

## **PORTUGUESE TECHNICAL ASSISTANCE AND CO-OPERATION IN AFRICA**

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### **Foreword**

The paper describes the Portuguese activities on a co-operative basis with Portuguese speaking African countries, in the field of hydrography and navigation, since their independence. Political events in Portugal during 1974 and the establishment of new policies led to the gradual independence of all the overseas territories in Africa, under Portuguese administration, the following year. Until 1975, hydrography and related activities in African countries were carried out by the Hydrographic Missions that were dependent on the Overseas Ministry. The Hydrographic Institute (HI) has inherited a formal legacy from the past of these activities by the available historical information and because it possesses the appropriate technology, equipment and capability to follow up the earlier historical work.

Through the limited amount of information received from the African countries since independence, the HI has been able to ensure that the annual edition of Tide Tables and Notices to Mariners are produced, although the information has been scarce. The main concern has been to ensure that the charts can be maintained.

As a result of the recommendations of the XIth International Hydrographic Conference, held in 1977 at Monaco, in which co-operative work with developing countries was encouraged, some contacts were developed with the authorities responsible for the hydrographic activities of the Portuguese speaking countries in Africa. These contacts led to students from Mozambique, Angola, Cape Verde and Guinea-Bissau being enrolled in the Intermediate Course in Hydrography in 1977, thus constituting the first co-operative action between these countries and the HI. Since then, the main concern of the HI has been the technical training of the people from the African administrations that have been charged with continuing the hydrographic activities. Technical training has been carried out basically by on-the-job instruction in specific areas and through formal courses. Another

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activity was to ensure that the countries were able to continue providing information in order that the nautical publications, such as the chart folios, Tide Tables and other publications for each country could be maintained.

The nautical publications issued for these African countries prior to 1975 include the Sailing Directions for the Cape Verde Islands, the ports of Angola and S. Tomé e Príncipe and for the east coast of Lake Nyasa. The list of Navigational Aids is comprised of the List of Lights, Volume II, and the List of Radio Signals, Volume II. The Tide Tables also cover all the countries with Volume II which has been issued each year without interruption. Notices to Mariners are being issued based upon the information received from these countries, but it is randomly provided and scarce.

The HI has developed two courses, each corresponding to the two levels, Category A and B, of the FIG/IHO International Standards of Competence for Hydrographic Surveyors. The Intermediate Course in Hydrography and Oceanography is of one year duration and was awarded the Category B certification. The required entrance level for this course is that of the 12th school year in Portugal or its equivalent. Mathematics is considered mandatory. The Specialization Course in Hydrography is also of one year's duration and has been awarded the FIG/IHO Category A accreditation. Entrance level to this course is a Master's degree in Engineering or Science. In certain cases a BSc is accepted.

### CO-OPERATION WITH MOZAMBIQUE

At the time of independence, in 1975, the Hydrographic Mission of Mozambique had the majority of its 45 nautical charts updated. These charts provided excellent cartographic coverage although certain ports needed some special attention due to frequent physiographic changes.

The first official co-operation between Portugal and Mozambique as an independent State was the participation of four technicians in the Intermediate Course in Hydrography from November 1977 to September 1978. That was followed by five months of on-the-job training at the Hydrographic Institute and with the Hydrographic Brigades. The period of practical training covered hydrographic surveys, tides and nautical cartography.

On 25 May 1981, a general Protocol was signed between the governments of the Popular Republic of Mozambique and the Republic of Portugal. The follow-up of this Protocol was three months of on-the-job training for the Director of the Hydrographic Service of the 'Direcção Nacional de Transportes Marítimos e Fluviais', from July to September 1981. During this period, his training included organization, technical and financial management, geodetic and hydrographic surveys, tides and currents, coastal and estuarine dynamics, oceanography, cartography, navigation and the use of computers. During the same period, training on-the-job was also given to a technician in the field of 'safety of navigation'.

On 12 June 1982, a Co-operation Protocol was signed between the Ministry of Ports and Surface Transport and the Portuguese Navy. The areas which this

co-operation covered were hydrography, nautical cartography, safety and aids to navigation, and pollution. With respect to training, the co-operation included courses that could be taken either in Mozambique or Portugal. In accordance with this Protocol, two senior officers of the Portuguese HI went to Maputo in May 1983 to evaluate the possibility of organizing a practical course in hydrography in Mozambique, as well as estimating the action needed to prepare the Sailing Directions of Lake Nyasa.

After the Second Annual Meeting of the Protocol Agreement in Lisbon in June 1983, the planned course took place in Beira, the following October, lasting three weeks and having twenty students enrolled. From October 1983 to February 1984, four technicians underwent on-the-job training in the operation and maintenance of electronic equipment. Other technicians were trained for periods from three to five months in cartographic drafting, preparation of Sailing Directions and the compensation of the magnetic compass and navigation light tests. Also in the period 1983 to 1984, another two technicians joined the Intermediate Course in Hydrography and Oceanography.

In September 1984, the Third Meeting of the Protocol Agreement was held in Maputo with the Technical and Scientific Director of the HI being present. Following that, two geographer engineers enrolled in the Specialization Course in Hydrography, followed by on-the-job 3 month training in nautical cartography and tidal studies. Technicians have been regularly enrolled in training, much of it applied to specific activities in Mozambique such as the preparation of Sailing Directions. In 1986, two officers of the HI visited Mozambique in order to evaluate which tidal stations could be integrated into the GLOSS (Global Level of the Sea Study) of the Intergovernmental Oceanographic Commission. To the present date, annual meetings of the Protocol Agreement have been held alternately in Lisbon and Maputo. This has led to an extensive programme of training of technicians and other staff members. A further Practical Course in Hydrography took place in Maputo in 1987 lasting four weeks with fifteen students.

Still in 1987, two technicians attended the Intermediate Course in Hydrography and another two had on-the-job training in nautical cartography and chart drafting.

Some results of the co-operation can also be seen in the work of maintaining the 45 charts coverage. Many reprints and new editions have been made, and publications kept up to date as follows:

- Yearly publication of Tide Tables
- Publication of List of Radio Signals
- Publication of List of Lights
- Publication of Notices to Mariners
- New editions of four nautical charts
- Reprints of fourteen nautical charts.

A project for the establishment of a tidal measuring network of the East Indian Ocean is underway, sponsored by IOC, that resulted in two officers from the HI being sent to Mozambique in 1986.

### CO-OPERATION WITH ANGOLA

The first co-operative action was the attendance of one student in the Intermediate Hydrography Course from 1977 to 1978.

Publications and charts have been updated as far as possible but information received has been very limited. Since 1975, the main activities have been to publish the following:

- Annual Tide Tables
- List of Radio Signals
- List of Lights
- Notices to Mariners.

### CO-OPERATION WITH S. TOMÉ E PRINCIPE

The President of the Democratic Republic of S. Tomé e Príncipe had the opportunity to visit the HI during his visit to Portugal in October 1979. He emphasized the need for co-operation with the HI and recognized the importance of the training provided by the HI School of Hydrography and Oceanography.

A problem arising from the delimitation of the limits of their territorial sea and Exclusive Economic Zone caused then to send an officer of the HI on three occasions in the period 1980-84.

In 1983, an agreement was established for all African Portuguese speaking countries, which resulted in two students from S. Tomé e Príncipe attending the Intermediate Course. This was followed in 1987 when a senior officer of the HI visited the country to make a survey of its needs for hydrography and navigation and to prepare recommendations. This mission had been requested by the Ministry of Transport of S. Tomé e Príncipe.

There are eight charts making up the coverage and, since 1975, the following publications have been produced:

- Yearly Tide Tables
- List of Radio Signals
- List of Lights
- Notices to Mariners (postal warnings every two weeks).

### CO-OPERATION WITH GUINEA-BISSAU

The first co-operative action was in the training of three students participating in the Intermediate Course for Hydrography during 1977-78. One of these students underwent further on-the-job training in hydrographic surveys, tides,

nautical cartography and aids to navigation, the following year.

In 1984, from April to May, the HI dispatched the survey ship *Almeida Carvalho* to conduct a hydrographic survey of the entrance to Rio Cacheu.

During 1986-87, on-the-job training in navigation and survey, followed by participation to the Specialization Course in Hydrography, was provided for one naval officer.

In 1987, an officer of the HI visited Bissau and held a meeting with the local authorities to evaluate the possibilities of co-operation in the fields of hydrography and oceanography.

There are 20 charts constituting the coverage and, since 1975, the following work has been done to maintain them and their associated publications:

- 9 charts reprinted
- 1 new edition produced.

The following publications have been produced:

- Tide Tables
- Radio Signals
- List of Lights
- Notices to Mariners.

## CO-OPERATION WITH CAPE VERDE

In 1976, an Agreement was made with Cape Verde concerning co-operation with Portugal in marine development, nautical cartography and the safety of navigation. This was followed in the period 1977 to 1979 with one technician participating in the Intermediate Course in Hydrography. This technician also experienced on-the-job training in hydrographic surveys, tides, nautical cartography and aids to navigation. Another technician received on-the-job training in documentation and archiving during 1978-79.

The Technical and Scientific Director of the HI visited Cape Verde in 1981 to study possible co-operation in the fields of hydrography, oceanography and pollution research. During this visit, he recommended sending a survey ship and from June to August that year, the survey vessel *Almeida Carvalho* conducted surveys in the ports of Praia and Maio and of Tarrafal of S. Nicolau.

During the period 1984-85, a technician from the National Institute for Technological Research received on-the-job training and undertook some parts of study of the Intermediate Course in Hydrography and Oceanography.

In 1984, the *Almeida Carvalho*, while returning from Guinea-Bissau passed by Cidade da Praia and evaluated a programme of work for future co-operation.

In 1986, a naval officer underwent on-the-job training in the fields of hydrography and navigation. In December of that year, the Technical and Scientific Director of the HI again visited Cape Verde to further co-ordinate the activities and to establish the basis for a special protocol.

In 1987, an officer from the HI was present at the First Meeting of the International Oceanographic Commission of the East Atlantic (IOCEA-1). Also in that year, further training of one engineer was carried out. Some of this was directed at the organization of a small hydrographic group to perform port surveys for the verification and recording of harbour works. One technician attended in the same year the Intermediate Course in Hydrography and Oceanography.

A total of 18 charts constitute the coverage. Since 1975, three of these have been reprinted and the followed publications have been produced:

- Tide Tables (annual)
- List of Radio Signals
- List of Lights
- Notices to Mariners

### SUMMARY AND CONCLUSIONS

The previous pages demonstrate the extent of activity resulting from the Protocols of Agreement between Mozambique and in hand for Cape Verde. The Portuguese Navy and more particularly the Hydrographic Institute have freely provided the courses, on-the-job training, board and lodging and all necessary materials. Living expenses were subsidized by the Institute for Economic Co-operation of the Foreign Affairs Ministry.

The total extent of the co-operation is summarized in Table I — Actions in Portugal, and Table II — Actions abroad. From these tables, the following can be synthesized:

- a) 1249 effective weeks of training for a total of 45 students/trainees, providing approximately 28 weeks per person.
- b) Allocation between countries is Mozambique 60.9%; Guinea-Bissau 16.3%; Cape Verde 14.3%; S. Tomé e Príncipe 5.0% and Angola 3.5%.
- c) Of the total, 56.0% was with the Intermediate Course in Hydrography and Oceanography; 10.3% with the Specialization Course in Hydrography and 33.7% in several types of on-the-job training.
- d) Participation in Intermediate Course: Mozambique 54.4%; Angola 6.3%; S. Tomé e Príncipe 8.9%, Guinea-Bissau 19.0% and Cape Verde 11.4%.
- e) Participation in Specialization Course: Mozambique 66.7% and Guinea-Bissau 33.3%.
- f) On-the-job training: Mozambique 70.1%; Guinea-Bissau 6.6% and Cape Verde 23.3%.

The contribution of the Navy and, in particular, the HI has already been noted, but the Institute for Economic Co-operation provided grants to all students and trainees and also for actions in the countries themselves, including a contribution to the survey missions of the *Almeida Carvalho* to Cape Verde and Guinea-Bissau.

**Table I**  
**Actions in Portugal**  
(weeks/men)

	Mozambique		Angola		S. T. Prin.		G. Bissau		C. Verde		Totals	
	W	M	W	M	W	M	W	M	W	M	W	M
Intermediate Course in Hydrography & Oceanography	380	10	44	1	62	2	133	3	80	2	699	18
Specialization Course in Hydrography	86	2	—	—	—	—	43	1	—	—	129	3
On-the-job training	295	17	—	—	—	—	28	2	98	5	421	24
Totals (*)	761	29	44	1	62	2	204	6	178	7	1249	45

(\*) A total of 40 men, giving a total effort of 31 weeks/men.

**Table II**  
**Actions Abroad**  
(weeks/men)

	Mozambique		S. T. Prin.		G. Bissau		C. Verde		Totals	
	W	M	W	M	W	M	W	M	W	M
Courses	12	3	—	—	—	—	—	—	12	3
Visits of co-operation	4	8	4	4	—	—	2	2	10	14
Actions with survey vessel	—	—	—	—	4	*	4	*	8	*
Totals	16	11	4	4	4	—	6	2	30	17

(\*) The total of men involved is not shown, as it would then be necessary to include the crew of the survey vessel *Almeida Carvalho*, with about 50 men in each operation abroad.

In the way of tangible results, the Intermediate Course in Hydrography and Oceanography had 15 students in attendance, of which 9 passed and 6 failed. The Specialization Course in Hydrography had 3 students in attendance, all of whom passed and for on-the-job training there were 22 trainees, of which all but one passed.

Of the two Practical Courses, the one held at Beira, in Mozambique, in 1983 had 20 students in attendance, of which 17 passed and 3 failed and the other held at Maputo in 1987 had 15 students in attendance with 1 failure and 1 missing from classes.

It is hoped that this paper and, in particular, the summaries of activities and results will show clearly the extent of co-operation provided with Portuguese speaking African countries and the extent to which training has been provided at all levels.