

# REPUBLIC OF MOZAMBIQUE

## INSTITUTO NACIONAL DE HIDROGRAFIA E NAVEGAÇÃO



## NATIONAL REPORT TO

## THE 14<sup>th</sup> SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC COMMISSION CONFERENCE

**Saint-Gilles – La Réunion  
6<sup>th</sup> – 8<sup>th</sup> September 2017**

## **1. Introduction**

### **1.1 The Hydrographic office**

The Mozambican hydrographic office (MHO), the Instituto Nacional de Hidrografia e Navegação (INAHINA), is a public institution working under the direct supervision of the Ministry of Transport and Communications, whose main role is to ensure safety of navigation in the waters under the Mozambican national jurisdiction, through provision of the hydrographic surveys, production and edition of nautical charts (currently only paper charts are produced), marine signalization, production and promulgation of tide table among other relevant nautical documents.

Currently, the above listed activities are carried out at the main ports, namely Maputo (South); Beira (Center) and Nacala (North Mozambique). They also take place in some small harbors and inland waters, though in limited manners. INAHINA also provide information for other maritime purposes, such as coastal management, new waterways, dredging and marine protection.

## **2. Surveys**

### **2.1 New surveys**

As above-mentioned, hydrographic surveys are generally carried out at the main ports. In the period between the last report to date, new hydrographic surveys were for to the access channel to the Port of Beira (Sofala province), in the Port of Quelimane (Zambezia Province) and at the Bilene Village Lagoon (Gaza province - this has resulted in the production of the very first pleasure chart, shown below). Another hydrographic survey is also underway in the access channel to the Port of Maputo (Maputo province), whereby the new acquired survey system – the multi beam echo sounder system, combined with the single beam system - is being used for the first time.

## **3. Planned surveys**

Two projects are expected to be conducted in line with the aids to navigation system modernization projects planned to take place at the ports of Beira and Maputo. Moreover, there is the need to verify the new depths resulting from the capital dredging carried out in the Port of Maputo as well as in the Port of Beira, prior to the placement of the new aids to navigation systems in both ports and production of the relevant new charts.

## **4. Equipment**

Hydrographic activities are supported by the following equipment: two Leica GPS sets both for topography and hydrographic surveys, one multibeam echo sounder (delivered recently) and two SVP and one side scan sonar.

### **4.1 New ships**

After having received two workboats for both hydrographic and aids to navigation maintenance at the approach channel to the Port of Maputo (“**LAGO NIASSA**” and “**LINGA LINGA**”), INAHINA has made a move forward with the deliverance of the new survey boat – “**MAFAMEDI**” - equipped with multibeam echo sounder system. The survey boat was inaugurated during the celebrations of the 2017 World hydrography Day by His Excellency Ministry of Transport and Communications – Mr. Carlos Alberto Mesquita.

## **5. New charts & updates**

### **5.1 ENC's**

Once consolidated the internal ability with regard to the paper chart production, the next step is to move onto the ENC production. Steps intended to achieving this highly desired goal are underway, mainly through capacity building actions. Taking into account in e-navigation the current stage in shipping, it is strongly recommendable that both bilateral and IHO capacity building initiatives in the field of charting to focus on enabling national hydrographic offices to embark on the ENC production.

### **5.2 INT Charts**

After a short period of suspension of the production/publication, two INT charts were produced within the period from the last report up to date, one covering the approach channel to the Port of Quelimane (Chart Nr. 7641) and the Nacala Port (Chart nr. 7662), both already finalized. The Mozambique Hydrographic Office is also taking part, as co-producer, in the Durban to Inhambane INT Chart production project (Chart Nr. 7052), headed by the South African Hydrographic Office as main producer. The table below lists both edited and ongoing INT charts.

| INT Chart Name  | Chart Nr. | Status  | Year |
|---|-----------|---------|------|
| Approach to the Port of Quelimane                                     | 7641      | Edited  | 2017 |
| Port of Nacala  | 7662      | Edited  | 2017 |
| Approach to the Port of Nacala  | 7661      | Ongoing | 2017 |
| Durban to Inhambane (to be produced by the SANHO; MHO as co-producer) | 7052      | Ongoing | 2017 |

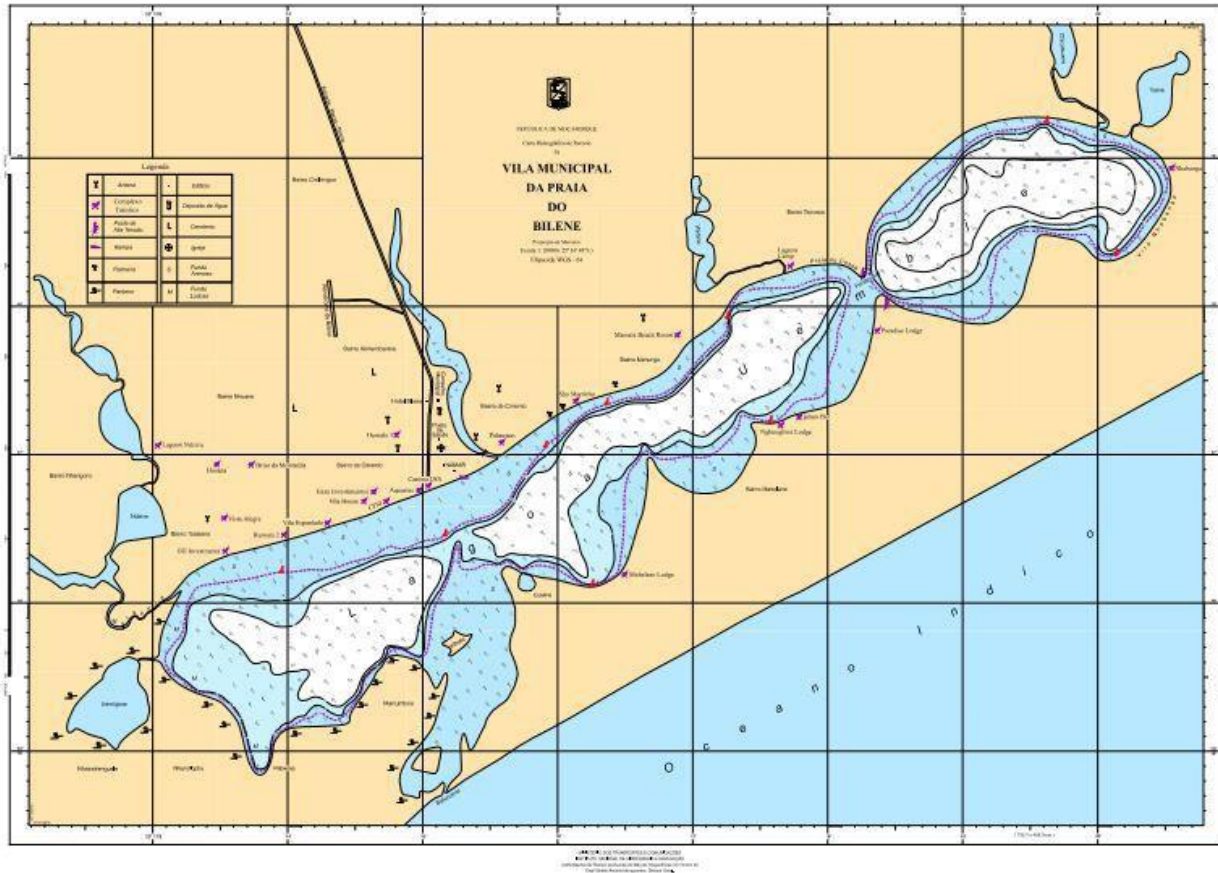
### 5.3 National Paper Charts

It is expectable that new national paper charts are published within the next weeks as a result of the hydrographic surveys that have been taking place. For the moment being, however, INT charts listed above are also available as national paper charts. The table below shows the national paper charts produced within the same period.

| National Paper Chart Name  | Chart Nr. | Status  | Year |
|--|-----------|---------|------|
| Approach to the Port of Quelimane                                    | 16 402    | Printed | 2017 |
| Durban to Inhambane (SANHO is the main producer; MHO as co-producer) | 11 102    | Ongoing | 2017 |

### 5.4 Charts for pleasure Craft

Mozambique Hydrographic Office has traditionally focused on the production of ports charts and also channel approach charts. Lack of equipment, personnel, and insufficient funds may be, among others, some of the reasons behind this scenario. However, this trend is changing slowly. Recently (in May this year) a project was carried out which resulted in a first pleasure chart produced by Mozambique Hydrographic Office. The picture below is the first pleasure chart produced in Mozambique for the Bilene beach, in Gaza Province, South Mozambique.



## 6. New publications

The Mozambique Hydrographic Office publications are traditionally in hard copies format. These include, but are not limited to, charts, tide table and reports which can be obtained from the INAHINA headquarters in Maputo. Since the last report released in 2016, the 2016 and 2017 tide forecast (Tide Table) can be considered the main publication issued by INAHINA.

### 6.1 Problems encountered

Most of INAHINA's publications can only be obtained from its headquarters in Maputo or from the four provincial branches. It is, therefore, necessary to identify other alternatives to make the MHO publications available to mariners and other users rather than depending only on the hard copies. It is crucial to develop and manage an official website through which most of publications could be published/accessed.

## **7. MSI**

The Instituto Nacional da Marinha (INAMAR, *Marine National Institute*) is responsible for promulgation of MSI in Mozambique. Nevertheless, both institutions have worked in a close cooperation approach in this regard.

INAMAR and INAHINA have also developed joint actions in other fields such as search and rescue, as well as planning and integrating information regarding contingencies against the risk of oil spills by ships. Between December 2016 and March 2017 they conducted a search and rescue operation together of a diver at the Port of Beira.

## **8. Capacity Building**

Capacity building is a continuous need for the MHO. This is particularly important, especially when taking into account that not only hydrography is under responsibility of the MHO, but also other fields of marine aids to navigation. Two hydrographers from the MHO are taking part in a hydrography Cat B course offered by the Brazilian Hydrography Office (*Directoria de Hidrografia e Navegação*), which provides support in course fees, accommodation and meals.

Presently-, capacity building needs include the provision of the following:

- Hydrography Cat A Training on multibeam echo sounder system;
- Cartography Cat B Training course for ENC (S57 Composer);
- Cartography Cat A and Cat B training courses;
- Hydrography Cat A and Cat B training courses.

### **8.1 Cartographic training**

Creating internal competence for ENC's production by INAHINA has been one of the short and medium term targets. In line with the recent acquisition and introduction of a multibeam echo sounder system for the first time in its history, it is a new era with regard to charting at the MHO. However, transition from paper charts to ENC requires development of necessary skills, which brings about the need for training opportunities in this field, as mentioned in 7. In this context, two cartographers attended an ENC on job training at the South African Navy Hydrographic Office, for one month.

## 9. Marine Signalization

In general, marine signaling in Mozambique is made up of a set of buoys and lighthouses spread out along the Mozambican coast. There is a network of 58 lighthouses (some of them not operational) and 86 buoys, most of them in the ports of Maputo and Beira. The coverage of the marine aids to navigation in Mozambique is currently esteemed to be at 96%.

As it has been reportedly referred to in the previous reports some of these assets have been vandalized/sabotaged and destroyed. Lack of remote detection system results in delays in replacement operations and/or the routine maintenance operations. Therefore, the maintenance of this network is a permanent challenge. It was taking into account this aspect that two projects, both in the field of marine aids to navigation were approved last year aimed at improving and upgrading marine signaling in two main national ports, namely “*Modernization Project of Maritime Signalization of the Beira Port*” and “*Modernization Project of Maritime Signalization of the Access Channel to the Maputo Port*”. The first is already under course as the company hired has already delivered the first lot of the buoys for this project.

Following reports of deaths involving swimmers issued by government authorities in the Gaza Province, it has been decided to install, still this year, marine signalization at the Bilene Lagoon Beach, aimed at improving the safety of swimmers and nautical sports. This project, jointly conducted by the Government of Gaza and INAHINA, is taking place in line with the Bilene Beach Pleasure Chart Project, which has led to the production of the first pleasure chart produced in Mozambique, as above referred, in 4.4. The necessary buoys to be installed have already been ordered and it is expected the operation will be completed by the end of the year.

### 9.1 Equipment

The highlight goes to the two projects designed to enhance aids to navigation performance and maintenance:

- Aids to navigation monitoring system for the Port of Beira;
- Aids to navigation monitoring system for the Port of Maputo.

These two projects are already being implemented both in Beira and Maputo.

## **10. Constraints**

The main constraint is that ships and work boats are at an advanced age for the timely and effective maintenance of the marine aids to navigation.

## **11. Participation in international fora**

As the Mozambican Hydrographic Office INAHINA officially represents the Republic of Mozambique in several international organizations working or interested in the sea.

**IHO:** Traditionally, INAHINA has not had an active engagement at the IHO bodies, through a permanent representative. However, INAHINA has been present at some important IHO meetings, such as the International Hydrographic Conference – IHC (now Assembly, since entry into force of the Protocol of Amendments), the Extraordinary International Hydrographic Conference (EIHC), or at its committees meetings, mainly the Capacity Building Sub-Committee (CBSC) and the Southern Africa and Islands Hydrographic Commission (SAIHC). INAHINA took part in the 2016 CBSC meeting in Abu Dhabi, in the 1<sup>st</sup> IHO Assembly (2017) and has successively participated in almost all SAIHC meetings.

**IALA:** Other Mozambique engagement in the international fora includes participation in the International Association of Lighthouse Authorities (IALA) conferences or in its committees and sub-committees. A delegation from Mozambique took part in the 18<sup>th</sup> IALA conference, held in La Coruna, Spain.

**IOC/UNESCO:** INAHINA has also maintained a regular participation in the works and meetings of the Ocean Data Information Network for Africa – ODINAFRICA of the International Oceanographic Commission (IOC/UNESCO) in the field of marine protection and coastal management and sea monitoring. INAHINA possesses and manages the National Centre of Oceanographic Data (CENADO). Within the last three years, INAHINA has taken part in the International Conference on Reducing the Risk of Tsunamis in the Indian Ocean, Oman (2015); the Regional Meeting of the Western Indian Ocean Plan, Nairobi (2015).



## **12. Bilateral partnerships**

IHO strongly recommends bilateral partnerships among its member states as a framework for the global surveying and charting coverage strategic goal.

In the context of bilateral cooperation, Mozambique and Portugal established a new cooperation framework in the fields of hydrography, cartography and related areas, including capacity building, through the signature of a new cooperation protocol between both hydrographic services – Instituto Nacional de Hidrografia e Navegação (INAHINA, Mozambique) and Instituto Hidrográfico de Portugal (IHPT, Portugal).

In the same line, the Mozambican Hydrographic Office (INAHINA) and the United Kingdom Hydrographic Office (UKHO) have started talks regarding revision of the Bilateral Arrangement Between The United Kingdom Hydrographic Office and The Instituto Nacional de Hidrografia e Navegação signed in 2014, during the visit of the INAHINA Director General to the UKHO.

Internally, INAHINA has negotiated and signed two MoU with the Higher School of Nautical Sciences, a public teaching institution whose main role is to provide seafarer to the national maritime sector and the Maputo Port Development Company (MPDC), a private company responsible for the management and safety of navigation at the Port of Maputo.

## **13. Needs (in short and medium term)**

Needs of the Mozambican Hydrographic Office, in short and medium terms, can be summarized as follows, both in equipment and training:

- Training in hydrographic survey with multibeam echo sounder system (already available);
- Hydrographic survey boat equipped with multibeam echo sounder system;
- Hydrographic Cat A and Cat B training courses;
- Cartography Cat A and Cat B training courses;
- Training in ENC production;
- Aids to navigation monitoring systems training course.

## 14. Conclusion

As part of its contribution to the safety of navigation worldwide, the Mozambique Hydrographic Office/INAHINA is strongly committed to improve the hydrographic and cartographic services that are provided to the national and international maritime community.

Gradually, but firmly, steps are being taken to rise up hydrography and cartography and marine signalization provided by INAHINA to meet the demands of the increasing quality standards in the field of navigation safety. This include allocation of the necessary equipment (boats – *three workboats within the last five years*; hydrographic surveys echo sounders – *the new multi beam echo sounder system*; modern marine signalizations systems – *the monitoring systems for the Ports of Beira and Maputo*; training, and establishment of bilateral partnerships).

Moreover, hydrographic surveys are being extended to other areas rather than concentrating them in the main ports and its approach channels. The result of this new hydrographic approach is the production of the first pleasure chart for the Bilene beach, in Gaza province. Within the same project, Costa do Sol beach pleasure chart, in Maputo, is expected to be finalized in a near future.