in field work and processing of data, the advice of the Team is to initially create only a small survey team, capable of surveying some harbour areas with single beam equipment installed on a small launch. A multibeam approach will be too challenging for an institute without any technical department established and with no surveyors having experience from a multibeam system. A positioning system is also necessary. The option could be GPS with the methods of DGPS/RTK or the single receiver system with postprocessing of positions (in use in Norwegian Hydrographic Service with good results). It is also necessary to consider a system for survey planning, provision of guidance during the survey and for integration and processing of the surveyed data.

IHSMA-IC needs to be involved in the establishment of tide gauges, which could be done in cooperation with other institutions (some ongoing activity at INIP [National Institute of Fishery Research] and INAMET). At least IHSMA-IC should get involved in the quality assurance and the management of the tidal data. Vertical reference with connection to the national network is another issue where IHSMA-IC needs to be concerned about. The team recommends establishing contact with IGCA (The Geographic and Cadastral Institute) to evaluate the status of the vertical national network, especially in the most critical areas.

### c. Potential for Regional Activity

Within the SAIHC area only South Africa and Mozambique have national hydrographic services. Cooperation with Mozambique would benefit from their common language (Portuguese). As distances are long, any cooperation should be based on availability of necessary equipment within Angola.

### 16. Phase 3 Hydrographic Capability: Chart Production

The Team proposes that establishment of any chart production capacity should be postponed at least until a smooth production line is operational with respect to surveying, data processing and data management. This proposal implies that compilation, production and the regular updating must be outsourced. For paper charts a Print-on-demand solution should be evaluated as the sales rate is rather low. Angola should aim at having all charts available as ENC's within a reasonable time.

## **PROPOSALS FOR ASSISTANCE**

### 17. Training

Training is a key issue for implementing a HO. For several years a training collaboration with IHPT have taken place. Roughly 16 Angolans have already participated in courses at the IHPT Hydrography School. IHSMA-IC and IHPT are in a protocol preparation related to the future collaboration between the entities. The common language is an advantage. Also training in Brazil and/or English spoken Hydrographic Schools could be considered as options.

The training requirements, as a vital part of the implementation process, should be analyzed and prepared well in advance of setting up the different services. Education of people to an adequate level may take years depending on the previous knowledge. On-the-job training in cooperation with a well developed HO should be considered as an instrument in the development of IHSMA.

### 18. Equipment

The acquisition of equipment needs to be harmonized with the level of ambition for the development of IHSMA and the proposals given in items 15. and 16. The Team suggests that IHSMA-IC seeks advice from an existing HO in relation to setting up a data management system, equipping a small survey team, etc. As many advanced HOs have moved to multibeam equipment recently, some second hand single beam systems might be available for free or at a reasonable cost.

### 19. Funding

The establishment of a fully operational IHSMA will require a comprehensive economical support from the Angolan government/MoT for several years. As the responsible institute for Aids to Navigation, IHSMA should be in the position to have some regular income from lighthouse fees, etc. In addition IHSMA/MoT should apply to foreign aid donors for support to the cooperation with advanced HO's.

Funding from CBC is restricted to short training courses, travels, etc. IHSMA should actively search for economical assistance through SAIHC, see action item 22.

## FOLLOW UP ACTIONS

### 20. Encouragement of Formation of a NHC, Development of a National Hydrographic Strategy, and RHC Membership

- a) Arrange annual/semi-annual meetings with relevant entities for information on projects and plans, and for identification of needs in competence, data and equipment. ACTION: **IHSMA by the Coordinator or the Director to come**
- b) IHSMA or a relevant co-operating body should nominate a delegate to the workshop for Chairmen of the National Hydrographic Committees (or equivalent bodies) to take place in advance of the next SAIHC meeting. Travel funding available from the CB Fund. ACTION: **IHSMA by the Coordinator or the Director to come**

### 21. Encouragement of Effective and Timely Collection and Promulgation of Hydrographic Information

- a) Update of the information in the publication S-55, especially the part related to surveying. ACTION: **IHSMA**
- b) The positions of oil platforms and offshore installation to be sent to IHPT for inclusion in a small scale ENC (navigational purpose: general) of the entire Angolan Coast. ACTION: **IHSMA**
- c) Analyze the actual situation and prepare a plan for implementation of a robust organization for MSI and GDMSS. ACTION: **IHSMA**
- d) Take the national responsibility for sending Navigational warnings to Coordinator for NAVAREA VII. ACTION: **IHSMA**

### 22. Encouragement of Development of Hydrographic Capability

- a) Submit application for CBC funds to the Chairman of SAIHC according to prioritized needs. The application should be sent some months in advance of the next meeting. The first one takes place in September 2009. ACTION: **IHSMA by the Coordinator or Director to come.**

### 23. Miscellaneous

- a) Inform the Chairman of SAIHC that IHSMA for the future will represent Angola in the RHC. Action: **IHSMA by the Coordinator.**