

IHO EFFORTS IN DEVELOPING COUNTRIES

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INTRODUCTION

The provision of aid to developing countries, in the form of technical assistance, is seldom entirely philanthropic. Indeed, bilateral aid is frequently provided in order to secure some political or commercial end. Further, there is, at times, competition between developed countries to provide technical assistance and the result is often a set of poorly co-ordinated projects that in total are not in the best interest of either the donors or the recipients.

The International Hydrographic Organization (IHO) clearly recognizes the function of providing technical assistance through Article VIII(e) of its Convention. This is still as it was originally worded in 1967 and states that amongst the responsibilities of the International Hydrographic Bureau, it is: 'To tender guidance and advice upon request, in particular to countries setting up or expanding their hydrographic service'. The provision of assistance is certainly even more important now than when it was first written. The changing pattern of world shipping and world hydrography makes it essential that the Bureau participates actively in encouraging and assisting the less developed States to assume their responsibilities in the interest of the worldwide safety of shipping.

A Changing Maritime World

The production of nautical charts to provide world-wide coverage has traditionally rested in the hands of a limited number of hydrographic offices. Specifically, the USA, the UK and the USSR provide total world coverage, while France, the FRG and Japan provide partial coverage. Certain other countries, such as

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India, extend coverage beyond their national waters for specific trading or strategic purposes, but the majority still restrict their coverage to their national waters only.

While there was at one time a close relationship between the size and scope of a country's merchant and naval fleets and that of its hydrographic activity, this is now changing. During the last twenty-five years, flags of convenience fleets and changing world economies have resulted in considerable changes to the pattern of national tonnages. The following table provides some indication of these changes in recent years for some members of the IHO. It does not include data on some flags of convenience States which are not members of the Organization.

TONNAGE TABLE
(selected Member States)

Year	Japan	Norway	France	USSR	UK	USA	Singapore
1976	41,878,564	26,874,701	11,598,681	26,500,000	33,652,279	20,606,390	5,491,908
1983	41,331,676	21,718,472	11,124,549	29,500,000	26,046,855	25,042,794	6,885,895
1987	35,007,370	5,979,460	6,877,703	31,800,000	11,990,512	30,638,887	6,202,292

In addition to the basic tonnage, strategic operations and the balance of power have shown some changes. Another factor is that newly emerged nations, wishing to become independent in all areas of their economy, are beginning to develop merchant fleets of their own.

The Third Law of the Sea Conference recognized the feelings of independence and autonomy of developing countries. Many of these countries were concerned that mapping and charting of their waters by developed countries, often previous colonial powers, was not in their own economic or strategic interest and preferred to develop this element of the infrastructure themselves. Unfortunately, the development of this capability takes both money and time in terms of training personnel and a hiatus has occurred in which the charting surveys are no longer being carried out.

A final factor to consider has been the changing size of the ships themselves. Many authors (e.g. HASLAM) have commented upon the effect of the development of the U.L.C.C. and the V.L.C.C. following the closure of the Suez Canal in 1956, on the hydrographic services. What has not been discussed so widely is the problem today caused by the fact that all classes of vessels, from fishing vessels to container vessels, are generally larger and economic necessity dictates that they enter ports with marginal bottom clearances. Ports are being continually dredged to bring deeper and deeper draft vessels through the fairways and into the berths.

It is fortunate for the safety of world shipping that the traditional world charting offices have continued to provide their services. Clearly for them in some cases, it must be more for strategic or prestigious rather than economic reasons that these services have been maintained. Unfortunately, while the chart sets are maintained in being, there is considerable difficulty in providing data that reflects the latest situation and sufficient for the needs of today's shipping. Survey ships

are increasingly costly to maintain, particularly in foreign waters where the social standards of today expect that crews should be relieved at relatively frequent intervals. Western governments, in particular, question the reasons for deploying survey ships in parts of the world where trade is being taken up by ships bearing the flags of other countries. Yet another matter is the movement of well qualified surveyors from government to commercial organizations, although in this case the total contracting of surveys in foreign waters is possible if the basic need for the survey itself can be justified.

In this changing maritime world, the importance of continuing to provide adequate hydrographic services in facilitating the free and safe movement of shipping and, consequently, of maritime trade, hardly needs to be underscored. Numerous authors have expanded on the fact that unless charts based on adequate modern data are available, shipping will not be able to enter the ports of the developing countries whose ability to trade will consequently be seriously impaired.

A Strategy to Adopt to Change

The problem for the IHO is simple, the task immense. How can an international organization help to ensure that the seas of the world are surveyed and charted in a manner that will provide safe passages for all the ships at sea? The answer lies in the first objective of the IHO: 'The co-ordination of the activities of national hydrographic offices' — as spelled out in Article VIII(a) of the Convention.

The problem of providing charts is less difficult than that of carrying out surveys. First of all, there are already at least three world sets of charts from which a mariner can choose to navigate in every part of the world. Secondly, the IHO has developed the concept of International charts and has approved IHO Chart Specifications. This series of charts is being produced through the participation of many hydrographic offices using common standards and it will eventually provide a homogeneous set of charts covering all the waters of the world. Of the 82 charts in the two small scale INT series at 1:3.5 million and 1:10 million, 81 have now been published by the 16 volunteer offices, of which 79 are now being produced by 12 other printer nations. Rapid progress is being made with the production of medium and large scale INT charts in series approved by Regional Commissions. At the end of 1987, 137 such charts had been published of which 60 are already being reprinted by the Member States. An interesting aspect of the INT chart series is that a developing country can adopt them as its own. Reproductive materials are readily available and, by making some minor cartographic changes, they can be related to the specific needs of a country and then printed on its own presses.

The provision of surveys to reflect maritime trading patterns and changes in the seafloor is a much more difficult task. It is here that the need for developing countries to be able to survey their own waters becomes so apparent. Much has been written about the change that has taken place by countries adopting an exclusive economic zone and the huge increases in territory that have resulted. Also much has been written about the requirement to survey this new territory

(KAPOOR). Without doubt there is some advantage in knowing the potential wealth of these new territories before leases are let to international and national petroleum companies but, in fact, the most critical areas with respect to a country's development are its ports. It is possible to gain information on the potential of the offshore by ensuring that data on seismic surveys and drilling are shared with the host country, but the ports and coastal waters must be surveyed under the close management of the country itself. This is fortunate because the surveys, including the knowledge of the personnel and the equipment needed, become progressively complex as one goes offshore.

It is essential that developing countries acquire first a complete competence in carrying out their own port surveys. This work must be co-ordinated with neighbouring countries and with worldwide charting efforts. In this way, it will be possible to adapt to the changes that have taken place in shipping and hydrographic organizations. A word may be said here about contracting out the surveys. While this is perfectly feasible, it still requires that the developing country has its own personnel who are capable of preparing survey specifications and supervising that the work is done correctly. Technical assistance clearly has a part to play in ensuring that the developing country can gain the competence and ability to conduct its own survey, whether it be by themselves or under commercial contract.

Organizational Measures

The IHO exists through the contributions of its Member States. It is not a philanthropic body and its contribution to technical assistance must be made through organizational measures. It might be thought that the provision of technical assistance is a relatively modern concept for the Organization but, in fact, as early as 1966, it is recorded that the IHO was in correspondence with the Director of Oceanography of UNESCO and the Secretary-General of IMCO (now IMO) concerning the question of technical assistance in hydrography. This gave rise to resolutions, at the IXth International Hydrographic Conference in 1967, relating to training facilities and the creation of hydrographic services in newly independent countries.

During each of the International Hydrographic Conferences since 1967, held at five-yearly intervals, interest in the topic of technical assistance has heightened. In 1972, a technical resolution concerning the Training of Hydrographers (K 29.1) was adopted and, a short while later, a proposal dealing specifically with Technical Assistance (K 4.1) was adopted. From that time onwards the matter has been actively discussed.

In order to carry out the intentions of the resolutions, certain financial measures were taken by the IHO. After the 1982 Conference, Chapter II(f), Technical Assistance, was added to the 1983 Budget with 11,509 SDRs (*) allocated. This was increased to 17,475 SDRs this year. The main purpose of these funds is to allow visits to be made by experts in the field of hydrographic surveying and nau-

(*) At the time of writing, 1 SDR (Special Drawing Right) = U.S.\$1.4.

tical charting to any country — whether an IHO Member State or not — which requests such visits. In setting up these visits, it will be noted that they must be first requested. They may also involve already developed hydrographic offices and possibly commercial companies.

During the last five years alone, the Bureau's experts undertook ten advisory visits to 16 developing countries. In the course of this work, four project documents were prepared. In recent months, the President has visited Mozambique with the Director of the Norwegian Hydrographic Service and, very recently, one of the Directors has accompanied an IMO mission to five Central American countries to make a quick preliminary assessment of the overall maritime capabilities and requirements of the region.

Whether these various visits bear fruit remains to be seen, although some of them have certainly resulted in new members joining the Organization. The use of technical advisors has been identified (EKBLÖM) as one of the four options that may be used to provide assistance. It appears that such advice must be thorough and maintained over a lengthy period if it is to succeed. An exploratory visit must be followed by an in depth study and recommendations, including actions which could be provided by any established Member State.

It has been noted that the IHO is not a funding agency but other international organizations, particularly those of the U.N., the World Bank and national aid project offices, are able to provide funding under certain circumstances. It is essential that the technical capabilities of the IHO are linked with the capabilities of other organizations including non-governmental ones. To this end, there has been very close co-operation between the U.N. Development Programme (UNDP) and the International Maritime Organization (IMO). Another organization with which the IHO is co-operating, primarily in a technical sense, is the International Federation of Surveyors (FIG). Two examples of co-operation with UNDP that may be cited are the development of hydrographic capabilities in Trinidad and Tobago and Fiji.

The difficulties of establishing the necessary long-term administrative contacts and organizations between an international organization and a developing country, should not be under-rated. There are frequently administrative jealousies between the departments within which a new hydrographic organization should be established. Typically, the Departments of Defence, Transportation, Communication, Mapping and the Environment may all be considered as potential homes for a new hydrographic office. Certainly most, if not all, must be involved, but circumstances will always vary in each country.

Training

This is one of the more obvious and tangible forms of technical assistance. It has been said that 'Trained personnel are the foundation upon which national hydrographic capabilities are established' (WILLIAMS). In following its technical resolutions in 1972 on this topic, it can be said that the IHO has succeeded well through its fruitful relationship with FIG in establishing the FIG/IHO Standards of Competence for Hydrographic Surveyors. The activities of the International Advi-

sory Board set up to administer these Standards have been fully described by several authors (KAPOOR, INGHAM, KERR). Although designed to establish a minimum standard of competence, they have in fact resulted in providing guidance in the establishment of general schools of hydrography. The schools, in their turn, have provided instruction to personnel from many developing countries. Particularly of note, in this respect, is the Indian Hydrographic School in Goa, which was provided with financial assistance by the UNDP (FRASER) and is accredited as a Category A course under the FIG/IHO Standards of Competence. More recently, but notably in the private sector, the Australian Maritime College in Tasmania has been accredited, also at Category A (academic), and opens its doors to the prospect of training personnel in hydrography from the Southwestern Pacific nations.

It must be recognised that, although the IHO and FIG have developed the Standards of Competence, the actual teaching is carried out by many hydrographic offices and private institutions. To make information of these facilities more widely available, the IHO published a Special Publication 47: *Training and Technical Assistance in Hydrography* (*).

An interesting and active effort to provide training assistance in developing States has been described by McCULLOCH (McCULLOCH). Harnessing a variety of international and national organizations, a wide variety of training has been provided.

Not to be forgotten in the field of hydrographic training is the initiative being undertaken by IMO in co-operation with the IHO. This is the development of a long course (90 days) in port surveying and a short course for presentation at the World Maritime University (WMU), Malmö, Sweden. The initial syllabus for the long course was proposed by the IHO and it is hoped that it will eventually satisfy the FIG/IHO Standards.

Regional Commissions

One of the more promising mechanisms for providing technical assistance is through the establishment and initiatives of Regional Hydrographic Commissions. It has been suggested (CAILLIAU) that international involvement in bilateral arrangements may possibly hinder progress by rendering them more complex while facilitating the establishment of contacts and maintenance of the flow of exchanges. However, various people have advocated the use of regional groupings or commissions. One approach proposed (DYDE) is for a group of developing States to get together for the purpose of sharing equipment, personnel and training. This may take the form of a regional task force which moves from country to country as the priorities dictate. Although this last approach has been recommended by the International Hydrographic Bureau's own staff, it seems that there are pitfalls in its way. In the first instance, it is absolutely essential that the group has a competent independent advisor available and that his ad-

(*) *Author's note.* — A new edition of SP 47, entitled *Training Courses in Hydrography*, available in English, French and Spanish versions, has been published since presentation of this paper.

vice be heeded. In the second instance, there will almost certainly arise strong jealousies with respect both to where the facilities are located and to priorities as to where the work will be carried out. Finally, the maintenance of equipment in a central pool will require both technical competence and an understanding that it is to serve a common goal.

The IHO has already established several Regional Commissions in the more developed parts of the world. To date these have been most successful in sharing projects and research and development. The time has now arrived when new regional hydrographic commissions should be established and established commissions should extend their activities to the less developed areas. In fact, action has already been taken in this respect in the case of the East Atlantic Hydrographic Commission (E.At.H.C.) which has already included Nigeria as a member and Benin and the Ivory Coast as associate members. At its last meeting in May, 1987, the E.At.H.C. also included the Cameroons, Cape Verde, Morocco and Zaire as observers.

There appears to be a need for the US-Canada Commission to consider some extension southwards to the Caribbean States or for a newly formed commission involving perhaps Brazil and the Argentine to take care of the emerging interests of Spanish speaking countries in the Caribbean and Central America. No doubt that previous colonial powers that still have interests in the Caribbean such as France, the Netherlands and the UK may also wish to consider participation in these commissions. Another area where the extension of commissions or the formation of a new commission may be considered is in the Southwestern Pacific where a commission, perhaps led by Australia with Fiji, New Zealand and the Philippines as members, and France, UK, USA and Japan as associate members, could be considered.

Regional Seminars

The IHO has recently participated actively in regional seminars which have been arranged jointly with the UN agencies, in particular with IMO. These seminars provide a short term means of transferring the latest technology and ideas to developing countries. Successful seminars were given recently in the Federal Republic of Germany at Hamburg and at Bangkok, Thailand.

Coordination of Governmental and non-Governmental Assistance

Earlier it was noted that the provision of technical assistance, coming from different countries and agencies, is not always well coordinated. It is not effective, for instance, if training offered by one country does not cover the use of equipment being provided by another. In addition, some of the assistance is offered through contracted commercial services and, due to the competition that exists in the business world, one company is unaware of work being done by another company. It is suggested that very close coordination is essential so as to ensure that the best value is obtained by those countries receiving the assistance. With

this in mind, the IHB has already proposed that given the international responsibilities of both organizations, FIG and the IHO form an international advisory Board, similar to that already in existence with respect to Standards of Competence. This Board would monitor, as far as possible, the activities of individual hydrographic offices and commercial companies in their technical assistance activities and provide advice so that the assistance may be focussed and effective.

Bilateral Aid

It is well known that various countries are offering aid in a bilateral capacity. Although somewhat dated, an excellent example of the analysis of need and the provision of aid by the US Naval Oceanographic Office, the Defense Mapping Agency and the National Ocean Service was given by Christine WILLIAMS (WILLIAMS) in a paper in the January 1980 issue of the International Hydrographic Review. In her paper, she emphasizes that most of the Americans' assistance in the hydrographic field at that time was provided in the form of training and port surveying. The latter was provided under the HARSAP (Harbor Survey Assistance Program) started in 1963 and later to become the HYSAP (Hydrographic Survey Assistance Program). It is of interest that these programmes started on the ports which are undoubtedly the areas of greatest economic, if not strategic concern.

A more recent discussion on the US hydrographic assistance programmes examines NOS projects in Haiti, the Bahamas and Honduras (SULOFF). My singling out of the US programmes is only due to the interesting analysis of the problem and the discussions of the various programmes that were provided. In fact, most developed hydrographic offices are offering some form of technical assistance either in training or in project assistance or both.

State of World Hydrography

Various attempts have been made to identify the state of world hydrography, including in particular the Report of the US Group of Experts on Hydrographic Surveying and Nautical Charting in 1978 (UNITED NATIONS). What is now needed is an updated analysis providing details of the state of hydrographic knowledge and the quality of existing charts and some prediction of the pattern of shipping. From this, the areas in need of surveying could be identified and given orders of priority. These could be used on the one hand for the focussing of bilateral or regional assistance and on the other hand to influence funding agencies on the significance of the work. It has been suggested by some Member States of the IHO that short term assignments of persons to the Bureau staff could be beneficial to its work (*). It is suggested that the task of updating the status of world hydrography would be one very useful task that could be carried out under such an assignment.

(*) See Decision No. 9, XIIIth International Hydrographic Conference, May 1987.

CONCLUSIONS

The provision of technical assistance that is effective requires time, persistence and diplomacy. It must be requested and not imposed. The development of expertise in hydrography and nautical cartography is essential if the hydrographic community is to respond to changing patterns of world shipping and political control. The IHO is not a funding agency but through organizational measures has demonstrated that it can assist in the provisions or encouragement of providing technical assistance to developing countries. Acting as a source of expert advice, by establishing standards for training and by fostering the growth of Regional Hydrographic Commissions, it hopes to help transfer knowledge of hydrography from the developed to the developing States. Working with other international bodies, it hopes to develop mechanisms to provide initial funding, equipment and training. At the same time, it hopes to be able to furnish monitoring and coordination with other international bodies, in order that the assistance provided will be most effectively used. This will result in the provision of world hydrographic services that will give the greatest level of safety for the shipping community.

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