



INTERNATIONAL HYDROGRAPHIC ORGANIZACIÓN

SOUTH PACIFIC HYDROGRAPHIC COMMISSION



CAPACITY BUILDING PLAN FOR 2018 – 2020

1. INTRODUCTION

1.1. Rationale

Currently, between 80% and 90% of international trade is carried by sea. It is moved either by container ships or bulk carrier vessels. It is an efficient, reliable and cost-effective solution for the transportation of goods. (see Figure 1). The countries that make up the CHRPSE have several ports located along the coasts of the Pacific Ocean and rivers that make possible the maritime transport of cargo and passengers.

The main ports of the countries in the region allow international shipping and trade those results in lower costs and higher profit during the exportation and importation of goods

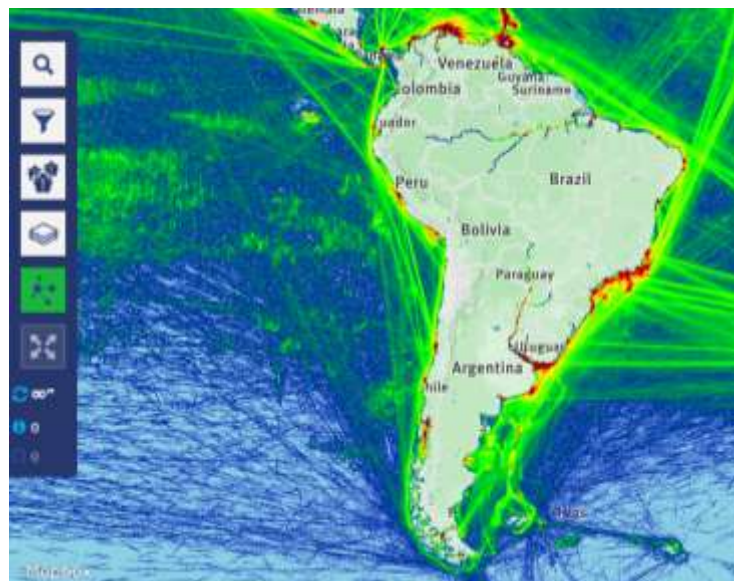


FIGURE 1.- MARINE TRAFFIC DENSITY

(Source: <http://www.marinetraffic.com/en/ais/home/centerx:-84/centery:-1/zoom:6>)

Strategy Capacity Building of the International Hydrographic Organization classifies the development of Hydrographic Services in three stages:

- a. Stage 1: collecting and passing necessary nautical information to update existing charts and publications.





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- b. Stage 2: surveying capacity building, aimed to conduct coastal and offshore projects; and,
- c. Stage 3: independent production of paper charts, electronic nautical charts and electronic publications.

Also, the Member States of CRHPSE are signatory of the Convention for the Safety of Life at Sea of the International Hydrographic Organization. Therefore, this Capacity Building Plan helps to lead the effort to assist Member States in fulfilling these obligations. Consequently, a coordinated national effort is required and the understanding of the following statements:

- a. Human, financial and time resources are limited. Thus, defining priorities is a key factor.
- b. Planning has to be realistic; and,
- c. The Coastal State commitment to work with the IHO / CHRPSE is fundamental for developing hydrographic services to the international maritime community.

The rapid technological change has replaced the paradigms of navigation. Therefore, there is a need for continuum investment in education and training which enables the Hydrographic Services to provide quality products and services that meet the new demands of the maritime community.

According to the objectives established by CBSC about cooperation with the Regional Hydrographic Commissions for building capacities. In the past 3 years, CRHPSE Regional Group has participated in several training projects that have enabled continuous improvement of the technical skills in each of the Hydrographic Offices. Such skills are hydrographic survey, nautical charting, and management of hydrographic information.

At the annual meeting the CBSC uses the management plan as a reference for preparing the work program for the following year. Prioritizing courses, workshops and technical visits. The CBSC program is admitted to the annual program of the IHO.

The active participation in IHO Capacity Building Programs allowed the conduction of seminars and regional technical workshops, which enabled the CRHPSE to gain knowledge of new methodologies to be applied in the Hydrographic Offices.

For the past three years, the CRHPSE has participated in the following Capacity Building Programs:





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2014:

In the second semester the Technical Workshop Hydro / Cartographic of River Surveys was conducted with the MACHC and SWAtCH regional groups. This workshop benefited three regional groups; CRHPSE: composed by Chile, Colombia Ecuador and Peru. SWAtHC: composed by Argentina, Brazil, and Uruguay. MACHC: composed by Suriname, Brazil and Guyana. With a total of 14 participants. The workshop was held in Iquitos, Peru from 22 to 24 October 2014.

2015 :

The Caribbean Regional Committee along with the Research Center of Colombia coordinated the workshop about Techniques and Methodologies for Multibeam Data Processing, which was scheduled for 2016.

2016:

It is planned to conduct a workshop on Techniques and Methodologies for Multibeam Data Processing presented in 2015 that was not implemented due to lack of budget.

The Workshop on LIDAR Methodology for Shallow Waters presented by the Oceanographic Institute of the Ecuadorian Navy of Ecuador, whose objective is to develop the basic knowledge of Lidar technology applied to bathymetric studies regarding the flow, is pending due to budget approval.

REGIONAL IMPACT OF THE TRAINING

The IHO CBSC supports the development of capacities at Institutional and Regional level, which allows us to address learning in relation to the needs of Member States in the region. The participation in courses, workshops, and technical visits has improved the production processes of the hydrographic offices.

It is expected to accomplish an e-learning system via virtual environments of the CBSC. Where it will be required the use of computers, mobile equipment, tablet and internet which can be exploited both in office and underway where electronic communications are available.

The use this tool will benefit the maritime sector by saving time. Today most people own a smartphone; according to statistics it is expected that by 2020, 80% of the world population will have access to internet and make use of learning through online courses.

The implementation of e-learning with the CBSC, the maritime industry is expected that to keep pace with the rapid advancement of technology and have access to the training and workshops materials at sea.





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Training events improve the skills and knowledge in the region. The progress is reflected in the conduction of hydrographic activities and cartographic production.

These training events have been fundamental for decision-making processes. New experiences and procedures have been learned and used for the optimization of resources and thus made us more effective.

1.2. Purpose and Objectives

The objectives of the plan are:

- a. To ensure the establishment of a basic level of MSI among all Member States to produce Local/Coastal/NAVAREA alerts and communicate effectively with the charting authority, and implementation of the elements of GMDSS MSI.
- b. To promote the establishment of Hydrographic Services (HS) and the evolution of the services in compliance of the CB phases.
- c. To train managers at different levels to ensure a much-needed capacity in hydrography and nautical charting, including natural disasters and other incidents that could affect the depths in ports and its proximities.
- d. To instruct managers in the methods for running hydrographic surveys which will improve the generation of marine products and therefore improve the safety of navigation.
- e. To comply with the resolutions and guidelines of the IHO regarding hydrographic activities and nautical charting; and
- f. To ensure the availability of hydrographic data to support the sustainable use of marine resources

1.3. Priorities

Despite the large number of needs in the region, the priorities for the 2018 to 2020 period are ranked in order of importance:

0. Activities that promote the awareness of national liabilities;
1. Activities that improve the capacities of Hydrographic Services in Stage 1;
2. Activities that improve the capacities of Hydrographic Services in Stage 2;
3. Activities that improve the capacities of Hydrographic Services in Stage 3;
- and
4. Activities that go beyond Stage 3.





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However, the status of the Capacity Building of Member States and its assessment was performed according to the draft of the Process 11 which established the following list:

Weight	Description
-1	No information available
0	The country is not aware of its national liabilities
1	The country is aware of their national liabilities but does not have the means to do so
2	The country has the ability to meet national liabilities
3	The country has the ability to meet obligations through a third party
4	The country sustainably fulfills its national liabilities

Note: The evaluation represented by 3 is an alternative to 4, it is explained in the Strategy of Capacity Building IHO.

The evaluation of the initial phase of Capacity Building is complemented whether or not the Coastal State has established a National Hydrographic Committee (NHC) or Hydrographic Coordination Committee (NHCC). The evaluation for the NHC / CHCC is as follows:

Weight	Description
-1	No information available
0	The country has not established a NHC/NHCC
1	The country is in the process of establishing a NHC/NHCC
2	The country has established a NHC/NHCC

In this sense, the assessment for the countries of the region is:

	Member State	NHC o NHCC	CB Stage 1	CB Stage 2	CB Stage 3	Last TV
1	Chile	2	4	4	4	No
2	Colombia	1	4	4	3	
3	Ecuador	1	2	4	2	
4	Perú	1	2	4	4	
5	Observer state	NHC o NHCC	CB Stage 1	CB Stage 2	CB Stage 3	Last TV
6	Panamá	2				

Note: With regard to the Government of Panama, the Bureau Hydrographic made a technical visit in 2005 in which it recommended the Oceanographic and Hydrographic Commission of Panama to develop a Cartographic Plan Panamanian coasts. This plan was implemented by the Geographic National Institute Tommy Guardia. Several communications have been sent encouraging to become a member of the International Hydrographic Organization.

1.4. Methodology and Procedures

This plan sets goals for the 2018 - 2020 period and may be annually reviewed and adjusted where is appropriate. Each year the CHRPSSE decides the responsibilities for each scheduled event. For the subsequent year it considers the plan and proposals





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from other Regional Commissions to identify topics that could of benefit for the developing countries in the region.

The coordinator of the CHRPSE Capacity Building, no later than January each year, sends to the President of the Region the details of the planned projects. The projects funded by the IHO CB Fund and must be written as the CB Procedures 1 and 4.

The Principal of the Region will check the proposed projects to verify if they require support from IHO CB Funds and will forward them to the Chief of CBCS and Secretary no later than the 15th of April, otherwise, appropriate action will be taken

1.5. Baseline

Below there is a general description of the development achieved by each country to meet national responsibilities under Regulations 4 and 9 of Fifth Chapter of the Convention for the Safety of Life at Sea (SOLAS):

RULER 4. NAVIGATIONAL WARNINGS

“Each Contracting Government shall take all steps necessary to ensure that, when intelligence of any dangers is received from whatever reliable source, it shall be promptly brought to the knowledge of those concerned and communicated to other interested Governments.”

Ruler 9. HYDROGRAPHIC SERVICES

“Contracting Governments undertake to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation.”

The Colombia HO - CIOH is under mandate of the national maritime authority DIMAR which belong to Defence Minister.

For the Member States Peru The Directorate of Hydrography and Navigation of the Navy (DHN) in coordination with The Coast Guard and the Harbour Master Directorate (DICAPI) are the institutions that provide the Aids to Navigation and Safety of Life at Sea.

Chile fully complies with the provisions of Chapter V of SOLAS Regulation 9 on "Hydrographic Services".





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As the law of the State of Chile, corresponds to the Hydrographic and Oceanographic Service of the Navy (SHOA) established in 1874, the mission and functions associated with the topic.

In Ecuador, the Oceanographic Institute of the Navy (INOCAR) in coordination with the National Directorate of Aquatic Spaces (DIRNEA) are official agencies; however, due to a restructuring process imposed by the government and the departure of qualified personnel, the effectiveness of this service has diminished.

1. In particular, Contracting Governments are obliged to cooperate to establish, as far as possible, nautical and hydrographic services:

1.1. Ensure that, as far as possible, hydrographic surveys are carried out complying with the requirements of a safe navigation.

The Oceanographic Institute of the Navy, as the technical agency of the Ecuadorian State, has prioritized national and international trade routes; that is, those related to international ports as well as special infrastructure used for exporting oil and its derivatives, and tourism operations. However, a more structured approach is necessary to prioritize the coverage of hydrographic surveys.

1.2. To develop and publish nautical charts, sailing directions, lists of lights, tide tables and other nautical publications, as appropriate, to meet the needs of safe navigation

The Oceanographic Institute of the Navy is the technical agency of the Ecuadorian State responsible for the preparation and publication of nautical publications. Specifically, nautical charts and tide tables are produced by the Hydrography Department. While, sailing directions, list of lighthouses and buoys, and other nautical publications are produced by the Department of Aids to Navigation. The national distribution of all nautical publications is carried out through the Department of Aids to Navigation; while the international distribution is made through specific agreements with specialized companies

1.3. To publish the Notices to Mariners in order to maintain, as far as possible, updated the nautical charts and publications.

The Oceanographic Institute of the Navy and the National Directorate of Aquatic Spaces are responsible of publishing information related to the





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maritime safety; however, due to restructuring imposed by the government and the departure of qualified staff, this service is not optimal.

1.4. To provide the means for the management of data in support these services

The Oceanographic Institute of the Navy with the support of the National Directorate of Aquatic Spaces are responsible for providing the means to support these services. However, the Institute is expanding repositories and is required support for the proper sizing of the Spatial Marine Data Infrastructure.

2. The Contracting Governments are obliged to establish uniformity among charts and nautical publications and to take into account, as far as possible, international resolutions and recommendations.

The Oceanographic Institute of the Navy as the technical agency of the Ecuadorian State that is directly responsible for fulfilling this responsibility. It has included, as far as possible, resolutions and recommendations issued by the International Hydrographic Organization. Among the new proposals, it has been considered a section for maintaining resolutions and recommendations

3. The Contracting Governments are obliged to coordinate activities to the greatest extent possible so that hydrographic and nautical information are worldwide available in the fastest, reliable, and unambiguous way possible

The Oceanographic Institute of the Navy as a technical agency of the Ecuadorian State has signed cooperation agreements with governmental and private institutions so that hydrographic and nautical data is available worldwide in the fastest, reliable and unambiguous way possible

4. The National Nautical Charting Plan establishes the scheme nautical charting the country. The SH under matrices: Port navigation, port facilities number, date data available, port development, public order and national sovereignty, sets priorities in technical visits, hydrographic surveys, mapping visits and publication of nautical charts.

5. The update of the national nautical cartography is constantly done through Notices to Mariners, digital updating of nautical charting, constant maintenance of navigation aids and new publications to provide safe navigation in waters

6. The Colombia HO published the Notice to Mariners in the web <https://www.cioh.org.co/index.php/avisos-a-los-navegantes> . Colombia stated the





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implementation of Data spatial infrastructure, for now it is operating in internal level. For cartography process, CO has the tools HPD, the personal is changing of the old to the new system.

7. We need capacity in fundamentals of spatial data infrastructure. The nautical publications are been published according the IHO specifications: Nautical Charts, S-4, Training S-5, ENC, S-57, Surveys S-44, etc.
8. The Colombia HO had signed agreement and MoU with academic institution, government entities and privates companies.

2. ACTIVIDADES

It is imperative to understand the importance of identifying courses that could improve hydrographic services provided by each country. For example the following matrix would become a powerful tool for the planning of capacity building in the region. The Presidency will request, each year, the corresponding funds from the IHO for the implementation of certain courses; however, other courses can be managed through agreements with Major States or through the initiative of our Navies, depending on the availability of funds.

In order to fill the matrix, the courses or workshops that are not listed should be included under the caption "Others" located at the end of the matrix:

Stage	Activity	Beneficiary countries	Responsible	Observations
	<u>Technical and Advisory Visits</u>			
0.1	High-level visit to governmental authorities			
0.2	Technical assessment and advice visit			
0.3	Technical implementation visit			
0.4	Seminar on Raising Awareness of Hydrography			





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	<u>Technical Workshops, Seminars, Short Courses</u>			
1.1	MSI course (3 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.3)
1.2	Phase 1 Skills (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.3)
1.3	MSI Workshop (3 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.3)
2.1	Basic Hydrographic Survey Course (10 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	
2.2	Port and Shallow Water Survey Course (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.)
2.3	MBES Processing (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	
2.4	MSDI and Data Management (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	
2.5	Tides and water level workshop (3 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.)
2.6	Seabed Classification workshop (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.)





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3.1	Basic ENC and ENC Production course (10 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2)
3.2	ENC Production and QA (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
3.3	MSDI and Data Assessment (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	
4.1	Law of the Sea Workshop (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.1-2.2)
4.2	Tsunami inundation mapping workshop (5 days)	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
	<u>Long Courses and Programmes</u>	Colombia, Chile, Ecuador, Perú	CHRPSE	
HA	Category "A" Hydrographic Programme	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.1)
HB	Category "B" Hydrographic Programme	Colombia, Chile, Ecuador, Perú	CHRPSE	
CA	Category "A" Nautical Cartography Programme	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)





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CB	Category "B" Nautical Cartography Programme	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
	<u>On-the-job and onboard trainings</u>			
OJ	On-the-job training			
OB	Onboard training			
	<u>Other</u>			
O1	Hydrographic Risk Assessment for Safety of Navigation Workshop	Colombia, Chile, Ecuador, Perú	CHRPSE	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.1)

