

# REPUBLIC OF MOZAMBIQUE

## NATIONAL INSTITUTE OF HYDROGRAPHY AND NAVIGATION (INAHINA)



## NATIONAL REPORT

TO

## THE 10th CONFERENCE SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC COMMISSION

16-18 September 2013

LISBON - PORTUGAL

## **1. General**

MOZAMBIQUE is a coastal state located in Southeast Africa. It is bordered by the Indian Ocean to the east, whose coastline, of about 2700km, provide source of livelihood for coastal populations. There are three main harbors: Maputo, Beira and Nacala, and many other small harbors.

### **1.1 Hydrographic office**

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

The main purpose of the hydrographic activity is to ensure safety of navigation in the national main harbors listed above. However, INAHINA is also responsible for carrying out activities aimed to ensure marine protection, including support of marine studies and scientific researches in the field of hydrography, oceanographic and related.

It's composed for the following services:

- Hydrography Service;
- Oceanography Service;
- Aids to navigation Service;
- Maintenance and Infrastructure Service.

Beside the structure above, there are several departments responsible for operational matters. INAHINA has also four branches over the country:

2. Beira (central Mozambique);
3. Quelimane (central Mozambique);
4. Nacala (north Mozambique);
5. Pemba (north Mozambique).

## **1.2 Location**

INAHINA Headquarters is located in Maputo-City.

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## **2 Surveys**

### **2.1 Coverage of new surveys**

With regard to surveys, this one of the Achilles' heel of the Mozambican Hydrographic Office at the moment, as it will be reflected in 2.4 below. Hydrographic surveys are still based on the single beam echo sounder while Member States are recommended to move to the multi beam echo sounder. Two important surveys have recently been completed, whose data are being compiled: in Inhambane bay and Quelimane harbor.

### **2.2 New technologies and/or equipment**

New equipments, technologies still continue a challenge for INAHINA. No relevant equipment of technology was acquired or received.

INAHINA needs an urgent reversal with regard to the equipment and this includes:

- Hydrographic equipment (a boat equipped with multi beam echo sounder);
- Positioning equipment (GPS/DGPS);
- Marine signalization equipment (buoys and lighthouses);
- Tide gauges

The surveys are being made by single beam echo sounders. Efforts are being made in order to acquire, initially, a multi-beam echo sounder.

## **New ships**

No new ship. However, as stated bellow, there's a necessity of reinforcement in terms of new equipments, including new ships/boats. Initially, investments are being made to restoration old and broken boats. A small survey boat is under construction and other one – Pinda, has already been restored and delivered to INAHINA.

## **Problems encountered**

One of the most constraints faced by the Mozambican Hydrographic Office, INAHINA, is the lack of equipment. The major icon of INAHINA, the ship buoy Bazaruto, is not working properly, as a result of successive failures. This problem is extensive to the small boats and other means used in the hydrographic activities and related, which raises necessity for new approach.

## **3 New charts & updates**

### **ENC's**

INAHINA doesn't still produce ENC. One of the INAHINA priorities is related with the fact that there is a need to develop internal capacity for production of this type of charts. This requires investment in new technologies and human resources training.

### **ENC's Distribution Method**

No distribution method has already been developed.

### **RNC's**

None

### **INT Charts**

Following the decision of the SAIHC INT Chart Coordination Committee, the INT chart numbers have been removed from the Mozambican charts of Beira Port and Maputo Port. Following this decision, INAHINA has requested support to SAIHC chairman and several meetings between Mozambican delegation and SAIHC Chairmanship have taken place in order to find a joint approach to solve the identified problems.

As a result, a senior cartographer expert from IHPT was requested to advice INAHINA Cartography in the identified matters.

## 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  |

## Problems encountered

Although INAHINA has registered improvements in terms of personnel training and some cartographers have received training with regard to the introduction of ENC production, more training is requested. INAHINA is presently focused in paper chart production and its update.

The main challenge at the moment is related with the necessity of transition to the ENC production. For the moment being, there's no constraint with regard to the production of paper chart, although it is affected by the lack of hydrographic data due to the above referred constraints.

## 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. At the moment, INAHINA doesn't produce as many publications as it should be expected. Charts and tide tables are the main ordinary publications of the Mozambican Hydrographic Office.

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

A new Master Plan and Strategy of Development of Hydrography are required. Initiatives for its production are ongoing.

## Updated publications

### Means of delivering

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

## **Problems encountered**

It was already identified that there is necessity of developing initiatives in order to include publications at the INAHINA website and efforts are being done for that purpose.

## **5 MSI**

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. The MSI is under responsibility of the Marine National Institute (INAMAR).

## **6 C-55**

No relevant developments' regarding updates of C-55 has been registered.

## **7 Capacity Building**

This is a continuous need for capacity building as hydrographic techniques and technologies are continuously changing, requiring constant adjustments in terms of human capital training.

### **7.1 Training received**

Two oceanographers have graduated from their master degrees; one is finishing PhD.

Two hydrographers have participated in two IHO training courses:

- Hydrography Category B training course in the field of hydrographic surveying;
- Hydrographic Data Processing and Marine Cartography.

As stated before, there's an intention of acquiring a multi beam echo sounder, what mean that a complementary human resources training will be necessary.

### **7.2 Cartographic training**

A Senior Cartographer from Portugal HO (IHPT) was requested for a technical advisory visit and he has worked at the INAHINA Cartography Department. As a follow up, others training initiatives arrangements are expected to take place within the next months.

#### **7.1 IHO Technical Advisory Visit**

As a follow-up of the 2006 SAIHC Technical Advisory Visit, a new Technical Advisory Visit took place last October 2012, whose technical team was composed by hydrographers from Norway and Portugal. The respective report can be found on the IHO website.

## **7.2 Bilateral partnerships**

With the objective of forming and training INAHINA personnel, cooperation relationships has been established with some hydrographic offices, such as the Portuguese Hydrographic Office, the Norwegian Hydrographic Office (NHO), which has resulted in some training opportunities (IHPT) and funding (NHO). However, much remains to be done.

With regard to the cooperation with IHPT, INAHINA has received a visit of the IHPT Technical Director, last Jun. Both institutions have discussed matters of their interests for future collaboration.

The Government of Norway has traditionally supported participation of one delegate from Mozambique to the SAIHC meetings and this is not an exception: for this meeting, one of the Mozambican delegates participating in this meeting is fully supported by Norway.

Recently, INAHINA has received a MoU Proposal from the Angolan Hydrographic Office (ISHMA).

## **8 Oceanographic activities**

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, which took place last May, 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 management 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).

### **Tide gauge network**

There's no additional information on the status of the tide gauge network since the 9<sup>th</sup> SAIHC Meeting (2012).

## **9 Additional Information**

### **Participation in IHO Working Groups**

As Member State of The International Hydrographic Organization (IHO), Mozambique/INAHINA has participated in the International Hydrographic Conference, in 2012, in the 9<sup>th</sup> IHO-CBSC Meeting. It enabled the participants to learn and to recognize the need of meeting the guidelines issued by the IHO and its subordinate working groups and committees.

The Mozambican HO has also participated in other meetings involving fields of oceanography, marine signalization and coastal management. A delegate from INAHINA has also took part at the SAGNEP Meeting, in 2011, where he also took part at the workshop on Aids to Navigation, organized in conjunction with IALA.

### **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.

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

In 2011, INAHINA has requested the Government to support the Haiti and Montenegro applications for membership of the IHO. In 2012, same requests have been made for Viet Nam, Brunei Darussalam and Georgia. Notwithstanding the efforts and demarches of INAHINA with regard to these matters, no developments were registered. INAHINA will keep working on these issues and hopes to have a response as soon as possible.

#### **a) Marine Signalization**

Beyond hydrography, cartography and oceanography, marine signalization is one of the attributions of the Mozambican HO. INAHINA has a large network of buoys and lighthouses along the coast. This includes installation and maintenance of buoys and lighthouses, both in the approach channels to the ports and along the coast. It's a big challenge, as there's not enough equipments and technologies for remote detection.