

HYDROGRAPHIC TRAINING AND TECHNICAL ASSISTANCE TO DEVELOPING COUNTRIES

NORWEGIAN ASSISTANCE TO MOZAMBIQUE

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Abstract

Norway has, through the Norwegian Agency for Development Assistance (NORAD), actively supported the Hydrographic organization of the Mozambique government since 1986. At the beginning, the Norwegian Hydrographic Service (NSKV) was brought in, as a consultant, for the first two years, with its own staff in Mozambique, then later, as a backup for a NORAD employed hydrographic surveyor. A new contract, effective from 1st January 1991, has been signed, this time between the Mozambican Organization, which is now called Instituto Nacional de Hidrografia e Navegação (INAHINA) and NSKV. It is funded by NORAD, and NSKV has undertaken to build and develop INAHINA to such an extent that it will be able to continue operations and continue to perform satisfactorily after the withdrawal of NSKV-assistance.

BACKGROUND

Mozambique occupies part of the East African coast between the 10th and 27th parallels south. It has a coastline of about 1600 nautical miles and includes several large ports, of which Maputo (formerly Lourenco Marques) and Beira are best known to mariners. Both these, and other important harbours, are situated at the mouth of large rivers which implies problems of siltation, dredging and repetitive surveying.

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Coastal and overseas shipping have always been important to Mozambique. Since independence, 15 years ago, the nation has been in a state of war. Road and railway communications have been severely disrupted, making the country further dependent upon marine transportation.

During the colonial era, the Portuguese did extensive surveys of the Mozambican coast. The establishment of a tidal level at Quelimane is mentioned in letters, dated as far back as 1797. The 'Missao Hidrografica de Mozambique' surveyed all the important ports, inner and outer harbours and bars as well as the entire coast, which today are covered by 40 charts, in scales varying from 1:10 000 to 1:250 000. The updating of these charts takes place in Lisbon, as the Mozambicans have a lack of capacity to do this themselves. Portugal has also continued to print and sell charts of Mozambican waters. Such was the situation in 1983, when the Norwegian Hydrographic Service (NSKV) was approached by the Norwegian Agency for Development Assistance (NORAD) and asked to evaluate the possibilities of cooperation between Norway and Mozambique in the field of hydrography. A study was carried out and the conclusion of the preliminary report was that NSKV could assist the Mozambican Hydrographic Department (HD) in a gradual build-up of the Institution. Specifically, the task would be to establish three survey teams for harbour surveys and to enable the HD to print its own charts by the end of a four-year period. The report also stressed the importance of cooperation with Portugal in training and education of personnel, and also to have source material (fair sheets) transferred from Portugal to Mozambique.

Nothing further took place until the end of 1984, when another field study was made and a final report prepared. This report concluded that an expert (an experienced hydrographic surveyor) should be employed on a two-year contract. The HD required this expert to take up his position as soon as possible the following year (1985).

For several reasons the project was delayed for one more year, until early 1986. By then, it had proved impossible to recruit a competent hydrographer on a long-term contract. To solve the problem, a team of three hydrographers was formed, to cover the position for the next two years on a four month rota. The main goal was still to establish three survey teams and enable the HD to produce its own charts in Maputo. During these two years, the HD also received assistance from a cartographer and a repro-technician for relatively short periods. By February 1988, two survey teams had been established and a chart of Maputo harbour and the fairway, partly based on new surveys, had been compiled and printed locally. As part of the team build-up, four indigenous hydrographers had each received four months on the job-training at NSKV in Norway. Equipment had been renewed and maintenance routines established.

After the initial two-year period, the NSKV hydrographers were relieved by a NORAD-recruited hydrographic surveyor on a two-year contract. The progress continued until mid-1988 when the project, and the whole process of building a self sufficient hydrographic organization in Mozambique, suffered a severe setback. Highly qualified key personnel at the HD were transferred to other posts within the maritime sector and, according to a NORAD-evaluation, 'a promising development came to a standstill'.

For this and other reasons, such as lack of funds and of proper management routines, the next two years passed with very low production. However, one positive move took place when the Hydrographic Department became computerized with the acquisition of a computer system for automated data collection and processing. In December 1989, a new organization, Instituto Nacional de Hidrografia e Navegação (INAHINA), was created. It consisted, as before, of Departments for hydrography, administration and navigation, but a Department of Seamarking had also been included, with a responsibility to maintain buoys and lighthouses in all Mozambican waters. This involved the transfer of people, equipment, workshops and a new, very modern buoy tender vessel to INAHINA. Additionally, the Institute has been charged with the implementation and running of a 'Light Dues System' to be in effect from 1st January 1991. It is planned that some of the income from this system is to constitute an important part of INAHINA's budget. Control, invoicing and collection of dues will be the responsibility of the Administration Department.

The above re-organization presented a heavy task for an inexperienced organization, and, consequently INAHINA spent all of 1990 trying to sort out organizational problems. This resulted in the organization plan shown in Figure 1. It soon identified the need for assistance to the management, to build the Institution, as well as continued technical assistance to all Departments. A request for this was put to NORAD who, in turn, approached NSKV.

THE CONTINUATION OF THE PROJECT

The NORAD/NSKV connection has resulted in a contract between INAHINA and NSKV, effective for one year from 1st January 1991. The reason for this relatively short duration is that NORAD has decided to evaluate all its Mozambican maritime-related projects during 1991 and have all the contracts that are renewed running from the same date, 1st January 1992. Two man-years and other expenses within a frame of 3.6 million Norwegian kroner (approximately US\$600 000) is financed by NORAD. One man-year is taken by a management advisor based in Maputo, to work in close cooperation with the General Director of INAHINA. The other man-year (12 man-months) will be divided between technical assistance to the various departments, as requested by the Institute. To cover this aspect, NSKV has composed a team of experienced professionals in all fields necessary to a hydrographic organization, including general administration. Team members will be made available to INAHINA at four NSKV week notice. NSKV has also undertaken to assist the Seamarking Department but, if so requested, will provide this assistance, with the aid of the Norwegian Coastal Directorate or a similar organization.

The contract mentioned states that the main objective of the assistance from NSKV to INAHINA is to build and develop the organization to such an extent that it will be able to continue operations and performs satisfactorily after the withdrawal of NSKV-assistance. This means that the emphasis is now on institutional development, rather than the earlier technical and production-oriented form of aid.

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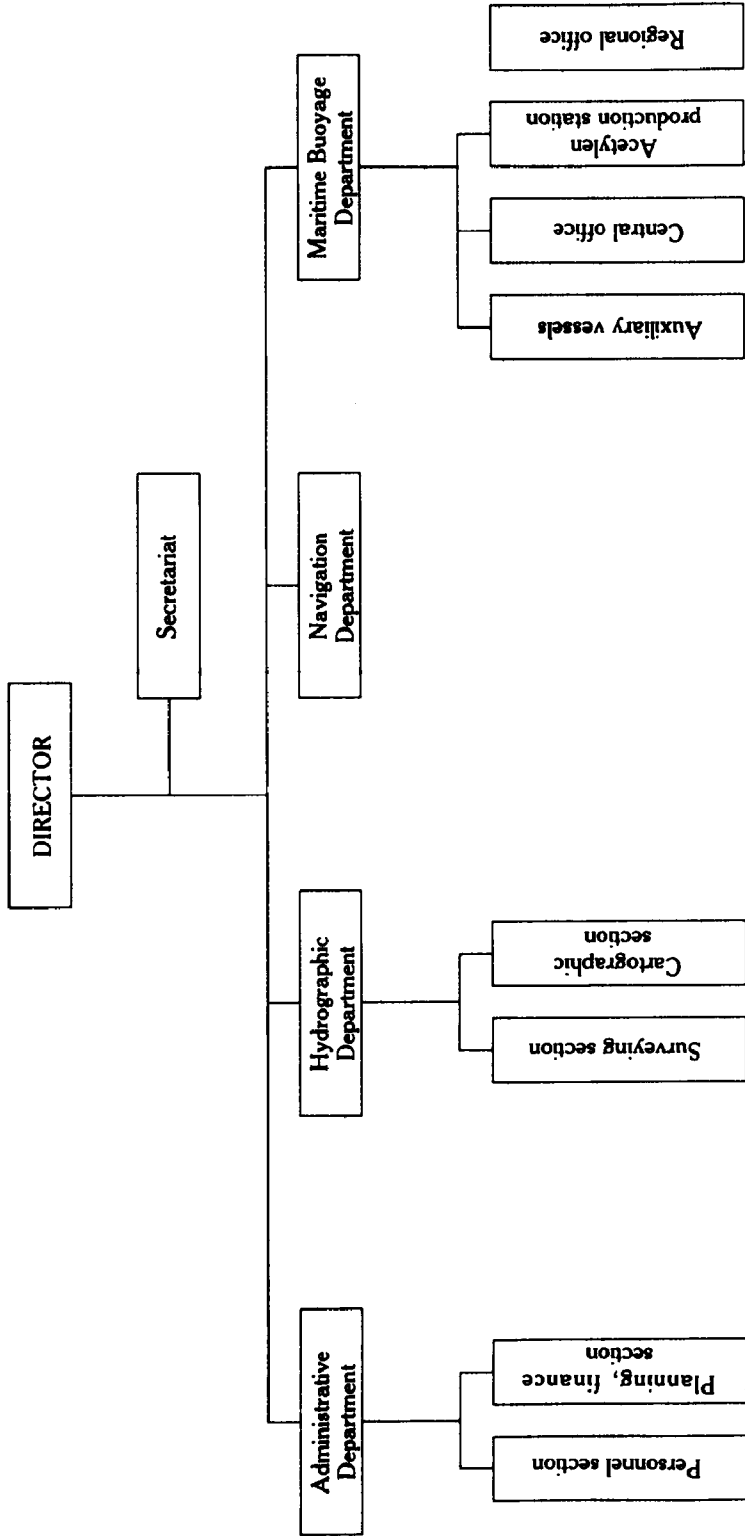


FIG.— 1. The INAHINA organization.

One of the key factors under the new contract will be the counterpart system, in which INAHINA is contractually obliged to provide a counterpart for each NSKV expert, in order to secure transfer of knowledge. Consequently, it has been stressed to the team members that the main purpose of their efforts is not to do a specific job, but to try to make sure that INAHINA personnel will be able to do it themselves in the future. Team members are also expected to take an active part, and agree upon all important decisions to be made within their specific field of work. NSKV shall, via their local representative, have a decisive influence on the management, operation and structuring of INAHINA and also on the local budget. The combined INAHINA/NSKV management shall further propose suitable recommendations to the appropriate authorities concerning official procedures and regulations influencing the operation of INAHINA.

The above discussion demonstrates that the scope of the work, now being undertaken by NSKV in Mozambique, is far wider than that indicated by the title of this paper: Hydrographic training and technical assistance.

THE DONORS

Today INAHINA receives aid from all three Scandinavian countries, Denmark, Norway and Sweden through their respective aid organizations DANIDA, NORAD and SIDA. As mentioned, NORAD has supported the hydrographic side for several years. Rehabilitation of buoys and lighthouses is financed by SIDA and DANIDA, which have supplied the specially-built buoy tender vessel, BAZARUTO, including support in the running and management of the vessel.

THE PRESENT

The problems of INAHINA, which it is the intention of the present project to solve, exist at all levels in the Organization and have several causes. One of them results from Mozambique's main problem, the war. Continuous attacks and sabotage from 'bandidos armados' (armed bandits) have had a negative influence on all sides of society. Mozambique has never had a chance to develop its potential. It is said to be one of the poorest countries of the world; there is lack of funds, lack of experienced professionals to run the country, lack of almost everything that the rich, industrialized countries take for granted. In a country with an enormous potential for production of hydroelectric power, there is lack of electric energy, due to sabotage of power lines. Anybody used to working with computers, and that includes surveyors all over the world, will comprehend the results when sudden, unannounced power cuts is the normal situation, not an exception. However, looking positively, it appears that although many problems remain they are generally smaller than previously.

A project review made by NORAD, dated January 1990, says that 'most of the requisite technical equipment needed to reach the targets have been procured and only minor supplies are required'. However, the fact that much of the equipment, and especially the survey boats, suffer from lack of maintenance, may have been overlooked. INAHINA has five boats, varying in length from 5.5 to 9 metres. The smallest of these, which is only useful in harbour surveys, is new. Of the others, only one is operative at the moment but it is in a bad state of repair, as are the others. Only two of the launches are suitable for use outside of enclosed waters. However, if necessary, repairs can be effected quickly, INAHINA will have sufficient boat material to carry out this year's programme, but it is quite clear that long term survey planning cannot be based on the boats available at present.

Surveying is done with the help of Trisponder positioning systems and Atlas echo sounders, all of which seem to be relatively well maintained. The computer system previously mentioned uses Eiva-software (Naviline, Navidat, Navipac, Naviedit, Navimap) for the collection and processing of bathymetric data. The system includes a large plotter (HP Draft Master II) enabling INAHINA to produce chart information 'on demand'. Four surveyors are presently being trained to use the system, by a NSKV hydrographer on a short term mission.

The HD is also supplied with a Polarfix positioning system, modern theodolites and distance measuring equipment. Other departments are not so well off, but they are all adequately supplied to carry out their immediate tasks, providing the equipment is working. The key word is, and always will be, maintenance.

The work of getting INAHINA operational has begun. A management group, consisting of the General Director and his Norwegian counterpart, together with temporarily appointed Department Heads are having weekly meetings. Individuals have been appointed as responsible for boats, survey equipment and stores. A system for control of personnel employment, in the form of a small weekly report from each employee to his principal, will come into effect during January. A plan of activity for 1991, covering all departments, has been made. This plan includes several harbour surveys, and hydrographic personnel will assist the buoy tender vessel in the positioning of buoys, using the department's survey computer. A plan for recruitment/training of personnel is being made and there is active and close cooperation with NORAD, and with the Swedish consultant, who will require the use of BAZARUTO for its continued lighthouse rehabilitation work after the vessel is transferred to INAHINA.

THE FUTURE

At this moment in time, based on all available information, it seems not unreasonable to suggest that further financial aid to INAHINA should be made dependent upon results shown this year. One year, however, is a very short time in this context and large achievements cannot be expected. But there must be clear indications that peoples' attitudes are changing and that the organization,

which can be seen as a sum of all its individuals, shows itself willing and able to take up its responsibilities and do the work.

A good start has already been made. The activities described above will continue and others will be initiated. Systematic, preventive maintenance must be implemented for all equipment. Various categories of personnel will be trained; the plan of activities includes a two-month course in Maputo for the cartographers and initial training for the person to be in charge of oceanographic and tidal activities. Depending on availability, at least one hydrographer will receive three to four months experiences/training in Norway. At least two more should be recruited to commence initial training.

There will be buoy positioning in Beira and some surveying of the harbour, and the important harbours of Quelimane, Pemba and Inhambane are all on the activities plan for this year. To manage and operate the BAZARUTO, a new department, which will also be made responsible for the maintenance of survey boats, will be established. The Administrative Department will be strengthened during 1991, in order to be able to take up its very important responsibility for the Light Dues System.

Planning further ahead, which also has to commence this year, raises several new questions of which one of the most important is that of vessels. At least one new survey boat must be purchased after 1991. The entire situation concerning survey boats will be analyzed. But an important question is to ask whether INAHINA can function effectively in the years to come without the aid of a larger vessel, able to support at least one survey team for prolonged periods anywhere on the coast. There can be only one answer to that question. In addition to the fact that Mozambique has a very long coastline, it is more than most other countries dependent upon sea transport, due to the war still going on. Even after the war stops it will take many years to get road and rail transport back to normal. There simply is no realistic alternative to ship based operations.

It is being discussed whether the buoy tender vessel, BAZARUTO, will be available for support of hydrographic expeditions when not occupied in buoy tending. The vessel is quite well suited for such tasks (except for a shortage of spare bunks) and will probably be free for parts of 1991. However, as it is impossible to predict with reasonable accuracy how much buoy tending there will be, while it is certain that the workload will increase with time, it is even at this early stage obvious that planning cannot be based on the use of BAZARUTO. A vessel is needed and the size, type, etc. should be thoroughly analyzed.

CONCLUSION

Norway's assistance to Mozambique in the field of hydrography is a NORAD-financed project and, as such, it must be guided by NORAD's principles. In its 'Strategies for Development Cooperation', dated September 1990, the fundamental principle is stated in Chapter 4: 'Recipients are Responsible for Their Own development.' The contents can be summed up as follows: Recipient responsibility, developing and strengthening institutions, dividing responsibilities

between donor and recipient, long-term objectives, recipient follow-up of own obligations, increased knowledge of conditions and circumstances in partner countries.

An experienced hydrographer knows that the world is not the same seen from the office as from the survey launch. Principles are one thing, getting the job done another. But, although it is easier to put principles on paper than to do a job in the field, it is also easier to simply do the job than to put principles into practice. In other words, for a project like this, the man in the field must find the right balance between guiding principles, on the one side, and practical work and results, on the other. Activity, to get things done, is important, not least for the morale of workers who have been idle for a long time, but one must not forget that the main objective and the purpose of all aid is to create something that will continue functioning when aid is no longer given. Projects that just fall apart when the foreign experts go home have been called 'white elephants'. A whole book has been dedicated to such animals. For NSKV, and NORAD, it will take serious effort, patience and a long-term perspective to avoid creating another.