

# REPUBLIC OF MOZAMBIQUE

## NATIONAL INSTITUTE OF HYDROGRAPHY AND NAVIGATION (INAHINA)



## NATIONAL REPORT

TO

## THE 11th CONFERENCE OF THE SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC COMMISSION

11-13 August 2014

MAPUTO - MOZAMBIQUE

## **1. General**

### **1.1 The Hydrographic office**

The National Institute of Hydrography and Navigation, commonly known as INAHINA, is the Mozambican Hydrographic Office, working under the Ministry of Transport and Communications.

Its main function is to ensure the safety of navigation in the waters under the Mozambican jurisdiction, as stipulated in its organic status. The core activities are of ensuring access to the national main harbors, namely Maputo, Beira, Nacala and Pemba, including some small harbours, marine protection, support to marine studies and scientific researches in the field of hydrography, oceanography and related subjects.

The Hydrography Service is the core service of INAHINA, which is responsible for planning and coordination of all activities related to the hydrographic surveying and data collection, whose result is the production of nautical charts, which takes place at the cartographic department.

None of less importance is the Oceanography Service and the Aids to navigation Service. The first is responsible for the tide gauges tables for the main harbors, scientific studies in the field of tides and currents, while the second deals with the marine signalization. There's also the Maintenance and Infrastructure Service. Beside and under these services structure, there are several departments responsible for operational activities and four branches as indicated ahead in this report.

## **2. Surveys**

### **2.1 New surveys**

The hydrographic surveys are expected to be improved and extended to cover more e large areas as a result of new equipments received. The main surveys are currently concentrated at the main ports or they are a response of requests from national and foreign companies for some areas of their interest.

Since the last report, three surveys have been done, covering areas of Pemba bay, Port of Nacala, the channel of access to the port of Beira, including the area of approximation to this port. However, the main challenge still continues to be the lack of equipment, as the existing have to be moved from different areas.

### **2.2 Technologies / equipment**

As was referred above, this is still a challenge for the Mozambican hydrographic office and will continue to be for a couple of years ahead. During this period, these equipment were

received: two SVP's; two sets of positioning equipment for hydrographic surveys – DGPS. However, with regard to equipment or technology, emphasis must be given to the acquiring of a new multi beam echo sounder. This is the first unit being acquiring by the Mozambican hydrographic office since its creation and it is hoped to bring a new approach e development in the hydrography in Mozambique/INAHINA, as surveys still continues being made with a single beam echo sounders. An operating system for this system has also been acquired.

### 2.3 New ships



The period since the last report was rich in news for INAHINA. Beyond the equipment listed above, with the natural emphasis to the recent purchase of a new multi beam echo sounder, two new boats were acquired, one for hydrographic surveys and another one to be used in the maintenance of the channel of access to the Port of Maputo. These boats were respectively named *Lago Niassa* and *Linga Linga*. It is still in the process the acquisition of a new vessel for hydrographic surveys, under construction, which will be equipped with the multibeam echo sounder.



The picture on the left side shows the moment of inauguration of one of the boats recently acquired, Maputo bay, 20<sup>th</sup> June 2014.

The event was witnessed by Permanent Secretary of the Ministry of Transport and Communications, Mr. Pedro Augusto Inglês.

## 2.4 Problems encountered

In our last report for the 10<sup>th</sup> SAIHC, we reported the main hydrographic vessel of INAHINA, the ship buoy Bazaruto, wasn't working properly and needed to be fixed. This problem is temporarily exceeded and she is actually involved in the activity of maintenance of aids to navigation along the Mozambican coast, whose activity is expected to take almost three months.

## 3 New charts & updates

### 3.1 ENC's

ENC's aren't still produced at INAHINA. As stated above, it is still a project, which requires investment in new technologies and human resources training.

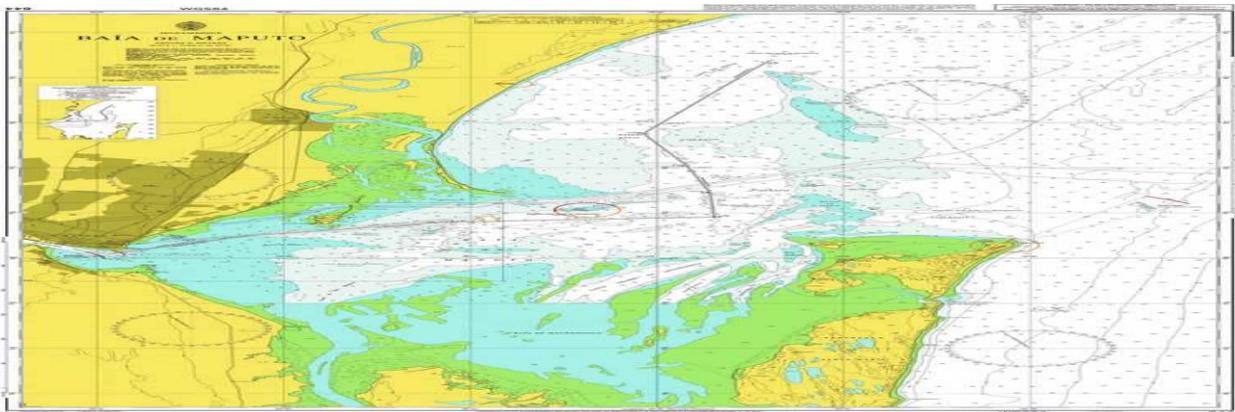
### 3.2 RNC's

None

### 3.3 INT Charts

No new INT chart was produced since the last report. It must be noted that, following a decision of the 2<sup>nd</sup> SAIHC INT Chart Coordination Committee, held in Mauritius, in 2012, the INT chart numbers of the Mozambican charts of Beira Port and Maputo Port were temporarily removed. Since then and in collaboration with the SAIHC chairman, meetings between Mozambican delegation and SAIHC Chairmanship have taken place in order to find a joint approach to the raised problem. In the beginning of this year, 2014, another meeting took place between INAHINA and the UKHO, in London. Production of INT chart is depending on the removal of the suspension actually in force.

### 3.4 National Paper Charts



New Charts or updated Charts published:

National Chart	Number
Maputo Bay	16201
Approach to the Port of Beira	16204
Port of Beira	16303
Pemba Bay	16206
Port of Nacala	16311

This information do not include the updated chart of Nacala Port, that took place in last July 2014.

Reference is also made to the conclusion of the topographic surveys of the entire area of the Maputo bay and the Pemba bay.

### **3.5 Problems encountered**

INAHINA is presently focused in the production and update of paper charts of the main ports. The main challenge at the moment is related to the necessity of transition to the production of ENC's, which requires equipment and training.

## **4 New publications**

As part of its attribution, INAHINA is also responsible for providing information covering several areas of maritime sector, whenever requested or as part of its ordinary work program. At present, INAHINA doesn't produce as many publications as it should be expected. Charts and tide tables are the main ordinary publications.

New publications for the period in reference include the Tide Table for 2013 and 2014, which is a big contribution for the safety of navigation in the Mozambican waters.

Most of the INAHINA publications are made of paper and can be acquired at the INAHINA headquarters.

A new Master Plan is under production and it is expected to be finalized and delivered shortly.

### **4.1 Problems encountered**

It is necessary to find out and develop a different or alternative method of delivering publications issued by INAHINA. One of them would be an official website, which is still being developed.

## **5 MSI**

The MSI is under responsibility of the Marine National Institute (INAMAR). There is an ongoing study aiming to identify suitable infrastructure for transmission of MSI. The team responsible for this task has already met with several organizations and public institutions, both in Maputo and in central and north Mozambique.

## 6 C-55

With regard to C-55, new areas have been surveyed and relevant information is being compiled so that it could be used for the C-55 update.

## 7 Capacity Building

Capacity Building is a continuous need. The recent developments, specifically due to the arrival of new equipments - boats, software systems, raise the necessity for capacity building for the correct use and maintenance of these equipments and systems.

There is a need for the hydrographic surveying on job training opportunities. It must be noted that the approved 2014 Capacity Building Work Program – SAIHC, include the “Introduction to hydrographic surveying and nautical charting”, to be held in Mozambique, under preparation.

INAHINA is willing to introduce the ENC’s and this was considered by the Mozambican Government as one of the goals to be achieved in a near future. The path in that direction has already been started. However, it needs to be accompanied by the necessary training and preparation of the human capital. As hydrographic and charting technologies are continuously changing and being improved, it requires constant adjustments in terms of human factor.

### 7.1 Training received

Two hydrographers have received training in hydrographic surveys (Hydrography Cat B training course), hydrographic surveys and production of ENC’s, hydrographic data processing and marine cartography. As a result of continuous collaboration with the Portuguese Hydrographic Office (IHPT), a training course on cartographic projections was recently held at the IHPT. Two oceanographers have been graduated from their master degrees and one is still finishing PhD.

### 7.2 Cartographic training

Aiming at introducing production of ENC’s, training courses in this field are of the highest priority.

## 8. Oceanographic activities

Oceanographic activities at the Mozambican HO can be categorized as follow: tide observing (measurement, digitalization and validation); analysis and prediction of tides (modeling, the calculation of the average level, production of tide table); scientific studies (data collection, processing, compilation); and the use of GEBCO bathymetric models: mat lab; Ocean View date; Arc-GIS.

The acquisition of a CTD In the framework of GEBCO, IOC/UNESCO and ODINAFRICA IV Project, the institute has contributed to the production of the marine and coastal atlas. Mozambique/INAHINA held the ODINAFRICA-IV Planning and Review Meeting in May 2013, held in Maputo. Many delegates from several countries have attended the meeting and important decisions and recommendations have been made. It was an important opportunity to learn and to share experiences with regard to ocean research, data/information and coastal management.

In the field of marine protection and prevention of disasters, INAHINA was requested to assist in the assessment of the environmental impact in the Chire-Zambeze Valley; and also provided tidal data to the COASTMAP-IO Project (tsunami awareness).

Recently, INAHINA was requested to integrate a Southern Africa Development Community – SADC, whose main purpose is to assess this regional organization in the field of management, studies e projects involving shared waters.

### **8.1 Tide gauge network**

No update was registered on the status of the tide gauge network since the 10<sup>th</sup> SAIHC Meeting (2013). There is tide gauges stations at the following ports: Maputo, Inhambane, Beira, Nacala e Pemba.

### **9. Marine Signalization**

Beyond hydrography, cartography and oceanography, marine signalization is one of the key activities under the responsibility of the Mozambican HO. Actually, the coverage of the marine signalization is esteemed at 94%, slightly under the requirements established by IALA, which must be of 98%. A large network of buoys and lighthouses are distributed along the coast. Maintaining this network is a continuous challenge, and there is also the fact that some of these equipments are sometimes object of sabotage and destruction by the local communities. vandalism It's a big challenge, as there's no enough equipments and technologies for remote detection.

### **10. IHO Technical Advisory Visit**

A new SAIHC Technical Advisory Visit took place last October 2012. The technical team was composed by hydrographers from Norway and Portugal. The resulting report can be found on the IHO website.

### **11. Participation in IHO working Groups**

As Member of The International Hydrographic Organization (IHO), Mozambique/INAHINA has participated in the International Hydrographic Conference, in 2012, in the 9<sup>th</sup>, 12<sup>th</sup> IHO-CBSC Meeting and, since 2009, has successively participated in all SAIHC meetings.

The Mozambican HO has also participated in other meetings involving fields of oceanography, marine signalization and coastal management. It includes a participation in the 18<sup>th</sup> IALA conference, held in La Coruna, Spain; ODINAFRICA meetings and workshops organized by several organizations.

### **12. Bilateral partnerships**

Mozambique/INAHINA is actively involved in establishing cooperation relationships with another OH. The historic of cooperation with some hydrographic offices, include the Portuguese Hydrographic Office, the Norwegian Hydrographic Office (NHO), which has resulted in some training opportunities (IHPT), funding (NHO) and distribution of Nautical charts (UKHO). However, much remains to be done.

With regard to the cooperation with IHPT, INAHINA has received a visit of the IHPT Technical Director, in Jun 2013, in which both institutions discussed matters of their interests within cooperation program.

A Mozambican delegation visited the UKHO head office in February 2014, having as one of the main points for discussion. Prospective meetings for future collaboration with relation to charting, among others issues, were some of the agenda items for this visit.

### **13. Status of Approval of Amendments to the IHO Convention**

The process of approval of the Protocol of Amendments to the IHO Convention is still ongoing.

### **14. Status of Approval of New Member States of the IHO**

This is one of the issues at which INAHINA have been involved. Some of the requests for support to IHO membership were received from Haiti, Montenegro, Viet Nam, Brunei and Darussalam and Georgia and they were forwarded to the attention of the appropriate authorities. No update were received with this regard.

### **15. Projects**

Bellow are listed some of the short and medium terms INAHINA projects:

- The construction of a new ship buoy to be equipped with a system for hydrographic surveys in deep waters and the rehabilitation of the Bazaruto vessel;
- Construction of a survey boat (ongoing project);
- Production of a new master plan (ongoing project);
- Training in multibeam echo sounder operation;
- Training in ENC production.

### Location

<b>Head Office:</b> Karl Marx Av. 153 Telephone: +258 21 430106/8 Fax: +258 21 430185 Maputo, Mozambique	<b>Branches:</b> 1. Beira (central Mozambique); 2. Quelimane (central Mozambique); 3. Nacala (north Mozambique); 4. Pemba (north Mozambique).
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