REPORT

Technical Visit

to

THE REPUBLIC OF HAITI

19 - 23 October 2008

Technical Visits to the Republic of Haiti
(IHO Work Program 2008)
19 - 23 October 2008

I.- GENERAL INFORMATION.

1.- Haiti a Maritime Country.

With a coastline of over 1770 kilometers in length, Haiti is a Caribbean State located in the western third of the island of Hispaniola, which lies between the Caribbean Sea and the North Atlantic Ocean. It lies to the west of the Dominican Republic, the only country with which it shares a land boundary. The land boundary is 360 kilometers in length, representing less than the 18% of Haiti's total perimeter, with the remaining 82% comprising the sea boundary.

As a maritime country, Haiti is party to the United Nation Convention on the Law of the Sea; the International Convention for Safety of Life at Sea (SOLAS); the International Convention for the Prevention of Pollution from Ships (MARPOL) and has obligations in Maritime Search and Rescue (SAR). Haiti is also member of the International Maritime Organization (IMO); the Intergovernmental Oceanographic Commission (IOC) and the World Meteorological Organization (WMO), among other related international and regional bodies.

Through a Decree signed on 6 April 1972, Haiti defined its territorial waters of 12 nautical miles plus 3 miles of contiguous zone for fishing purposes. The international maritime boundaries with neighboring countries have not been formally established and therefore not published.

Haiti has two international ports – Port-au-Prince and Cap-Haitien - plus several other smaller national ports. Over 90% of Haiti's trade is made by sea, with over 700 and 400 arrivals respectively at these two international ports each year,.

Haiti lies in the middle of the hurricane belt and therefore is subject to severe storms, occasional floods and a permanent threat from earthquakes and tsunami.

Conscious of its maritime strategic position in the center of the Caribbean, and being aware of the strong limitations that the lack of a specialized agency in charge of hydrographic, nautical cartography, marine safety information and oceanography imposes on the development of the country, the Ministry of Foreign Affairs of the Republic of Haiti requested the IHO to pay a Technical Visit to assess the hydrographic and oceanographic situation in Haiti aimed at contributing to the preparation of a national and regional hydrographic development project that would establish a **"Hydrographic and Oceanographic Service ".**

2.- Haiti and the IHO.

The Republic of Haiti is not a member of the IHO, nevertheless, the records kept at the International Hydrographic Bureau (IHB), the Secretariat of the IHO, indicate that Haiti has been recognized in the past as an Associate Member of the IHO Meso American and Caribbean Sea Hydrographic Commission (MACHC) although there is no evidence of Haiti's participation in this body.

In March 2008, Haiti decided to adhere to the IHO Convention and started the process to become an IHO Member, communicating its decision to the Government of the Principality of Monaco, depository of the IHO Convention. In accordance with the procedures in the IHO Convention, the Government of the Principality of Monaco has informed all IHO Member States of Haiti's application and has requested their approval. At the time of writing this Report, 30 IHO Member States have expressed their support with none opposing or registering a reservation. As soon as 52 IHO Member States approve the accession of Haiti, the Government of Monaco will invite the Republic of Haiti to deposit its instrument of accession and thereby become an IHO Member State.

3.- Haiti - IHB Communications

The IHO publishes an IHO Year Book that provides IHO and Non IHO Members States' "point of contact". In the case of Haiti, the Year Book refers to the Maritime and Navigation Service of Haiti (SEMANAH), as the "point of contact". The details (names, telephones, e-mails) have been updated on the occasion of this technical visit.
In order to improve and facilitate communications between the IHB and Haiti, the IHB, unless instructed otherwise by Haiti, will address all official technical communications exclusively to SEMANAH's Director General. National distribution, if required, shall be a task entrusted to SEMANAH.

4.- Rationality of IHO Technical Visits.

One of the strategic issues identified by the International Hydrographic Organization (IHO) and highlighted in its Strategic Plan is Capacity Building (CB). CB is defined by the IHO as "*the process by which the IHO assesses and assists in the sustainable development and improvement of the State, to meet the objectives of the IHO and the hydrographic, cartographic and maritime safety obligations and recommendations described in the United Nation Convention of the Law of the Sea (UNCLOS), Safety of Life at Sea Convention (SOLAS) and other international instruments*". This is essentially the building of an effective national hydrographic capability, where it does not exist, or the improvement of the already existing facilities. Under this the objective of technical visits' are to assess and prioritize the requirements and needs, as well as to raise awareness on the importance of hydrography and its contribution to development.

The IHO Program 2 "Capacity Building" addresses principally State's requirements to fulfil their roles. It has to be acknowledged that there are still several States that do not have any hydrographic capability, and therefore the IHO needs to support and encourage these countries to establish such capability. It is one of the IHO's missions to achieve a global coverage of effective hydrographic services and therefore the establishment of new Hydrographic Offices and the reinforcement of existing ones is strongly encouraged.

Hence the IHO Work Program for 2008 included the task out of conducting Technical Visits. The need for a technical visit to Haiti, in particular, in the 2008 IHO Work Program, was triggered by a direct request made in March 2008 by the Government of Haiti through its Ministry of Foreign Affairs. The details of this technical visit were coordinated between Haiti's Ministry of Foreign Affairs and the International Hydrographic Bureau. The visit took place between19 and 23 October 2008.

II.- THE TECHNICAL VISIT.

1.- Objectives.

1.1.- General.

The General Objective of the Technical Visit to the Republic of Haiti was to discuss technical matters of common interest to Haiti and the IHO.

Haiti wishes to establish a national hydrographic and oceanographic service to satisfy its national objectives and one of the objectives of the IHO is to offer guidance and advice upon request, in particular to countries engaged in setting-up or expanding their hydrographic service.

1.2.- Specifics

- To raise awareness on the importance that hydrographic data, information, products and services play in a maritime State such as Haiti.

- To explore the means through which the IHO could support Haiti to develop the minimum hydrographic and oceanographic capabilities required to meet its national objectives and responsibilities.

2.- Participant.

The participant was Captain (Chilean Navy) Hugo GORZIGLIA (IHB Director), who amongst other responsibilities within the IHB is: the co-ordinator of the Meso American and Caribbean Sea Hydrographic Commission (MACHC) of which Haiti is an associate member; the Director in charge of IHO Capacity Building (CB) matters; and Chairman of the IHO Capacity Building Committee.

3.- The Program

The IHB, based on previous experience, proposed a draft program to Mr. Azad BELFORT, Director of International Organizations, Ministry of Foreign Affaires of Haiti, for his consideration. Mr. BELFORT made excellent arrangement for all aspects of the Technical Visit and developed the final program which included the following activities:

a) Two Round-table meetings with the representatives of appropriate national agencies;
b) Visit to the Ministry of Public Works, Transport and Communications;
c) Visit to the Ministry of Tourism;
d) Visit to the Ministry of Foreign Affairs;
e) Visit to the National Port Authority;
f) Visit to the Coast Guard;
g) Visit to the Maritime and Navigation Service;
h) Visit to the National Geospatial Information Center; and
i) Visit to Navigation (Bay Port au Prince) and the site where it is planed to establish the Hydrographic and Oceanographic Service.

The details of the program are provided in **Annex A.**

III.- DEVELOPMENT OF THE TECHNICAL VISIT

1.- First Meeting with representatives of appropriate national agencies.

The first meeting with the representatives of appropriate national agencies consisted mainly of a detailed presentation offered by the IHO representative and brief presentations from each organization present. The meeting was organized by the Ministry of Foreign Affairs and took place in the Ministry Conference room. The following institutions were present:

- Ministry of Foreign Affairs (MOFA)
- Ministry of Interior
- Ministry of Tourism.
- Ministry of Economy and Finances
- National Port Authority (NPA) (Ministry of Economy and Finances)
- Maritime and Navigation Service (SEMANAH) (Ministry of Public Works, Transport and Communications).
- Coast Guard Directorate (National Police of Haiti)
- National Geospatial Information Center (Ministry of Planning and External Cooperation).

Mr. Azad Belfort, Director International Organizations of the Ministry of Foreign Affairs welcomed the participants and highlighted the importance of the meeting which brought together most of the organizations in the country concerned with hydrography. He introduced the IHO representative who made a presentation covering the following main points:

a) Objective of the Technical Visit to the Republic of Haiti.
b) General concepts of Hydrography and its applications.
c) The international scenario related to Hydrography.
d) The International Hydrographic Organization.
e) SOLAS V Regulations 4 and 9. States' general responsibilities.
f) IHO Capacity Building opportunities.
g) National Hydrographic Committee or equivalent body.
h) Conclusions.

The most important messages contained in the presentation can be summarized as:

- It is the function of the IHO to provide advice to maritime countries requiring support to establish national hydrographic capabilities.
- Traditionally hydrography has been seen as – supporting shipping, trade and naval operations – nowadays it is understood that hydrography is a vital discipline to support many different activities of socio-economic importance within both the coastal zone and offshore areas.
- UNCLOS, as well as several United Nations resolutions and the SOLAS Convention generate the basis of what it is expected from a maritime country with regard to the determination of its maritime delimitations and the provision of hydrographic information, products and services to support safety of navigation, safety of life at sea, protection of the marine environment and sustainable development.
- IHO exists to coordinate hydrographic offices of Member States and is committed to improving maritime countries' hydrographic capabilities to ensure these countries can fulfill their national and international obligations and responsibilities.

- These regulations clearly define the responsibilities of signatory Member States in the field of hydrography, nautical cartography and maritime safety information services. The IHO, working closely with the International Maritime Organization (IMO) is ready to assist maritime countries to acquire the necessary capabilities.
- The IHO considers "capacity building" (CB) as a strategic objective and has put in place mechanisms, such as an IHO CB management Plan; an IHO CB Work Program and the CB Fund to facilitate the provision of capacity. Three phases of development of hydrographic surveying and nautical charting capability are recognized: **Phase One** is the capability to collect and circulate nautical information necessary to maintain existing charts and publications; **Phase Two** is the capability to conduct hydrographic survey operations for coastal and offshore projects, and **Phase Three** is the capability to produce paper charts, electronic navigation charts and nautical publications.
- The establishment of a national coordination body in the form of a National Hydrographic Committee or something similar ensures the participation of all related stakeholders. The advice this committee can provide will guide national priorities and facilitate the sharing of resources arising from different institutions and will help hydrography to be seen as a national objective.
- The presentation ended with a few conclusions highlighting several topics that Haiti's authorities might wish to consider. The text of the conclusions is provided in **Annex B.**
  A copy of the presentation was left with the organizer for distribution to the meeting participants.

After an exchange of thoughts, Mr. Belfort invited participants to provide a brief report about each institution present, highlighting their relation with hydro-cartographic, marine safety information and oceanographic aspects. A brief summary of the presentations follows:

- MOFA representative explained that maritime delimitations have been discussed with Colombia and Cuba in the past, but there are still some pending matters. The maritime delimitations with the Dominican Republic and Jamaica have not been discussed yet. In brief the delimitation of Haiti's maritime boundaries is yet to be completed.

- The representative of the Ministry of Interior referred to the importance the Civil Protection Directorate gives to the management of natural disasters, including earthquakes and flooding due to tsunami. It was made evident that modelling these events would provide intelligence for planning and preparedness of the coastal communities.

- The representative of the Ministry of Tourism referred to the arrival of cruise ships and the increasing number of passengers disembarking. Nevertheless, erosion processes, pollution and water quality were vital to ensure tourism along the coasts of Haiti. Monitoring oceanographic parameters in the coastal zone and applying adequate and timely administrative measures were a requirement to ensure sustainability and protection of the marine environment. It was noted that there is not a single tide gauge in the country to monitor the water level.

- The representative of the National Port Authority (NPA) indicated that NPA is an autonomous organism of commercial character under the Ministry of Economy and Finances. The competences of NPA include, inter alia: the reinforcement of measures to ensure an efficient and effective operation of the ports; the organization of national shipping; and the coordination, in conjunction with other national organizations, of measures to facilitate port activities. Ports are not subject to a periodic survey to verify their condition with respect to the allowed operational draft of ships, as there is no hydrographic survey capability. There is no capacity to verify or control dredging activities, and reliance and trust are placed on the dredging operator. The representative of NPA emphasized its collaborative work with the Coast Guard and SEMANAH.

- The SEMANAH representative explained that its mission is to regulate and control maritime waters of Haiti. Its organization includes, among others, the Maritime Safety Directorate; the Cooperation and Maritime Affairs Directorate; and the Protection of the Marine Environment Directorate. He explained that not all international conventions have been included in Haiti's legislation, including some of the International Maritime Organization (IMO) conventions. It was confirmed that Haiti does not have any hydrographic, nautical cartographic and oceanographic structure, capable of supporting SEMANAH obligations and other national needs. There are no national nautical charts and the mariner relies mainly on USA and UK nautical charts. SEMANAH Cooperates closely with the Directorate of Coast Guard to implement maritime safety measures, including Search and Rescue Operations (SAR).

- The Coast Guard is a specialized unit of the National Police. The representative of the Coast Guard Directorate indicated that the main activities were in relation to SAR activities, drugs control and support for the coastal population, especially when natural hazards strike Haiti. Nautical charts produced by the USA are currently being used for their operations. The lack of national nautical charts showing precise maritime boundary delimitations constitutes a weakness for the Coast Guard operations.

- The representative of the National Geospatial Information Center explained that this Center is very new as it was only established in October 2006, bringing together the former Tele-detection and Geographic Information Center Unit and the Geodetic and Cartographic Service, under the Ministry of Planning and External Cooperation. The mission of the newly created Center is to be the national reference point for the production, exploitation, archiving and diffusion of geospatial data of Haiti. The center uses modern technologies for capturing and processing data and has a good professional and well trained staff.

In the absence of a representative of the Fishing Sector, the IHO representative was informed by the participants that this sector falls under the responsibility of the Ministry of Agriculture, Natural Resources and Rural Development. It was indicated that fishing activity is currently for local consumption and is exploited by artisan fishermen. There is no fishing fleet in Haiti.

2. Visits paid. Briefing of the discussions.

2.1 Visit to the Ministry of Public Works, Transport and Communications.

During the visit the IHO representative explained to the Ministry about the objective and importance of the visit, highlighting the decision adopted by the Government of Haiti to become a member of the IHO and the willingness of the Organization to contribute to the development of sustainable hydrographic capabilities in Haiti. It was stressed that this initiative to ask for a technical visit to assess the actual situation had been given high priority and included in the 2008 work program of the IHO.

It was made clear that the decision of the Government of Haiti to establish a Hydrographic and Oceanographic Service constitutes an initiative strongly supported by the IHO. Based on the experience of the Organization, to ensure the achievement of this decision it is essential to have it identified as a national priority. It was further emphasized that whatever structure finally is established, it requires a legal and financial framework to be sustainable. The Ministry was also informed on the modern vision of Hydrographic Offices, and how the products and services provided by them could contribute not solely to safety to navigation but to a variety of activities of social and economic interest for a maritime country.

The Ministry shared the views and expressed that Haiti, as a maritime country cannot wait longer for the development of these capabilities. The obligations of many of the agencies within the Ministry, for example SEMANAH, require hydrographic products and services to support their activities; products and services that are currently not available. It was recognized that one of the main problems was the lack of human resources knowledgeable in hydrographic and oceanographic operations; therefore training and capacity building were vital. The Ministry appreciated the support of the IHO and expressed its willingness for joint and fruitful work.

2.2 Visit to the Ministry of Tourism.

The IHO representative explained the objective of the IHO technical visit to the Ministry and offered the Organization's view with respect to the important role hydro-cartographic, safety of navigation and oceanographic information, products and services play in the tourism activities and its sustainable development.

The Ministry provided information on some of the shortcomings that tourism was facing in Haiti, due to the absence of knowledge of the dynamic interactions occurring in the coastal zone. One of the aspects highlighted was the need to assess the environmental conditions of the beaches and to improve their qualities. Coastal erosion was also identified as requiring deep studies to minimize its effect. Erosion is generating notable changes in the coastal zone.

The Ministry agreed that the establishment of a Service in Haiti, responsible of providing relevant and reliable hydrographic, cartographic and oceanographic information, would certainly better support the decision making process, administration and sustainable exploitation of the areas of tourism activity. He welcomed the IHO support and trusted that it could help Haiti to develop such capabilities.

2.3 Visit to the Ministry of Foreign Affairs.

The IHO representative provided the Ministry of Foreign Affairs with a brief description of the objectives and outcomes of the Technical Visit, and thanked the Ministry for the confidence the Government of Haiti has placed in the IHO.

He also updated the Ministry on the status of Haiti's application to become member of the IHO and expressed the view that the Technical Visit has been very well organized and had already been beneficial in bringing together almost all national institutions related to the hydro-cartographic, safety of navigation and oceanographic matters. This situation is felt to be of great value in progressing the establishment of a national coordination body (National Hydrographic Committee or similar body) that could direct the effort in building capacity in the above-mentioned disciplines, keeping in mind that it is not in the interest of one particular institution, but in the interest of the country as a whole.

The Ministry thanked the IHO for having allocated time and resources to Haiti's request of support. He expressed confidence that this first meeting would provide orientation clear indication of the way forward. Further he indicated that Haiti would take concrete steps based on the advice provided by the IHO and take advantage of this opportunity.

2.4 Visit to the National Port Authority.

The Director General of the National Port Authority was briefed on the role of the IHO and the objective of the Technical Visit. The Director General offered a detailed explanation on the role of the NPA, including its structure, obligations, responsibilities and the relations with other national institutions, in the operational component of its mission. It was made clear that there existed a close relationship with SEMANAH and the Coast Guard, both on a professional and a personal level. The Director provided the IHO representative with an excellent brochure referring to the Ports in Haiti, a publication containing a compilation of the most relevant information associated to the maritime activities in Haiti.

Information was provided on projects related to dredging and the improvement of port facilities. It was recognized that there was a need to have updated and reliable bathymetric information and a national body capable of providing professional advice in the field of hydrography. There was no institution capable of providing technical advice for the control of activities such as dredging. He welcomed this visit as a starting point on a path that Haiti needs to take as a maritime country with national and international responsibilities and obligations.

2.5 Visit to the Coast Guard (CG).

On the occasion of the visit paid to the Coast Guard base in Port-au-Prince, the IHO representative, after having explained the objective of this IHO Technical Visit, was briefed in detail about the CG structure, responsibilities and the needs for hydro-cartographic information to support their operations. The CG is a specialized body within the National Police.

During the presentation it was indicated that the absence of definition of the international maritime delimitation as well as other delimitations and its presentation on official national nautical charts constitutes a limitation that affects operations. They emphasised the good cooperation that exists with SEMANAH in the control of the maritime areas of responsibility of Haiti; and the view that the development of a project to establish a Hydrographic and Oceanographic Service in Haiti would fill the strategic vacuum that currently exists. The CG recognized that it was vital to achieve a hydrographic development and thanked the IHO for its support.

2.6 Visit to the Maritime and Navigation Service (SEMANAH).

Prior to the visit to SEMANAH, the Director of Maritime Safety offered a detailed presentation to the IHO representative on the pre-project “Hydrographic and Oceanographic Service of Haiti”, a plausible initiative that constitutes a concrete demonstration of the interest of Haiti to develop this sector.

After the presentation a very constructive and professional analysis was made of the objectives and rationalities justifying the project. This exchange of opinions was considered very important, as it would benefit the ongoing preparation of the projects and provided the IHO representative with key elements to better understand the scope and expectations of the Haiti’s authorities with regard to the project.

On the occasion of the visit to SEMANAH headquarters, the IHO representative briefed the Director General of SEMANAH about the IHO, the relationship between IHO and Haiti and the objective of the Technical Visit. The Director General appreciated the IHO visit and confirmed that Haiti does not have any hydro-cartographic capability and that the provision of marine safety information was practically non-existent. She explained that being aware of this situation, SEMANAH is working on the project that previously had been presented by the Director of Maritime Safety.

The Director General indicated that SEMANAH was established in 1982 and a new structure was proposed in 2005. This proposal included the existance of the Hydrographic and Oceanographic Service, under the Direction of Marine Environmental Protection, nevertheless this remains a proposal not yet having been formally approved. Following discussions on this mportant aspect, it was felt that this vacuum is a serious shortcoming of the SEMANAH. Its activities are not supported by concrete national maritime legislation and many international conventions and agreements have not become part of Haiti's national legislation.

SEMANAH is the representative of Haiti to the IMO. The Director General explained that some IMO resolutions, especially those dealing with Port Security have been implemented, but there are many others for which there is no capability to implement, for example the hydrographic services that SOLAS demands from signatory States. She explained that Haiti does not have continuity in its relation with IMO and only participates occasionally in IMO's meetings.

It was made clear that the IHO was ready to provide support to Haitian authorities in developing hydrographic capabilities and at the same time it was highlighted that several **definitions in this process lay in the national domain not with IHO**. It was agreed that this first meeting constitutes a starting point in the relationship between the IHO and Haiti. It was recognized that SEMANAH is the national technical body in Haiti to liaise with the IHO through the IHB, and therefore the links were established to ensure an optimal communication, a matter that was felt to be vital in progressing this relationship.

The IHO representative invited the SEMANAH Director General to take full advantage of all existing opportunities to improve capacity building that the IHO puts in place, and recalled that several of these opportunities had been lost in the past. It was well received that the joint IMO/IHO Basic Hydrographic Training Course financed by IMO and to be delivered in Suriname by instructors selected by IHO will be attended by a person from SEMANAH.

Discussing the project, the IHO representative indicated that, based on previous experiences, a legal framework establishing responsibilities and the means to accomplish those responsibilities should be part of the national legislation before it is put in place, as this is the only means to ensure sustainability.

The identification of a Project Leader was considered vital. It was understood that the initial focus should be put in the structural concept of the Hydrographic and Oceanographic Service together with training of a minimum core staff. Training staff takes some time and therefore the acquisition of equipment, hardware and software should not constitute the first priority. Needs should be identified after a decision is taken with respect of the degree of activity expected from the Service. A strong recommendation was made in order to proceed with the identification of the Project Leader and to find out ways to have him visit a couple of small but efficient Hydrographic Offices to learn, in situ, about the structures, human resources, technical assets, experiences and working procedures. The IHO representative committed to help in this endeavour. The information gathered by the Project Leader will help to define clearly the precise dimension the Service should have in terms of structure, personnel, technology and funding, to be effective and efficient.

Finally the Director General expressed her commitment to support the implementation of the initiatives intended to develop the hydrographic and oceanographic capabilities of Haiti, working in close cooperation with the IHO. She thanked the IHO for their positive, direct and constructive advice provided and indicated she would look forward to receiving the Report of the Technical Visit.

2.7 Visit to the National Geospatial Information Center (CNIGS).

The IHO representative was received by the Director of the Center who was informed about the objective of the Technical Visit of the IHO to Haiti. The role of the IHO was explained and the willingness to support Haiti to establish hydrographic and nautical cartographic capabilities to support mainly safety of navigation and protection of the marine environment, but also to contribute to the development of activities in the coastal zone requiring bathymetric and other environmental information.

The Director explained that CNIGS was a new institution just established in 2006, consisting of the fusion of two former organizations, the Tele-detection and Geographic Systems Information Unit and the Geodesy and Cartographic Service. She explained the mandate, organic, human resources of, and main activities in progress at the Center. It was made clear that the production of nautical charts has not been considered as part of the thematic charts they have been working on.

The Director offered the IHO representative with relevant documentation related to the Center, including the decree of establishment, for further and detailed study. Following an exchange of views a brief visit was made to the technical facilities and laboratories. After this visit it was felt that the existing capabilities could contribute to the production of nautical charting, provided that trained people in this discipline are made available to the Center. This perception was shared with the Director who confirmed that the exiting technical level of the Center, reinforced with human resources with specialized training could consider the issue of nautical charting.

After studying the decree of establishment it was inferred that the Center had a well defined structure supported by a formal legal disposition (the decree). Its attributions, internal organization and its funding are well covered. It was highlighted that its administration is entrusted to a Council, one member of which is the Ministry of Public Works, Transport and Communication that is the Ministry under which SEMANAH rests.

It was considered that the Center constituted an excellent national asset, the existence of which should be strongly considered in the development of the project to establish a Hydrographic and Oceanographic Service.

3. Navigation through Port-au-Prince bay and visit to the site planned for the Hydrographic and Oceanographic Service.

On the second day of the Technical Visit, on board a patrol boat of the Coast Guard the IHO representative together with several other representatives of related national agencies sailed Port-au-Prince bay, having the opportunity to see in situ the existing aids to navigation: light houses, buoys and terrestrial signals.

The trip of almost 4 hours also allowed the participants to discuss the importance for Haiti to have a Hydrographic and Oceanographic Service capable of contributing information, products and services to make a much better use of the sea. Extensive areas were polluted with plastic and other objects confirming the low importance assigned by the population to the marine environment, its habitat and associated ecosystem. During the discussions, the need to deliver some disciplines related to the marine/maritime activities in the University was raised. It was indicated that there is not a single sea oriented career offered by the University in Haiti.

During the transit participants noted some fishing activity by artisans, probably for self-consumption due to the extremely small size of the boats and equipment used. With regard to the beaches, it was appreciated that some of them have had severe human intervention, probably without the support of any oceanographic study. While everybody enjoyed the view of the nice beaches, at the same time all reached a unanimous conclusion: there are sufficient grounds to establish a national body in charge of gathering relevant environmental information for a better management of the coastal zone.

The patrol boat made a port call at "Caries" village where a pier exists and constructions is planned for the use of the Hydrographic and Oceanographic Service. All participants visited the existing buildings and agreed that it was a very nice, ample and suitable site to establish such a Service. The IHO representative, at first glance, considered that the place has several merits to host a Service, such as direct access to the sea; possibility to provide shelter to a hydrographic unit; located in a strategic central position and decentralized from the big city.

4. Second Meeting with representatives of appropriate national related agencies.

In this second meeting, the IHO representative made a presentation on aspects recommended to be considered when developing further the project to establish the Hydrographic and Oceanographic Service. The recommendations made in this meeting have been amplified and included in the section "Recommendations" of this report.

This presentation was followed by a second presentation made by SEMANAH representative on the draft project to have a Service. This was done to ensure that all participants get a better understanding of the rationale behind the project and its benefits.

The IHO representative offered some preliminary conclusions and recommendations derived from the visit. It was made clear that a Report (this report) would elaborate and provide definitive conclusions and recommendations.

Finally, the IHO representative recommended Mr. Belfort from the Ministry of Foreign Affairs that after receiving the Report that the IHB shall provide to MOFA within the next 30 days, a new meeting could be organized to discuss the report, mainly its conclusions and recommendations. At that meeting it is suggested that a work program could be developed to start implementing the recommendations accepted.

IV. CONCLUSIONS.

The IHO representative operated not as high-handed visiting expert, but as a fellow professional who came to listen to and to encourage the local experts in Haiti, and to help them to seek solutions which are viable, affordable and sustainable.

The author of this Report is very aware of the danger of forming superficial conclusions from fleeting experience of local situations. This Report has been written as comprehensively as possible in the circumstances, in the hope that it will assist with the development of a national plan and other follow-on actions. Where any factual errors are found, the author accepts the blame. Where these conclusions and the recommendations listed below are found to be helpful, the author would hope that the momentum caused by this Technical Visit will not be lost.

Based on the intelligence gathered during the meetings and visits, the IHO representative offers the following conclusions.

1.- Haiti has a privileged/strategic geographic position but is not taking full advantage of being a maritime country. Despite its privileged position, Haiti has not developed a national maritime policy that could provide guidance to all sectors related with activities taking place or related with the sea. It is a fact that hydrographic surveys, nautical cartography, marine safety information (MSI) and oceanographic matters are not developed in Haiti. Nevertheless, the decision of the Haiti Government to join the International Hydrographic Organization and ask for a technical visit are seen as clear expressions of willingness to remedy this situation in the field of hydrography, nautical cartography and MSI. With regard to oceanography it was concluded that Haiti is not taking advantage of the opportunities that the Intergovernmental Oceanographic Commission could offer to develop this area, probably due to a non existence of a national agency tasked to look after oceanography. Also it can be concluded that Haiti's participation in the International Maritime Organization lacks continuity and follow up.

2.- The IHO Technical Visit was very well organized by MOFA, capturing the attention of several relevant and related agencies that participated in the meetings with the IHO representative. All parties seem to have agreed on Haiti's urgent need to establish a Hydrographic and Oceanographic Service and understood that a high-level group (National Hydrographic Committee or equivalent) could easily be created to study hydrographic, nautical charting, marine safety information and oceanography matters within a broader context including advice on policy, plans and programs dealing with these and other relevant and related matters.

3.- Haiti has neither a structure nor the capability to conduct hydrographic surveys, produce nautical charts, provide marine safety information and conduct basic oceanographic activities. In fact Haiti has not produced any nautical charts of its waters; shipping relies on nautical charts produced by France, UK and USA containing a non-updated compilation of information of different sources. Ports do not survey berths systematically to monitor the variation in characteristics and therefore, authorized draft limitations are not confirmed periodically. If a contract is signed to conduct a dredging operation there is no capability to control the result of the work contracted. There is no structure in place to disseminate marine safety information through the internationally agreed communication systems. This shortcoming seriously affects safety of navigation. It was reported that there is not a single tide gauge to monitor the variations of the sea level in all Haiti, an operation considered basic in the field of oceanography. In brief, Haiti does not achieve any of the recognized developing phases and requires support to develop all three phases.

4.- The impossibility to provide hydro-cartographic and oceanographic data, information, products and services constitutes a severe shortcoming in Haiti, precluding the fulfillment of international conventions such as SOLAS. More over, several activities of socio-economic importance could be well served if hydrographic and oceanographic information were available. An integral coastal zone management requires this vital information to allow among others, preparedness measures to avoid the impact on coastal populations from natural hazards impacts. The tourism industry requires "blue waters" and a protected marine environment. Ecosystems associated with the mangroves require a responsible management of the environment to ensure its

sustainability. Coastal erosion demands studies to adopt proper measures to minimize its effects. The existing situation contributes negatively to any sustainable development.

5.- International and other maritime delimitations have not been determined and made available nationally and worldwide and therefore are not reflected on nautical charts covering Haiti's waters. This situation has a negative effect on Coast Guard operations as generates difficulties in the control of activities that take place on the internal waters, territorial waters and waters beyond the territorial waters, a situation that has the potential to generate international conflicts.

6.- SEMANAH is ruled by a legislation that was proposed in 2005 but has not been approved or endorsed by any other national legislation. This proposal considers the existence of a Hydrographic and Oceanographic Service under the Direction of Protection of the Marine Environment; nevertheless SEMANAH's structure has not been recognized legally. Hence, SEMANAH's activities are constrained by the absence of a maritime legislation. Also, several conventions in the sphere of SEMANAH's objectives have not been included in the legal framework.

7.- SEMANAH has developed a pre-project to establish a Hydrographic and Oceanographic Service for Haiti. This is considered a very positive initiative aimed at solving a big gap in the general structure of Haiti. The IHO representative has concluded that this initiative has strong support from the institutions contacted during the technical visit and it is seen as a solution to a problem that Haiti cannot wait any longer to solve. The absence of legislation supporting SEMANAH could affect this initiative to put in place a Hydrographic and Oceanographic Service under SEMANAH. The site and building planned to host the Service seems a very good due to its central location, proximity to the sea and the good shelter could offer to a hydrographic launch.

8.- The National Geo-Spatial Information Center (CNIGS) is an institution very well established from the legal point of view as well as by the clear definition of its mission and objectives. Its structure and organization are in line with the modern ideas of managing geo-spatial data and has a professional staff well trained and with access to leading edge technology. The Center can be considered the "national cartographic agency". The IHO representative has concluded that the Center is capable of assuming the responsibility to produce nautical charts, provided that trained personnel in the field of nautical cartography and specialized software are provided. This option might require some adjustments to the decree of establishment of the Center and some internal adjustments to have a nautical chart branch within its structure.

9.- Education in Haiti does not have a maritime element. Indeed the University in Haiti does not offer any option for its students to follow maritime disciplines, despite the maritime situation of the country. This constitutes a major limitation and until this situation is changed Haiti will be dependant on external expertises.

V. RECOMMENDATIONS.

The Recommendations have been grouped in three sections. The first one consists on recommendations that due to their priority are suggested to be implemented as soon as possible: i.e. "for immediate action". They are viable; easy to implement; only require the willingness to implement them; require just an administrative act and are almost "cost free".

The second group includes recommendations particularly related to the project "Hydrographic and Oceanographic Service". The recommendations have been divided in five elements: General Aspects; Human Resources; Technology; Infrastructure and Finances.

The third group includes other general recommendations that do not fall with in the previous categories: immediate action or the project, but should also be taken in to consideration.

1.- Recommendations for immediate action.

1.1. Marine Safety Information (MSI).

It is urgently recommended to establish **Phase One** of hydrographic development, that is to say, the appointment of a national focal point provided with the basic communication facilities (telephone, fax and internet) with the responsibility to collect and disseminate MSI. This action will indeed improve safety to navigation service provision in Haiti's waters.

As soon as this position is filled, all maritime sector operators shall be informed and clear lines of responsibility for the different agencies involved in maritime safety shall be set-up.

The national focal point shall be in permanent contact with the NAVAREA IV Co-ordinator and the three Hydrographic Offices (France, UK and USA) that produce nautical charts of Haiti's water. This is required to ensure that the mariner entering Haiti's waters is made aware of any information affecting safety to navigation or any distress emergency or measure to be considered, including the support of SAR operations.

This focal point needs to be well trained. The IHB has made initial contacts with NAVAREA IV Coordinator, and a one week "on the job training" has been offered on dates to be agreed, at no charge. It will be necessary to fund a trip Haiti-Washington-Haiti and 6 days of per-diem allowance to benefit from this opportunity. Further coordination with NAVAREA IV Coordinator and ways of funding such a mission can be initiated when Haiti confirms to the IHB, the acceptance of this recommendation.

The NAVAREA IV Co-ordinator is Mr. Peter Doherty, Chief, Global Operations, Office of Global Navigation, ATTN: PV (Mail Stop D-44), 4600 Sangamore Road, Bethesda, Maryland 20816-5003, USA Tel: +1 (301) 227 7646 Fax: +1 (301) 227 3731
E-mail: Peter.M.Doherty@nga.mil

Relevant information to keep existing charts of Haiti dully updated shall be provided to:

In France: Mr. Yves **LE FRANC**, Head of Nautical Division, SHOM, 13 rue du Chatellier
CS 92803, 29228 BREST Cedex 2, FRANCE
Tel.: (+33) 2 98 22 11 72
E-mail : yves.le.franc@shom.fr

In UK: Mr. Phil **PARKER**, Head Regional Team G6, Tel: + 44 1823 337900 Extension 3612
E-mail: phil.parker@ukho.gov.uk

In USA: Mr Eugene **MOISAN**, Program Officer, Maritime Domain MS D-44, NGA.
4600 Sangamore Road, Bethesda, MD 20816-5003, USA
Tel.: 301-227-7652 Fax: 301-227-3175
E-mail: Eugene.L.Moisan@nga.mil

1.2. Project Leader for the Hydrographic and Oceanographic Service Project.

The Pre-Project so currently developed and the discussions that took place constitute a good starting point to continue the development of this challenging initiative. **It is strongly recommended** that a person be identified to assume the role of Project Leader, with the responsibility to follow all aspects that a preparation of a project has. The Project Leader shall be entitled to have a direct communication with the IHB (Director in charge of Capacity Building) in order to request the advice needed from the IHO to develop the project.

It is recommended that a document entitled "Preliminary Project" be prepared by the Project Leader, following the structure suggested in **Annex C** and "Hints" offered in **Annex D**.

It is also highly recommended that the Project Leader get experience in situ by visiting two or three small size and operating Hydrographic Offices. This experience is considered of the utmost value in the process of setting the dimensions for the Hydrographic and Oceanographic Service needed to fulfil Haiti's objectives.

Early contacts so far made by the IHB indicate that opportunities exists as some Hydrographic Offices, such as Chile and Cuba have indicated their readiness to receive a visit of the nominated Project Leader. Further coordination with these Hydrographic Offices can be initiated when Haiti confirms the IHB, the acceptance of this recommendation.

1.3. Establishment of a National Hydrographic Committee (NHC) or equivalent national coordination body.

The objective of a NHC is to coordinate hydrographic, cartographic, and oceanographic and safety of navigation activities and to provide collective professional advice to the government in the development of such disciplines. The Committee shall include representatives of all national institutions with relation to the above-mentioned matters. **It is strongly recommended** to establish such a Committee. Members of the Committee shall include representatives of the organizations contacted during the technical visit plus others, such as the meteorological agency, the national agency representing Haiti at the Intergovernmental Oceanographic Organization (IOC) and the University.

Two or three meetings a year of all these stakeholders does not seem to be expensive, if we consider the benefits the national administration might get from this coordination. **Annex E** provides an example on how a NHC can be established. **It is recommended** that the Committee be immediately tasked to propose:

a) A national maritime policy framework.
b) A Nautical Cartographic Plan
c) A Hydrographic Plan
d) An Aids to navigation national plan
e) An Oceanographic national plan
f) Initiatives to establish required national regulations

1.4. Training.

As training takes time, **it is recommended** to agree on the most immediate training needs, identify/recruit the applicants for this training; explore from which institutions the training can be obtained together with the financial implications and sources of funding.

It is recommended to consider the following training needs as a priority:

a) Cat B IHO recognized training Program for two Hydrographer.
b) Basic Hydrographic Course for two hydrographic operators.
c) Nautical cartographic program for two Cartographers or GIS specialists.

Training can be obtained from opportunities offered by IHO Member States as for example (a) through the Free Course in Hydrography at the National Hydrographic School, Goa, India; (b) the Basic Course is an activity planned for the Meso American Caribbean Hydrographic Commission (MACHC) during 2009, partially funded by the IHO CBFund and (c) the three modules on cartography that the UKHO offers. As has been mentioned, these are just examples and further coordination with institutions delivering courses can be initiated when Haiti confirms to the IHB the acceptance of this recommendation.

It is strongly recommended that these needs be communicated to the MACHC Chairman (Brazil) to have them included in the regional needs and eventually take the opportunities offered by the Capacity Building Committee. The coordinates of the Chairman of MACHC are:

Vice Admiral Luis Fernando **PALMER** Fonseca
Director
Brazilian Navy Directorate of Hydrography and Navigation
Barao de Jaceguai Street
Ponta da Armacao – Niteroi – RJ ZC 24.048-900
BRAZIL
Phone: 55 (21) 2189-3001 Fax 55 (21) 2189-3063

It is suggested that correspondence be addressed to:
Captain Wesley **CAVALHEIRO** e-mail wesley.cavalheiro@yahoo.com or to int.rel@dhn.mar.mil.br
NOTE: Admiral Palmer is the elected Chairman, and shall take position on the 10th January 2009.

2. Recommendations with regard to the project "Establishment of a Hydrographic and Oceanographic Service in Haiti" (SHOH)

2.1.- General aspects.

a) **It is recommended** that a mechanism be found to formalize through proper legislation, the existence, obligations, structure, and resources of SEMANAH. In doing so, **it is also recommended** to reconsider the position of the Hydrographic and Oceanographic Service (SHOH) within SEMANAH's organigram and funding previsions. **It is strongly recommended** that due to its multi-institutional, national and international relations SHOH shall have, SHOH should be immediately under SEMANAH Director General. Finally in this aspect, **it is further recommended** to consider the benefits of SHOH becoming an autonomous organization in terms of budget allocation.

b) While the project to establish SHOH continuous to be developed, **it is strongly recommended** that SEMANAH establishes, with the support of other national institutions a minimum hydro capability to conduct port hydrographic surveys with the trained people indicated in 1.4 and some basic instruments. The idea is to have one team provided with basic hydrographic equipment and software (see **Annex F**). The instruments should fit on a Port Authority or Coast Guard launch. The process of obtaining this equipment can take place while the team is being trained.

c) **It is highly recommended** that SEMANAH approaches the Intergovernmental Oceanographic Commission (IOC), its capacity building program and its Global Sea Level Observing System (GLOSS), directly or through and identified and nominated Haitian point of contact , aiming at identifying opportunities that would contribute to the project. Initially **it is strongly recommended** to give priority to the establishment of a basic tide-gauge network consisting in two tide gauges (one for each site: Port-au-Prince and Cap. Haitian); to train two people on the operation, maintenance and the procedures to retrieve and process the data. Points of contact are:
   - Dr. Patricio **BERNAL** Executive Secretary of IOC p.bernal@unesco.org
   - Dr. Ehrlich **DESA**, Head of Section, Capacity Development e.desa@unesco.org
   - Mr. Thorkil **AARUP**, Program Specialist at IOC t.aarup@unesco.org

d) During the identification of the technical components of the SHOH, **it is strongly recommended** that SEMANAH considers the technical capacity and capability of the National Geo-spatial Information Center (CNIGS) and the establishment of a coordination mechanism, in order to make good use of the Center and avoid inter-organization interferences.

2.2.- Human Resources.

a) **It is recommended** that human resources are prepared based on the identified needs derived from the Project. Once human resources have been defined qualitatively and quantitatively, it is recommended further to elaborate a training program. **It is not recommended** to invest in train people without having previously a clear definition of the mission, objectives and structure of SHOH.

b) Sending personnel abroad to get training is expensive therefore **it is recommended** to consider hosting in Haiti appropriate and related courses, aiming at benefiting a much wider national audience.

c) Considering that no human resources exist today, **it is recommended** to explore the possibility to have an external advisor recruited internationally to initialize the consolidation of SHOH. It shall be SEMANAS' aim to run the SHOH with national experts after having been reached its consolidation.

2.3.- Technology.

a) **It is strongly recommended** that before importing technology into the processes, consultation be made by SEMANAH with Hydrographic Offices that are making use of such technology, requiring advice. **It is not recommended** to buy technology if hardware, software, equipment are not going to be used due to lack of: human resources, know-how or resources to operate.

b) **It is strongly recommended** that any acquisition of instruments and equipment MUST consider adequate training, guaranty and maintenance service for certain period.

c) The best way to keep personnel updated, is allowing them to participate in events where other experts will attend to exchange the problems and the solutions found to solve them. **It is recommended** not to miss "hands on" workshops organized by the IHO as they have been recognized as excellent tools for this purpose.

d) Considering CNIGS mandate and human and technical resources, SEMANAH **is recommended** to consider that nautical charting production could be a CNIGS's enlarged objective. For this to happen, CNIGS will require training for at least two persons in nautical charting production. This will avoid establishing from zero a capability that almost exists nowadays. For the distribution of nautical charts **it is recommended** to consider the establishment of agreements with Hydrographic Offices having worldwide capability to do so.

e) Due to the importance and value of the data and the information generated, **it is strongly recommended** that SEMANAH considers to rely on CNIGS as a National Spatial Data Center and not to establish a parallel one. **It is further recommended** that CNIGS consider hydro-cartographic as well as oceanographic data, in its national structure of data. IHO and IOC technical groups dealing with data shall be consulted when establishing procedures.

2.4.- Infrastructure

a) **It is recommended** to consider all the advantages and disadvantages of having the SHOH located in "Caries" village. The existence of a pier and shelter for launches, the existence of buildings that can be refurnished and the central geographic position seem very appropriate factors to have Caries as the site for SHOH. The IHO representative, having not ground for it, cannot express his recommendation in favour or against the use of the site selected from a social-economic perspective.

b) **It is recommended** that the project considers the need of a hydrographic launch for port and coastal surveys suitable for hosting depth and positioning integrated systems. **It is recommended** that before having access to a hydrographic launch, SEMANAS might wish to consider establishing agreements with the Port Authority and/or Coast Guard to make use of their means.

2.5.- Funding

a) Many initiatives do not consider the maintenance cost and at the end of the day, the technology dies. If we refer for example to tidal stations, we can confirm that to install a network is much easier than keeping it working for long. Therefore it **is strongly recommended** that the project considers a mechanism that would ensure long lasting provision of resources to operate, maintenance of equipment (hardware and software) and keep development in progress.

b) **It is recommended** that the legal act of establishment of SHOH indicates precisely the origin of its funding. Funding shall be agreed at a national level and not at the organization level, considering that the work program of SHOH shall consider requirements from different national institutions.

c) **It is recommended** that when defining the funds required having a Service such as SHOH, consideration be made for an appropriate budget to implement the developing project. Also consideration shall be made in relation to the three levels of budget required: first level is the minimum to cover the maintenance cost of SHOH ; the second level is the previous plus the costs to fund SHOH working program and the third level, adds on top a minimum provision to cover on going development.

3.- Other Recommendations

a) **It is recommended** to consider a much active participation on the activities of international organizations such as IMO, IOC and IHO. With regard to IHO, **it is highly recommended**, as a minimum, to take part on the MACHC meetings and capacity building activities.

b) **It is highly recommended** to involve Haiti University in the development of a national maritime policy. The Haiti University is a key stakeholder for the preparation of human resources in the disciplines related to hydrography, nautical cartography, safety to navigation and oceanography. The Haiti University **is further recommended** to consider building-up a capacity to deliver programs with a hydro-cartographic content suitable to cover national and regional needs, and is invited to contact the IHB in case interested in developing required training programmes.

c) **It is highly recommended** that Haiti defines its maritime boundaries and ensure that such information is made available to the national and international community. **It is further recommended** that as soon as delimitations are officially established, be communicated to the Hydrographic Offices that produce nautical charts of Haiti, in order to include this information in the charts they produce.

Monaco, 17 November 2008.

Hugo Gorziglia
Captain – Chilean Navy
IHB Director

Annexes:

"A" IHB Technical Visit Program.
"B" Conclusions within the IHO Presentation.
"C" Preliminary Project Structure.
"D" Hints to consider when establishing a National Hydrographic Office (NHO).
"E" Organization of a National Hydrographic Committee - Example
"F" Basic Hydrographic Equipment and Software.

ANNEX A

IHO TECHNICAL VISIT PROGRAM

Sunday 19 October 2008

Time	Event
1715	Arrive to Haiti. General coordination.

Monday 20 October 2008

Time	Event
0900-1300	First meeting with representatives of appropriate national related agencies at the Ministry of Foreign Affairs conference room. Detailed presentation by IHB Director and brief sectorial presentations.
1430-1545	Meeting with Ing. Jacques GABRIEL, Ministry of Public Works , Transport and Communications.

Tuesday 21 October 2008

Time	Event
0800-1330	Navigation of Port au Prince Bay. Visit to possible facilities where the Hydrographic and Oceanographic would be installed. Reconnaissance of existing Aids to Navigation and marine activities in the area, while in the route. Discussion with representatives of different national agencies on the activities and its relations with hydrography, cartography and oceanography.
1330-1430	Meeting with Mr. Joseph WAGNAC, Director of the Coast Guard. Presentation on the role of the Coast Guard.
1530-1600	Meeting with Ing. Jean CHARLES, Director General of the National Port Authority. Presentation on the role of the National Port Authority.
1600-1800	Presentation by Mr. Ronald JABOUIN, Director of Maritime Safety of SEMANAH, on the pre-project for the “Establishment of a Hydrographic and Oceanographic Service in Haiti” and discussion.

Wednesday 22 October 2008

Time	Event
0830-0930	Meeting with Mrs. Gina PORCENA, Director General of the National Geo Spatial Information Center and visit technical and cartographic sections.

1000-1300	Second meeting with representatives of appropriate national related agencies at the Ministry of Foreign Affairs conference room. General consideration when establishing a Hydrographic Service. Preliminary conclusions and closing remarks.
1430-1500	Meeting with Architect Patrick DELATOUR, Ministry of Tourism.
1530-1615	Meeting with Eng. Marie JEAN, Director General of the Maritime and Navigation Service (SEMANAH).
1630-1645	Meeting with Dr. Alrich NICOLAS Ministry of Foreign Affairs. Briefing on the preliminary results of the technical visit.

Thursday 23 October 2008

Time	Event
0900-1000	Analysis of the technical visit and future actions agreed with the Director of International Organizations of the Ministry of Foreign Affairs, Mr. Azad BELFORT.
1110	End of the technical Visit and depart back to the IHB in Monaco.

ANNEX B

CONCLUSSIONS WITHIN THE IHB PRESENTATION

1. The International Hydrographic Organization provides all maritime countries the opportunity to benefit from its experience in improving or **establishing** national hydrographic capabilities.

2. The development of hydrographic surveying, nautical charting and marine safety information capabilities need to follow a systematic approach. The participation in the different IHO bodies should facilitate the development of National capabilities.

3. Being the main purpose to contribute to safety to navigation and protection of the marine environment, hydrographic information strongly contributes to many other initiatives of economic interest.

4. Capacity building is a key issue to achieve development. IHO structure considers Regional Hydrographic Commissions to address regional problems for which a collective solution could be explored, identified and put in place.

5. National hydro-cartographic and safe to navigation planning should be worked out with the participation of all end users of these products. The participation of the academia and the private sector is recommended.

6. One authority is needed to coordinate this national effort therefore the establishment of a National Hydrographic Committee or similar body should be strongly considered.

7. The lack of hydrographic information precludes national authorities to adopt the best possible technical and administrative regulations aiming at the development and welfare of their citizens in a sustainable manner. Establishing and funding a national hydrographic Agency, hydrographic surveys and related studies shall not be considered as expenditure but as an INVESTMENT, and a real national asset of STRATEGIC importance.

8. Due to its vital contribution to the socio-economic development, Hydrography should be considered a **National Strategic Objective.**

ANNEX "C"
Preliminary Project Structure

I. General Information
- Name of the Project
- Central Idea
- Project Leader Name
- Related Projects
- Related Plans
- Administrative References

II. Situation without the Project

III. Situation with the Project

IV. Objectives

V. Alternatives

VI. Technical Analysis

VII. Personnel Needs

VIII. Cost Analysis

IX. Funding

X. Pros and Cons of Alternatives

XI. Recommendation

ANNEX "D"

Hints to consider when establishing a National Hydrographic Office (NHO)

The rationality.
The first question is : Why do we want to establish a NHO?

- Because we have a national understanding of the contribution hydrography can offer to national development?
- Because we want to have a national agency responsible for the provision of hydrographic services as recommended by SOLAS Convention?
- Because we want to concentrate existing national efforts today dispersed in just one agency?
- Because we need a national technical regulatory body?

Probably all reasons apply. In fact there are many reasons justifying a maritime country having a specialized body dealing with hydrography, nautical cartography and safety to navigation, and probably with an oceanographic and a meteorological component.

To succeed in its establishment it is vital to have a strong governmental support from the highest level. But not only this is needed; a proper legislation is required, establishing:

a. Mission and functions
b. General organization
c. Decision making process
d. Responsibilities of key staff
e. Source(s) of budget provision
f. Reporting system
g. National and international relations
h. plus others accordingly

The Mission.
There are many ways to define the mission of a NHO. Based on different national legislations, we have prepared the following example:

TheNHO is the highest national technical and permanent authority as regard to hydrography, nautical cartography, marine safety information and oceanography.
Its main mission is to provide hydrographic, nautical cartographic, marine safety information and oceanographic products and services aiming to contribute to safety to navigation on Haiti's interior waters, territorial sea and exclusive economic zone and the development of all maritime and related activities.
It is also the mission of the NHO to provide the information and products required for the national defence and development, as well as those contributing to scientific research and other national and international activities of Haiti's interest.

Functions
The functions of a NHO can be many, here we are providing a selection of those that are almost common to several existing Hydrographic Offices:

- Prepare, propose and keep updated a national hydrographic survey, nautical cartographic and oceanographic plan.
- Prepare, propose, execute and monitor all hydrographic survey, nautical cartographic and oceanographic activities.
- Provide standards for the execution of hydrographic survey and the production of nautical charts
- Provide standards for the execution of oceanographic operations
- Certificate all hydrographic surveys executed and nautical cartographic produced by third parties.
- Provide mariners with timely and reliable marine safety information.
- Contribute to the National Spatial Data Infrastructure with data of its competence.

General organization
The organization needs to be simple, practical and functional. Here we provide to examples:

A) model a:
One Director plus two Deputy Directors. One with the technical responsibilities (hydrography, cartography, safety to navigation and oceanography) and the second one with the administrative and finances responsibility.

B) model b:
One Director plus one Deputy Director, and the different Departments of : hydrography, cartography, marine safety information, oceanography and finances.

Decision making process

It is required to prepare an annual work program and budget. This document shall be submitted for approval and shall constitute the bases for the annual activities to be executed. There are several questions related to this aspect that could be defined in the NHO regulation, as for example:
+ what sources of information to consider for the preparation of the proposal?
+ how are priorities considered?
+ how are estimated the financial resources?
+ to whom the work program and budget are submitted?
+ who decides at the end?

Responsibilities of key staff
The responsibilities of the Director, Deputy Director and heads of Departments shall be established and in general terms included in the NHO legislation.

Budget
The NHO legislation shall clearly indicate the sources of financing its activities. Probably there is merit is having this quiet open and not restrictive. In that case it could consider the following sources:

- Nation's normal annual direct budget
- Ministry of ……. (could be one or several)..... transferences
- Any future especial law
- Sales of products and services
- Others (donations, ….)

Reporting system
Annually the NHO shall report on its activities to the Nation. Probably there is no need to explain details in the NHO legislation, but it has to be kept in mind that there is a need to identify some factors to be used as performance indicators. The idea is to provide elements for a clear accountability

National and international relations
The relationship with national institutions and organizations shall also be reflected, especially when they have an effect on the performance of the NHO. If the NHO is going to represent Haiti on a particular international organization, for example at the IHO and/or the IOC, that should be considered in the NHO legislation.

Internal NHO development
The development of a NHO shall consider basically four elements that must progress and grow systematically, avoiding any one of these element to go further ahead than the others. Development must be with all four elements at the same rate. The basic elements are: Infrastructure, Technology, Personnel and Budget.

ANNEX "E"
Organization of a National Hydrographic Committee
EXAMPLE

CONSIDERING

That by (*Decree or Law etc)* XX of 19XX the (*name that corresponds*) is established, with the responsibility for producing (*all hydrographic surveying or nautical cartography or Maritime Safety* etc....)

That by (*Decree or Law etc)* XX of 19XX the Service (*name that corresponds*) is established with the principal mission to protect the sovereignty in the marine areas of (*Name of the Country*) and to ensure that the maritime laws in territorial and international waters are properly respected in accordance with the Marine Conventions and Treaties in force.

That the SOLAS Convention of the International Maritime Organization stipulates in its Rule 9, that Contracting Governments undertake to co-operate in carrying out, as far as possible, the following nautical and hydrographic services in accordance with the resolutions and recommendations of the International Hydrographic Organization

That, in addition to SOLAS Rule 9, Resolution N° A.958(23) of the International Maritime Organization Assembly invites Contracting Governments to establish hydrographic offices where they do not exist, in consultation with IHO

That Resolution A/RES/58/240 2003 of the United Nations Assembly, based on the UNICPOLOS recommendation, encourages intensified efforts to build capacity for developing countries to improve hydrographic services and production of nautical charts

That the International Hydrographic Organization supports the initiatives for the establishment and creation of the above-mentioned Committee and undertakes to offer technical support for the implementation of the programmes of the Committee.

IT IS RESOLVED

FIRST To establish the HYDROGRAPHIC AND OCEANOGRAPHIC COMMITTEE OF (*Name of the country)*,formed by the following institutions:

1. xxxxxxxxxxxxxx
2. xxxxxxxxxxxxxx
3. xxxxxxxxxxxxxx
4. xxxxxxxxxxxxxx.

SECOND: Each institution member of the Commission will nominate a representative.These delegates will be elected within one month following the signature of the present Agreement.

THIRD: The Committee will elect its Chairperson and Vice-Chairperson, with a term that will be decided. A technical coordination meeting will be held annually.

FOURTH: Other public institutions stating in written their interest to participate and collaborate in the objectives of the Committee may join it. Their membership will be decided by agreement of the Committee members.

FIFTH: The Commission will be responsible for:

a) developing the National Cartographic Scheme and for monitoring its execution and update.
b) coordinating and planning the necessary hydrographic surveys for the development of this cartographic scheme.
c) identifying and recommending the necessary action with respect to training of the staff and purchase of equipment for the execution of the programmes.
d) coordinating the development of the national maritime safety.
e) submitting an annual report to the parent organizations.

SIXTH: This Agreement will enter into force on the date of its signature.

xxxx of xxxx of 200x

Signature of the relevant authorities

TERMS OF REFERENCE FOR THE NATIONAL HYDROGRAPHIC COMMITTEE OF "ANYWHERE"

INTRODUCTION

Anywhere recognises its obligations under SOLAS V/4&9 to make arrangements for the following hydrographic services:

a. The timely collection and promulgation of urgent navigational safety information through navigational warnings (using MSI/GMDSS arrangements) and notices to mariners.

b. The conduct of hydrographic surveys which are adequate to meet the requirements of safe navigation.

c. The publication of nautical charts and associated publications.

ROLE

The role of the National Hydrographic Committee is to assist the [appropriate Maritime Administration or Authority] to develop Anywhere's policy and plans for the delivery of these hydrographic services.

SECRETARIAT

[A department or authority with appropriate insight] will provide the secretariat for the NHC.

MEMBERS

The following departments and authorities will provide representatives to attend the NHC:

a. Ministry of Transport.

b. Maritime Authority.

c. Port Authority.

d. Defence Force.

e. Surveys Department.

f. Fisheries Department.

g. …….

FREQUENCY

The committee will meet three times in a year, and for special purposes as deemed necessary.

FUNCTIONS

To develop **Anywhere's** policy for the delivery of hydrographic services, taking into account the requirements of all sectors of the maritime community.

To determine inter-departmental responsibilities, [including budgetary provision].

To review **Anywhere's** entry in the IHO S-55 data-base.

To review the arrangements for MSI:

- passage of information to ---HO for charting action;
- passage of information to NAVAREA ---;
- Local and Coastal Navigational Warnings;
- GMDSS/NAVTEX.

To assist in the development of a prioritised national survey plan.

To review arrangements with ---HO for the publication of charts and associated publications covering **Anywhere's** waters.

To make arrangements for **Anywhere's** representation at [the Regional Hydrographic Commission], including the preparation of the national report.

ANNEX "F"

BASIC HYDROGRAPHIC EQUIPMENT AND SOFTWARE
(indicative prices are in USD)

This Annex provides a brief preliminary estimate on the composition and approximate cost of a basic configuration of hydrographic equipment and software. This composition needs to be worked in order to define brands, models and firm prices, on both, equipment and software.

Single beam echo sounder, 200 khz	23,000
Tide gauge	5,000
Post process differential GPS, single frequency	30,000
Hydrographic software	10,000
Computers	6,000
Accessories	5,000
TOTAL	**79,000**

Note: Leveling operations as well as drawing and plotting works are recommended to be coordinated with CNIGS, as they have in place facilities for these purposes.

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