

Completion of S-55 Using GIS: A Practical Planning Tool

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Abstract

IHO Publication S-55 'Status of Hydrographic Surveying and Nautical Charting Worldwide', is a most important publication of the International Hydrographic Organization (IHO) and is designed to provide a diagnosis of hydrographic requirements, due to the complete database on international hydrographic knowledge that it contains. This paper presents a methodology proposed by Colombia to calculate the status of the hydrographic surveys and nautical chart availability utilising a Geographic Information System (GIS), a methodology that may be used as a guide for any country determining the information needed for S-55. It was found that following this methodology the way, in which calculations of hydrographic capabilities are determined, may be standardised, and the result can provide an important planning tool to optimise the investment of hydrographic resources at a national and regional level.

Introduction

Colombia took over the chairmanship of the Meso-American and Caribbean Hydrographic Commission (MACHC), at the VIth Commission's meeting held in Cartagena, in September 2004. The meeting considering the regional short-

comings detected in the 3rd edition of S-55, agreed that all the Commission members should complete the questionnaire submitted by the International Hydrographic Bureau (IHB), in order to assess objectively the regional needs by an analysis of the information. The main purpose was to facilitate the IHO Capacity Building Committee (IHOCCB) in properly managing the scarce resources available.

Colombia, when starting to update its national information, as well as to review the data of the region contained in S-55 to detect any weaknesses, found two special situations. First, it found that there was a lack of a clear methodology to calculate the percentages required to report on the status of the Hydrographic Surveys and Nautical Cartography, and second, that the information, contained in S-55 in percentages, does not allow the ideal analysis of the needs in the region. Due to this it was decided to establish a new methodology to measure and record the state of hydrography using Geographic Information Systems - GIS. On the 30 May 2005, a Technical Workshop on 'Development Phases of the Capacities of Hydrographic Surveying and Nautical Cartography' was held in Cartagena de Indias, Colombia. It was directed towards the Members of the MACHC Commission, especially to the islands states of the Eastern

Caribbean. The Workshop was organised by the IHOCBC. During the workshop, the GIS methodology used by Colombia to complete S-55 and how S-55 could be used as a tool for the analysis of the weaknesses and hydrographic needs, was reported. The proposal was accepted and received with great interest by the participants. This situation motivated the preparation of this paper, in order that the positive Colombian experience could be shared.

S-55 Background

IHO publication S-55 deals with the world-wide status of hydrographic surveying, nautical cartography and marine safety information, with the purpose of displaying the worldwide coverage of the three main elements of hydrography as identified in the IHO publication M-2 'Hydrographic surveying, Nautical cartography and Marine Safety Information (MSI)'.

The first effort to evaluate the progress of hydrography at a global level was initiated by the United Nations in 1970, and the IHO was requested to continue with a detailed study, which culminated in 1991 with the first edition of S-55 covering 46% of the maritime nations. In 1998 the second edition was published with coverage of 47% of the States. Today the third edition is available on the IHO web site with information of 81% of the maritime States, with the possibility of being updated by the countries by means of the Internet.

This publication is maintained by the IHOCBC, supported by the Regional Hydrographic Commissions (RHCs), which facilitates the diagnostic research of the needs (S-55) with the investment of resources in capacity building.

Analysis of the Publication S-55

To prepare the information for S-55, each country evaluates its level of development in each of the three main capacities of which hydrography is composed. In the case of hydrographic surveys and nautical cartography, information is displayed in percentages. Nevertheless, a methodology did not previously exist that could serve as a guide for countries in calculating their individual levels of coverage. This lack of methodology entails two

problems. First, the difficulty for countries with limited hydrographic experience in calculating their percentage of coverage. The second is the variety of possible criteria available to calculate the percentage that can be used by countries. This lack of standardisation makes it difficult to execute any comparison and make an objective regional and global evaluation.

The database in S-55 displays the coverage of the hydrographic capacities at a global level, but the database is not by itself the final objective. S-55 must provide a tool to detect weaknesses, thus helping the prioritisation process in the allocation of resources to support capacity building initiatives. It is in the use of the database where a new limitation is found, because the percentages although important indicators, make it difficult to analyse the information with an important spatial component. Therefore it is necessary to consider GIS when analysing S-55, as it allows visualising spatially the information and also offers its use as a planning tool.

Finally, the fact that countries like Colombia, which are members of more than one Regional Hydrographic Commission, must provide differentiated information of their real situation because areas covered by different Commissions may not have the same degree of development, preventing an objective analysis of the information under a total geographic perspective.

Proposed Methodology with GIS

The Hydrographic Service of Colombia has developed a methodology to calculate the percentage of hydrographic surveys and cartography using GIS, with the initial purpose of sharing the experience at a regional level, especially with those countries that have had difficulty in calculating their own percentages. The following guide not only provides knowledge of the spatial status of hydrography in the country, highlighting the shortcomings, but also allows it to conduct medium term planning, focusing the hydrographic resources where they appear needed.

Status of hydrographic surveying

Initially a revision of the database that contains information of all the surveys made by the Colombian Hydrographic Service in Colombian maritime

territory from 1984 was made. An evaluation was made of each survey to decide whether they were to an acceptable standard or if new surveys were needed. Factors such as order of the survey, date of accomplishment, equipment used, participant personnel, among others, were considered.

After finishing this initial phase, the limits of all the surveyed areas were digitised with the help of GIS. These areas were classified in two layers. One consisting of the surveys considered to be to an acceptable standard, assigning them a green colour, and another one consisting of those surveys that need to be repeated, assigning them a yellow colour. The areas never surveyed were kept without colour.

To facilitate the evaluation of the status of shallow versus deep waters, in agreement with the requirements provided in S-55, the 200 metres contour surrounding the mainland as well as to the islands was digitised.

For the shallow water calculation 100 % was adopted that would correspond to the total area of the Colombian maritime territory between the coastline and the 200 metres contour. To make the calculation, the areas were determined with GIS, including the areas of the approaches to the mainland and islands including shoals, banks and reefs. To determine the percentage of shallow waters surveys, both, surveys that were considered acceptable and those needing a new survey were added. In the Colombian case all surveys were classified in the

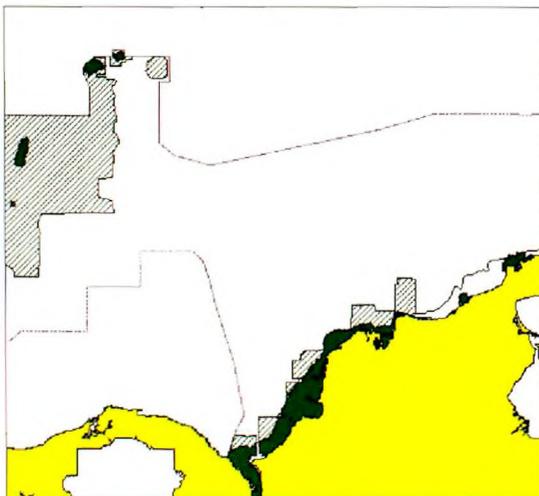


Figure 1: Hydrographic surveys in the Caribbean.

first category. The percentage turned out to be the ratio between the addition of all surveyed area compared with the total area existing between the coastline and the 200 metres contour.

For the calculation of the deep-water percentage, 100 % of the area would correspond to all the Colombian maritime territory between the 200-metre contour and the external limit of the Exclusive Economic Zone (EEZ) of Colombia. To calculate it, the areas were measured with GIS and the values added. In order to determine the percentage of the status of the deep-water surveys, the areas acceptably surveyed and those requiring a new survey were measured separately. In the Colombian case all the surveys were classified in the first category. The percentage resulted from the comparison of the areas surveyed and the total area between the 200 metres contour and the external limit of the EEZ.

Considering that Colombia has coasts in two oceans belonging to different Regional Hydrographic Commissions, it was necessary to follow the proposed methodology to calculate separately the Caribbean Sea and the Pacific Ocean to assess the status of the surveys in both sectors.

In Figure 1 a GIS image of the Caribbean shows in green the shallow water surveyed areas and in dashed green the deep waters. It was calculated that 69.2% of the shallow waters were surveyed to an acceptable standard. As far as deep waters are concerned, the 17.2% has been surveyed systematically to an acceptable standard, whereas 82.8% requires surveying by the Colombian Hydrographic Service.

In Figure 2 a GIS image of the Pacific shows a coverage of 55.4% of the shallow waters and only 1.8% of the deep waters, to have been acceptably surveyed, thus highlighting the main survey needs.

Status of nautical cartography

Next the methodology followed by Colombia is provided for the calculation of the paper nautical charts only, as the Hydrographic Service does not produce official navigation charts in raster format, and the Electronic Navigation Charts (ENCs) are not yet available for distribution and sale. Nevertheless the proposed methodology can be applied for the calculation of all the formats.

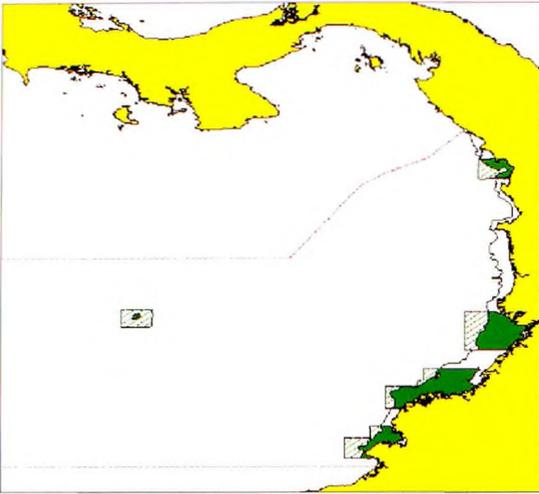


Figure 2: Hydrographic surveys in the Pacific.

Unlike the previous calculation of the hydrographic capacity, it is not possible to take as a reference all the maritime territory, as it is covered by more than one nautical chart within the same range of scales. For that reason it is necessary to rely on the Nautical Cartography Plan, which is the main tool in the long term to define the cartographic needs of a country, as it describes all the charts at different scales necessary to suitably cover the national maritime territory. In order to initiate the proposed methodology it is necessary to consult the Nautical Cartographic Plan.

Using the GIS the limits of all nautical charts in the Cartographic Plan were digitised, assigning a

colour to those already published, and a different colour to those planned but not yet published. These charts were organised in three thematic layers in agreement with the scale range indicated in IHO publication M4. Small scale those 1:1,500,000 and less. Medium scale those greater than scale 1:1,500,000 and less than 1:150,000. Large scale those of scale 1:150,000 and greater.

Considering that S-55 divides the cartographic coverage according to the scale of the charts, the percentage must be calculated for each one of these ranges. In order to calculate the percentage of small scale or offshore charts, 100% was considered to be the addition of all planned scales in that scale in the Cartographic Plan, which is obtained adding all the areas of published and non published charts, digitised in the thematic layer of the GIS corresponding scale. To calculate the covering percentage all areas of published charts were added after being digitised with GIS in small scale. From the comparison of these two measured areas, the coverage percentage is obtained. The same procedure should be followed to calculate the percentage for the medium and large scales.

In Figure 3 a GIS image is provided showing the medium scale cartographic plan in the Caribbean Sea. The published nautical charts are shown in blue, the planned charts not yet published, are shown in red. Out of a total of 36 planned charts, 27 have been published, with 80 % covered.

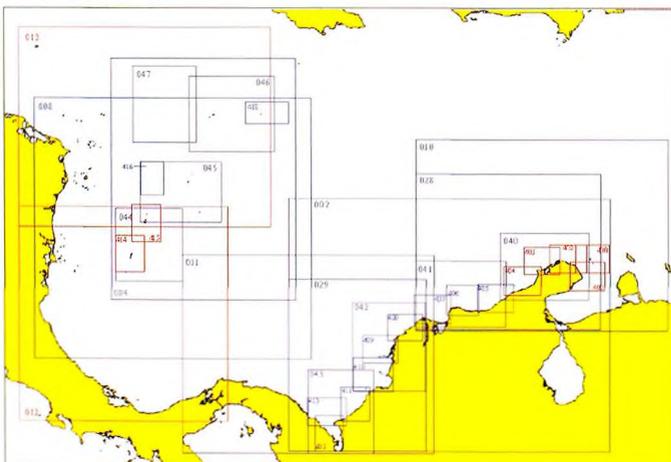


Figure 3: Medium Scale Chart of the Caribbean.

Figure 4 shows a GIS image showing the medium scale charts in the Pacific Ocean using the same convention as above. Out of 23 planned charts, 7 have been published, with 86% of the area covered. Again the need to separate the information for each ocean, in the calculation of S-55 data of countries with two coasts is highlighted.

Favourable Results When Following the Methodology

Colombia has established a clear methodology to calculate periodically the status of its hydrographic capacities in surveys and nautical cartography. This

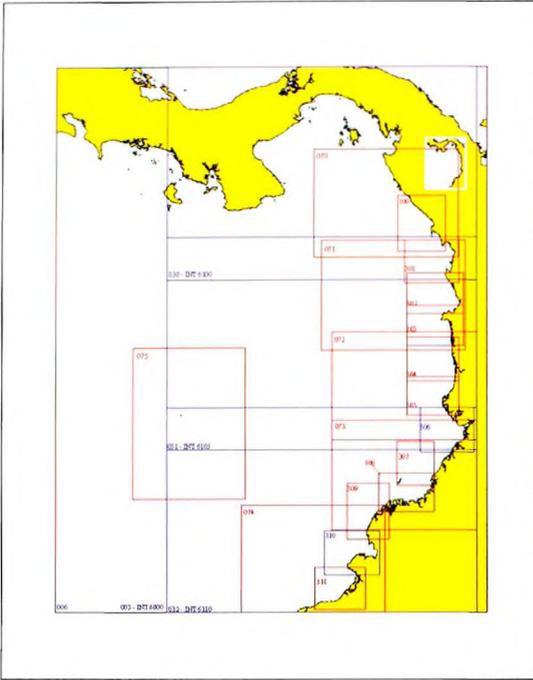


Figure 4: Medium Scale Chart of the Pacific.

will allow the measurement of advances in hydrography in an objective way, because the methodology assures that the calculation of percentage is always under the same standard. At the end of each calendar year S-55 changes will be evaluated according to areas surveyed and charts published, allowing the assessment of the hydrographic effort, identifying if it has been focused in increasing the coverage or on updating the available information.

The hydrographic survey information entered into a GIS, offers all the advantages of these systems for the analysis and handling of spatial information. Thus, when a requirement is made so that the Hydrographic Service executes a survey, previous information on hydrographic surveys in the area of interest can be displayed spatially. Also GIS have associated databases which can provide information about the surveyed areas, such as the order of the survey, date, hydrographic platform, equipment used, personal participant, etc., offering all the necessary information for planning and decision making.

All the information associated with the Nautical Cartographic Plan of Colombia was also digitised and entered into a GIS. This is a great advantage for the handling of the information, allowing its spa-

tial display by layers according to the scales. The digitalisation of the limits of the nautical charts is also provided in an associated database, in which information like the present edition of the chart, names, date and amount of published copies, scale, etc., can be found.

It was found necessary that Colombia, having maritime territories in more than one Regional Hydrographic Commission, reports the information of S-55, specifying its coverage pertaining to each one of them, which permits a greater knowledge of the real status of the hydrographic capacities at national and regional levels.

Finally, but perhaps the main advantage that was found when following the proposed methodology, was the possibility of using the database information of S-55 in the Geographic Information System as an extraordinary planning tool.

Use of the Methodology As a Planning Tool

As it was discussed concerning the S-55 analysis, this database is not by itself the final objective. Its true potentiality is found when used in diagnosing the status of the hydrographic capacities, to establish capacity building plans, hydrographic surveys missions or compilation and publication of nautical charts.

Considering that all the hydrographic information is in a GIS, it is possible to take advantage of all the potential that this software offers for the treatment of the spatial data, especially as regard to the spatial display of the information, handling of thematic layers to organise and to classify the data, as well as the associated data bases. This allows the user to have a 'spatial diagnosis' of the status of its hydrographic capacities, which facilitates the analysis of the information. When considering all the hydrographic information in a GIS, it is possible to take advantage of all the advantages that is offered by this software for the treatment of the spatial data, especially the spatial unfolding of the information, the handling of thematic layers to organise and to classify the data, as well as the associate data bases. This allows the user to have a 'space diagnosis' of the state of its hydrographic capacities, which facilitates the analysis of the

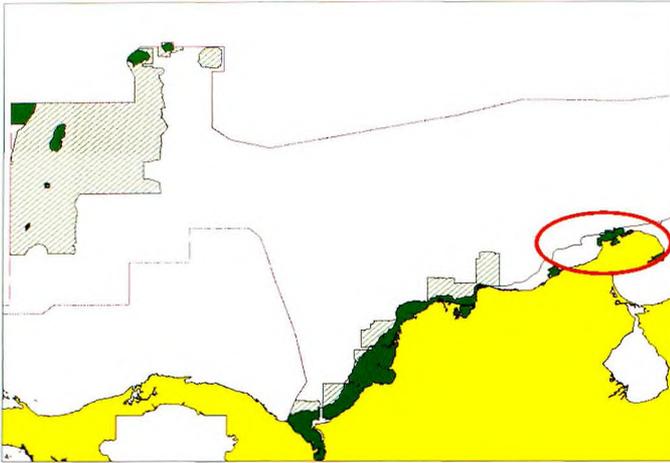


Figure 5: GIS use in planning. (Peninsula of the Guajira has been circled in red).

information as well, allowing the detection of the strengths and weaknesses within the spatial scheme.

Through the use of the proposed methodology, Colombia managed to determine the weaknesses in hydrographic and cartographic coverage in its maritime territory in the Caribbean Sea and the Pacific Ocean. This diagnosis was the base on which a hydrographic medium term development plan was prepared, to allow the optimisation of the limited resources in the solution of the highest priority needs.

For example in Figure 5 a comparison of the information of surveys with the information of cartography on medium scale for the Colombian Caribbean is shown by means of a GIS. When comparing these images it can be observed that in the Penin-

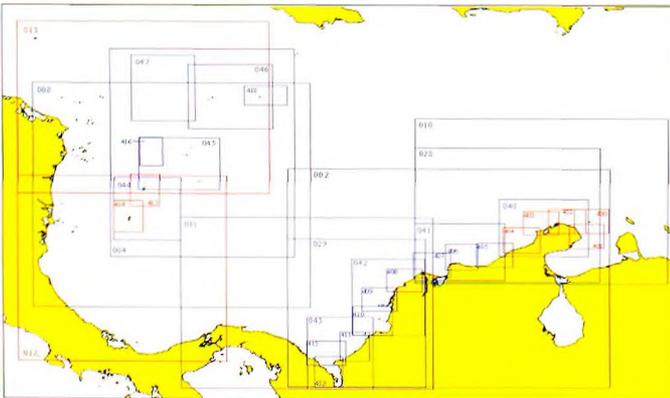


Figure 6: GIS use in charting planning.

sula of the Guajira there exists a cartographic deficiency as a consequence of the absence of surveys in shallow waters in the area. This would be very difficult to observe solely by a study of the S-55 percentages.

Once the existing hydrographic requirements have been determined with the use of the GIS following the methodology discussed, prioritisation of the needs can take place. For this, the volumes and characteristics of the maritime traffic of the main ports, as well as other maritime interests, physical changes in the areas caused by natural or anthropogenic causes, status of the navigational aids, etc. in consultation with the Port authorities. The maritime defence requirements were also evaluated.

When analysing all this information and prioritising the hydrographic needs, a plan that provides a solution to the needs in accordance with the human skills and material and financial resources available, can be structured.

Additionally, the possibilities of the proposed methodology can be exported with the purpose of analysing the status of the hydrographic capacities within the Regional Hydrographic Commissions, allowing the detection of any weaknesses and to focus the efforts and resources towards concrete capacity building initiatives in its solution.

To take advantage of this, it is necessary for all the countries in a region to feed a sub-database with information of their own surveyed areas and nautical cartography in a format appropriated for the use of GIS, sharing the same methodology. In this way it would be easy for the compiler country to merge all the information in the same GIS database, taking advantage of all the potential already discussed that allows a diagnosis of the status of the capacities of the Region.

In this way the Chairmen of the different RHCs may improve their participation in the IHO Capacity Building Committee, transmitting the prioritised regional needs for the allocation of resources.

Summary

The IHO publication S-55, 3rd edition has reached an important level of development, with the possibility of a permanent update by the Hydrographic Services through Internet. Its structure is ideal as it allows analysing the status of the hydrography by means of the evaluating the development of its main capacities. All this contributes to recognise the immense importance it has in the diagnosis of the needs, thanks to the information contained in its database.

The fact that there is not at present a methodology to standardise the way to calculate the percentage of coverage, prevents an objective comparison of the information and makes it difficult to analyse the information by means of a simple evaluation of the displayed percentages.

Colombia, after finding it difficult to quantify the values required in the Publication S-55 due to the absence of a standardised methodology, developed a proposal that includes the use of GIS. With the application of this computer science tool, advantages in the form of displaying the status of the hydrographic capacities were found. This allows a spatial analysis of the data and improves the diagnosis of the hydrographic reality, facilitating the decision making and becoming an important tool for planning.

This methodology can also serve at a regional level to detect weaknesses in the hydrographic capacities of the countries of the area. Protocols for the exchange of data are due to be established, creating sub-databases integrated by the GIS. With the participation of the Regional Hydrographic Commissions, offering more detailed information on the

regional needs, the decision making process of the IHO Capacity Building Committee can be optimised. Thus, progress will be achieved in the identification, support and prioritisation of the co-operation needs, with the final purpose of improving safety of navigation and protection of the marine environment, the main objectives of the International Hydrographic Organization.

References

IHO (2004). Publication S-55 'Status of Hydrographic Surveying and Nautical Charting worldwide' 3rd Edition.

IHO. Publication M2 'National Marine Policies and the Hydrographic Services'

IHO OHI (2003), Publication M4 'Regulations of the IHO for the International Charts & Specifications for IHO Charts.'

Biography

Rafael Ricardo Torres Parra (Lt.Cdr. Colombian National Navy) holds professional titles related to Naval Sciences and Physical Oceanography after studying at the Naval Academy 'Almirante Padilla'. Mr Torres Parra is Professor of the Hydrographic Cat "A" Program at the Naval Academy. He graduated from the USN Oceanographic Office Cat "B" Hydrographic Program. Since 2004 he is the Coordinator of the Hydrographic Area in General Maritime Directorate of the Republic of Colombia.

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Note

Capacity Building ... An IHO Challenge

By Captain Hugo Gorziglia, IHB Director and Chairman of the IHO Capacity Building Committee

Background

The International Hydrographic Organization (IHO) is of a consultative and purely technical character, its purpose being:

- the co-ordination of the activities of national hydrographic offices.
- the greatest possible uniformity of nautical charts and nautical publications.
- the adoption of effective methods of executing hydrographic surveys.
- the development of the sciences relative to hydrography and techniques used in descriptive oceanography.

In order to be able to fulfil these objectives, Article VIII of the Convention that governs the International Hydrographic Organization (IHO) identifies the responsibility of the International Hydrographic Bureau as follow: *"To tender guidance and advice upon request, in particular to countries engaged in setting-up or expanding their hydrographic service"*.

The organisation has always spoken about what today we know as 'capacity building' but used other words such as 'guidance and advice'. The subject is not new, and neither is the scope of the organisation's competence, since we refer to 'countries engaged in setting-up or expanding their hydrographic service'. Therefore we are conscious

that the effort should be made and oriented towards developing countries.

It is logical to think that when considering matters related to 'capacity building', we must bear in mind that the associated system involves certain basic elements. On one side we need a component that NEEDS and WANTS to be developed; a second component consists of an already developed part that WANTS to share its experience and a third one that constitutes the BRIDGE to facilitate this exchange. In our case, the organisation responsible for building that bridge is the IHO, with its bodies such as the IHB and the technical groups established for that purpose.

For the IHO, to have a simple, effective and efficient system that would allow facilitating this technological and procedural transfer of experience constitutes a challenge and we will try to justify this belief in this paper.

Why a Challenge?

Indeed we are facing a great challenge, since the system of which I have spoken not only is made up of the three described elements, but also of many others:

We have international regulations with which to comply. Several of them no

longer are of a voluntary nature and certainly the countries that do not fulfil them risk sanctions of an economic character, often not even noticed. UNCLOS and SOLAS V are given as examples, but doubtlessly Rule 9 of SOLAS is the one that sets out with precision and details the obligations in hydrographic matters that must be fulfilled by the signatories of such Conventions. Are all the signatories ready to fulfil these exigencies? How can we help them to develop that capability?

We need to know precisely the hydro-cartographic status as well as the status of the maritime information systems, to be able to determine the size of the problem and its characteristics. That is the only way to be able to identify the solutions and remedial actions. This assessment starts at a national level, then integrated at regional and later global levels. What is the degree of knowledge we have? How to obtain such knowledge? How do we avoid sensitivities in the delivery of the information?

We have limited human and financial resources, which force us to be very judicious in the determination of the priorities at all the levels: national, regional and global. There are very few projects funded by specialised agencies that correspond exclusively to the hydrographic field. What is the key to increase the resources? How do we succeed in seeking resources to finance hydrographic development projects? How do we take advantage of the existing opportunities?

We must procure a harmonious and sustainable development. The introduction of new technologies without the suitable preparation of the human resources or without the infrastructure or the financing for its operation is really worth nothing. The four 'legs': technology, human resource, infrastructure and funding, must grow in such a way that the table is kept level at all times. But in addition, the development implies the adoption of the appropriate measures so that the established capacity will be long lasting. For that to happen requires that national authorities, mainly the economic ones, to be motivated so as to understand that hydrography should not be seen as a 'cost' but as an 'investment'. How can we reach this understanding? What is the appropriate dose required for each of these four components? What is the formula to assure a successful development, if there is such a formula?

We have serious communication problems. I am not referring to problems associated to language differences, but to the effective capacity to assure the timely arrival of a message that has been transmitted. It is incredible that in spite of the technology available, it is a true drama to succeed in communicating with certain countries. Active and motivated focal points together with a basic national structure are vital. How do we convince authorities that this matter is of high-priority? How do we convince authorities that due to the lack of communication many opportunities are lost?

It is not necessary to give more examples on the matter and it is hoped to convince the reader that we are without any doubt, facing a great challenge, a challenge that implies the provision of guidance and advice. In other words, to give life to the concept we call 'Capacity Building'.

Adopted Actions

For a long time the IHO has been dealing with this subject with varied energy and form. Perhaps the most concrete way adopted to face this matter was the establishment, in 1988, of a joint FIG/IHO Working Group to co-ordinate projects of technical assistance relative to hydrographic surveying and nautical cartography, which originated in the formation of the Technical Assistance Cooperation and Coordination Committee (TACC), in January 1989. The IHB contributed the Chairman and the Secretary for the Group, which held 12 meetings during its existence and one of its main contributions was the compilation of a database of technical co-operation projects.

After having assessed a low effectiveness of the Committee, mainly due to the difficulties of FIG (Federation Internationale de Geometres) to continue its participation, the XVI International Hydrographic Conference decided to withdraw from the TACC, an action that would take place after consulting with FIG. The FIG Council in October 2002 agreed with IHO and decided to withdraw from the Committee because it was not possible for FIG to support his work.

After examining the situation, the IHB Directing Committee, in the light of the increasing need to expand the co-ordination and technical co-ope-

tion in hydrography and nautical cartography decided to propose to Member States the following measures:

- 1) to make effective the decision to disband TACC,
- 2) to establish a new body called the IHO Capacity Building Committee, and
- 3) to assign the Committee with Terms of Reference, whose text also was proposed, and that shortly considered the following activities:
 - Continuously assess the status of hydrographic surveying, nautical charting and nautical information, developing IHO publication S-55.
 - To co-operate with the IHB in the establishment and maintenance of close relationships with agencies and organisations which may provide financial support.
 - To co-operate with the Hydrographic Regional Commissions in the creation of a Groups of Experts to carry out assessment studies.
 - To support the IHB in monitoring the assessment carried out and the identification of potential projects.
 - To co-operate with the IHB in the provision of advice to countries needing to implement SOLAS V, Rule 9.
 - To support the IHB in the preparation and keeping update of the Capacity Building Work Programme.

The Capacity Building Committee

The IHB proposal was strongly supported by Member States and the Committee was created on 10 April 2003, originally membership was: Australia, Chile, France, Germany, India, Mozambique, Norway, United Kingdom and United States of America. Recently Japan, Latvia, Mexico and New Zealand have also joined the committee.

The Committee has met on three occasions, and the progress achieved at each meeting is listed below:

CBC1 (Monaco, 11 and 12 September 2003)

- a) The Terms of Reference were reviewed and a final text was adopted.
- b) It was agreed that the Committee must help Member States to raise the hydrographic interest at a high governmental level. It was agreed to update IHO publication M-2.

- c) It is agreed that RHCs provide important 'engines' to progress capacity building initiatives and that CB requires a regional approach.
- d) A definition for 'Capacity Building' was adopted.
- e) It was agreed that the IHO Capacity Building Strategy must reflect the need to involve national administrations, and that the IHO should be recognised as the technical reference in all projects with a hydrographic component. A Working Group was established to develop an IHO Capacity Building Strategy.
- f) Training was recognised as a basic Capacity Building tool.
- g) The importance to have S-55 updated and in digital format was highlighted.
- h) Initial discussion took place on the need to establish an IHO Trust Fund.
- i) Guidance was received on the way both sectors, the academic and the industrial, could contribute to the IHO Capacity Building efforts.

CBC2 (Fiji, 11 and 12 November 2004)

- a) The new edition of the IHO publication M-2 was completed and made available.
- b) The IHO Capacity Building Strategy was approved and the Committee decided to submit it to Member States.
- c) It was decided to maintain a Management Plan that would integrate all the requirements, projects and initiatives organised by RHCs. This document constitutes the basis for contributing to the Annual Work programme. It was agreed to send this version to RHCs Chairmen for revision and completion.
- d) It was acknowledged that United Nations Resolution A/RES/58/240 for the first time mentions IHO and the role of hydrography. It was decided to give wide publicity to this resolution.
- e) The Capacity Building Work Programme for 2005 was approved, and a three years programme 2005/2007 was approved in principle. It was agreed to consider this Work Programme in the General IHO Work Programme. A meeting of the CBC should take place in May or early June to fit with the planning schedule of the IHO.
- f) After deciding that it was absolutely necessary to have some financial resources to support CB initiatives, the Committee asked its Chairman to adopt the measures to establish an IHO Capacity Building Fund.
- g) The issue of having a donor's conference was discussed, and it was considered premature to

take any action regarding this matter as concrete projects were needed before estimating the financial resources required. Nevertheless a Working Group was established to study the subject.

Taking advantage of this meeting and the presence of its members, a Technical Workshop was organised to address representatives of the countries of the South West Pacific Hydrographic Commission on the establishment of the first phase of the capacity building.

CBC3 (Colombia, 1 and 2 June 2005)

- a) It was reported that the IHO Capacity Building Fund has been established and that an administrative resolution has been approved by States Member, referring to the use, administration, control and report of the resources allocated to this purpose.
- b) The requirements submitted by some RHCs and by some countries were analysed, and included in the Management Plan.
- c) The Management Plan was analysed; the 2005 Work Programme updated and the 2006 approved. The programme for 2007 was approved in principle, subject to a new analysis in the next meeting.
- d) The progress of the 2005 Work Programme was reviewed in detail.
- e) The Committee took note of the methodology developed by Colombia to complete the questionnaire on S-55 and it was recommended to give the work wide publicity.
- f) A Working Group was established to prepare the 5 year CB Work Programme 2008/2012, to have it included in the General IHO Work Programme, for consideration of Member States at the next International Hydrographic Conference, in May 2007.
- g) It was agreed to refine the document providing a guide to be used in the accomplishment of the technical assessment visits.
- h) It was agreed to standardise the presentation of requirements submitted by RHCs to the Committee.

This occasion also took advantage of the presence of members of the Committee, and a Technical Workshop on the first phase of capacity building was offered to the countries of the Meso American and Caribbean Hydrographic Commission.

The next meeting of the Capacity Building Committee is to be held in Maputo, Mozambique, providing an opportunity to again organise a Technical Workshop similar to the one delivered in the early years, on this occasion benefiting the South African and Islands Hydrographic Commission.

The Capacity Building Work Program

Initially, the CB Work Programme 2005/2007 was established on the basis of the information provided by the IHB and discussed at the CBC meetings. This procedure was adopted in the absence of requests submitted by RHCs. Nevertheless its content has shown it to be delineated in line with the real needs. The RHCs have started to contribute to improve the programme and the 2005 programme has recently been modified to include a new task of high priority to one of the RHCs.

For the next years it is hoped to improve the Work Programme with the initiatives submitted by the RHCs. The CBC task will be to assign a global priority to all the initiatives and in the light of the resources available, to propose a viable programme and budget that will constitute a subset of the general IHO work programme that will be considered by the Member States.

The Capacity Building Fund

The Capacity Building Fund was established on 4 February 2005, immediately after Member States unanimously approved the administrative resolution that refers to it.

The resources for the time being come from the IHO ordinary budget (approximately 50,000 euros a year) and it is hoped that this amount will be increased in the near future, with savings made at the IHB and mainly by direct contributions of some volunteering Member States, and other International or private Organisations. That is to say, the Fund is open for contribution without any special reservations or priorities to a particular project in the Work Programme.

As a matter of principle, the IHO is not to be considered a 'funding institution'. Specialised funding organisations already exist with global or regional

structures, making it pointless to establish something in parallel. The Fund's aim is to provide a 'partial' support along the following lines:

Technical Assistance

Concept: The fund will support technical visits to Member States to assess hydrographic surveying, nautical charting and nautical information status; provide guidelines for the development of local hydrographic capabilities and/or to discuss and advise on technical matters pertaining to hydrographic projects. The technical visits to Non Member States are also considered under this concept. In brief, the resources under this topic are to be used to implement visits and related capacity building activities *consistent with the IHO Work Programme*.

Training and Education

Concept: The fund will support the implementation of hydrographic, nautical cartography and other related training and *education initiatives consistent with the IHO Work Programme*.

Financial Assistance

Concept: The fund will support Member States' representatives wishing to attend courses and/or technical meetings as necessary in the interest of the Organisation, *consistent with the IHO Work Programme*.

Start-up Projects

Concept: The fund will support the first steps of the implementation of high priority hydro-cartographic projects *consistent with the IHO objectives*.

The resources not used in a calendar year are kept in the Fund to be used in support of other initiatives identified by the CBC in the Work Programme. The establishment of this Fund has not generated any structural change in the administration of the budget of the IHO.

A detailed report of the accounting of the Fund will be included in the Annual Report Part 2 'Finances'. A clear description of the incomes as well as the expenditures made in the function of the IHO approved work programme will be provided.

It is the author's opinion that the establishment of the Capacity Building Fund has provided a significant contribution to the fulfilment of the IHO mission in recent years.

Real Expectations Or Dreams?

It is the Author' willingness to see the following dreams become true:

- a) IHO Member States participating actively in the Organisation's business and taking advantage of the opportunities the Organisation offers.
- b) Non IHO Member States motivated to become IHO members and willing to receive qualified training to be able to assume mainly the responsibilities set by SOLAS.
- c) The RHCs centralising the Capacity Building needs of the countries in their region and fostering the identification and execution of regional hydrographic projects.
- d) The Capacity Building Committee orienting the scarce human and financial resources to support real priorities under a global perspective.
- e) All, different States, other international organisations, academic and private entities, motivated to contribute to the IHO Capacity Building efforts. This dream is starting to become true as some IHO Member States are already working on the establishment of a procedure by which will contribute with resources to the IHO Capacity Building, ... *an IHO challenge*.

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