

**16th MEETING OF THE IHO CAPACITY BUILDING SUB-COMMITTEE
IHO-CBSC16
Goa, India, 30 May - 1 June 2018**

REPORT

1. Opening remarks, introductions and administration

<i>Docs: CBSC16-01A</i>	<i>List of Documents (Chair)</i>
<i>CBSC16-01B</i>	<i>List of Participants (Chair)</i>
<i>CBSC16-01C</i>	<i>CBSC Membership (Chair)</i>
<i>CBSC16-01D</i>	<i>Draft revised CBSC ToR and RoP (Chair)</i>
<i>CBSC16-01E</i>	<i>ToR for the CB Coordinators (Chair)</i>

The 16th Meeting of the IHO Capacity Building Sub-Committee (CBSC) took place in Goa, India, hosted by the National Hydrographic Office (NHO) of India from 30 May to 1 June 2018. The meeting was opened by VAdm Vinay Badhwar, Chief Hydrographer of the Government of India, and Mr Thomas Dehling, Chair of the IHO Capacity Building Sub-Committee (CBSC).

VAdm Badhwar welcomed the participants and highlighted the success due to the international involvement in Capacity Building (CB), the progress made by the IHO due to the engagement of the Member States and the contribution of ROK and Nippon Foundation of Japan as examples of success stories. The contribution for regional cooperation was also emphasized.

Chair thanked the hosts and stressed the need to consider carefully the matters around CB and the long way CB had come since the first meeting in 2003. He expressed satisfaction that VAdm Badhwar participated in the first two meetings of the then CB Committee (CBC) and has a long contribution to CB.

IHO Assistant Director Alberto Costa Neves thanked the hosts for the efforts in organizing the meeting and called for the participation of all around the table to make CB programme successful. CB is a strategic objective of the IHO and requires the participation of Member States, individuals and the broad hydrographic community.

Chair invited the participants to introduce themselves for the benefit of the meeting. The hosts provided logistics and administrative information.

Chair introduced the documents of this agenda item and invited participants to provide input for eventual updates and to consider the proposed draft amendments to the CBSC ToR and RoP (doc. *CBSC16-01D*). The amendments were subsequently endorsed.

Decision 1: to endorse the revised CBSC ToR and RoP (doc. *CBSC16-01D*).

2. Approval of Agenda

Doc: CBSC16-02 rev1 Agenda and Timetable (Chair)

Participants were invited to comment the agenda and timetable. The inputs from the floor were incorporated into the revision 1 of the Agenda and Timetable (doc. *CBSC16-02 rev1*).

Decision 2: Agenda was adopted as amended (doc. *CBSC16-02 rev1*).

3. Matters arising from Minutes of CBSC15 Meeting

Docs: CBSC16-03A Minutes of CBSC15 (Chair)
CBSC16-03B rev1 Status of Action List from CBSC15 (Secretary)

Chair invited comments for the CBSC15 Minutes that was subsequently approved. List of Actions from CBSC15 was reviewed and updated with the following observations:

- a) Action 15: e-learning for MSI is currently in French and is being translated into English by France. It could potentially be used in the forthcoming MSI training in SWPHC. EAHC expressed interest in hosting an e-learning MSI training in the EAHC/Training, Research and Development Center (TRDC) and Japan highlighted the need to coordinate this development with the NAVAREA coordinators via WWNWS-SC.
- b) Action 24: the EAHC decided to postpone the Technical Visit to Timor Leste and a proposal will be made in future stage depending on the developments in the country.

Decision 3: to approve the CBSC15 Report (doc. *CBSC16-03A*) and Action List, as updated by the CBSC16 (doc. *CBSC16-03B rev1*).

4. Reports by the Chair and the IHO Secretariat

Docs: CBSC16-04A Report by the Chair (Chair)

CBSC16-04B Report by the IHO Secretariat (Secretary)

Highlights were given from the Chair and the Secretary on ongoing issues and the future of the IHO Capacity Building programme.

Chair highlighted that the revised Capacity Building Strategy proves to be very efficient and it is fit for purpose. He mentioned that CB played an important role at the 1st meeting of the Council (C-1) held in October 2017 in Monaco and the work of the CBSC is being appreciated and seen as one of major strategic endeavors of the IHO. The Council endorsed the proposal for increasing the CB support at the IHO Secretariat and the Secretary-General decided that Ms Sandrine Brunel works full time as Capacity Building Assistant from 1 January 2018.

He noted that funds have been growing but are less than needed and to deal with that deficit the CBSC has to stick strictly to the strategy and regulations. Some submissions will be on a waiting list until further funds are available. The question is how to take the IHO CB to the next level and the need to have comprehensive projects in order to attract donor organizations.

The progress in the development of a CB Management System by the efficient support from the Republic of Korea was noted by the meeting, together with the financial support from ROK and Nippon Foundation of Japan. This extraordinary generous ongoing contribution from Japan and ROK have been one major factor in the success of CB programme.

Chair presented the ideas on the organization of the second stakeholders' seminar that is planned to be held in 2019 and on the relevant role played by the CB Coordinators in the success of CB activities and the importance not to change this position too often. He reported on the annual Joint CB Coordination meeting of IHO, IMO, WMO, IOC, IAEA, IALA, FIG and IMPA that took place at the IALA headquarters in St. Germain en Laye in November 2017. The International Maritime Pilot Association (IMPA) participated for the first time. This will strengthen the cooperation. The success of comprehensive projects is very dependent on a good cooperation between the organizations.

The meeting expressed concerns with the lack of cooperation with the IMO and the negative impacts to the IMO Member States that are not Member States of the IHO, and the following action was agreed:

Action 1: Chair to bring the IMO issues to the IRCC and request to encourage Member States to engage with their delegations in the IMO to provide support to the IMO Member States that are not IHO Members to comply with SOLAS Chapter V (deadline: IRCC10).

The Republic of Korea (ROK) expressed its satisfaction to contribute to the IHO's Capacity Building activities. He noted that ROK strives to obtain the budget for the contribution every year, although it is not always certain it could be secured. He added that KHOA Director General hopes that more and

more countries will join ROK in providing both tangible and intangible support to CB activities so that the technology gap among IHO Member States could be reduced.

Secretary briefed the meeting on the impact of the entry into force of the amendments to the IHO Convention and its supporting Basic Documents and on the status of Membership of the IHO. Publicity and Outreach were highlighted, in particular on the theme for the World Hydrography Day 2018 (*Bathymetry – the foundation for sustainable seas, oceans and waterways*), on the progress with the International Hydrographic Review and on the new video produced by Italy on "... become a hydrographer". He also reported progress in the IHO Secretariat infrastructure with an email group cbcs@iho.int created to facilitate communication of CB related activities, the status of the CB Management System, the IHO Geographical Information System (IHO/GIS) and the IHO Country Information System (IHO/CIS).

Decision 4: to note the reports under agenda item 4 (docs. *CBSC16-04A* and *CBSC16-04B*).

5. Regional Assessment of CB Activities

5.1 Reports of the Regional Hydrographic Commissions (RHC)

<i>Docs: CBSC16-05.1A</i>	<i>NSHC Report (oral report)</i>
<i>CBSC16-05.1B</i>	<i>MBSHC Report</i>
<i>CBSC16-05.1C</i>	<i>BSHC Report (oral report)</i>
<i>CBSC16-05.1D</i>	<i>USCHC Report</i>
<i>CBSC16-05.1E</i>	<i>EAHC Report</i>
<i>CBSC16-05.1F</i>	<i>EAtHC Report</i>
<i>CBSC16-05.1G</i>	<i>SEPRHC Report</i>
<i>CBSC16-05.1H</i>	<i>SWPHC Report</i>
<i>CBSC16-05.1I</i>	<i>MACHC Report</i>
<i>CBSC16-05.1J</i>	<i>SAIHC Report</i>
<i>CBSC16-05.1K</i>	<i>NIOHC Report</i>
<i>CBSC16-05.1L</i>	<i>RSAHC Report (not submitted)</i>
<i>CBSC16-05.1M</i>	<i>SWAtHC Report</i>

RHC Members and CB Coordinators updated the meeting on the status of surveys, charts and MSI (C-55) and reported on visits (high-level, technical and follow-up) and on courses, workshops and seminars provided to the RHCs.

a) NSHC Report

The Representative gave an oral report on how CB is discussed in the agenda and how the support is given to countries in need (outside the region).

b) MBSHC Report

The Representative reported the CB activities in 2017 (technical visit to Azerbaijan, ENC Production Course and Seminar on technical aspects of the Law of the Sea (LOS) and the plans for 2018, with a follow up visit to Albania and Georgia, the port and shallow water survey course and the workshop on Maritime Safety Information (MSI). He highlighted the challenges in the region, in particular the need for long courses (including for non-Member States) and short trainings and communication with States in the region.

Meeting discussed the issue of non-Member States in need of phase 2 and phase 3 support as suggested in the report. While the IHO CB Strategy prevents direct funding for non-Member States, there are possibilities for their participation in CB activities by funding their participation (ticket and accommodation). For long courses, options exist with other countries that provide training with minimum or no fees. There was general agreement on the correctness of the Strategy and concerns with relaxing the requirement for being Member State to have access to CB Phases 2 and 3.

Participants also discussed the possibility of securing funds for new Member States joining the IHO either for a technical visit or for a consultant to provide direct support. The meeting considered that CB Coordinators should consider extraordinary submissions when new Member States join.

c) BSHC Report

The Representative gave an oral report on how CB is provided in the region and explained that Baltic States may apply to trainings under the CBWP for activities with a general call via circular letter.

d) USCHC Report

The Representative introduced the available opportunities in Category "A" and Category "B" programmes for Hydrographic Surveyors in USA, and the interaction with the International Cartographic Conference (ICC2017) when the NOAA/Office of Coast Survey promoted an open house event and cartographic exhibition.

He also invited the CBSC to take advantage of the Chart Adequacy Workshop that will take place in USA in 2019 when two seats will be made available to the CBSC. Funding support for the workshop is provided by NOAA, the University of New Hampshire, and the UKHO (Doc. *CBSC16-09.4B* refers). The follow actions were agreed:

Action 2: USA to liaise with the IHO Secretariat for the preparation of the call for candidates to the Chart Adequacy Workshop in 2019 via CL (deadline: September 2018).

Action 3: Secretariat to issue a CL calling for candidates to the Chart Adequacy Workshop in 2019 in accordance with the information provided by USA (deadline: after Action 2).

Chair thanked the USA for offering such support for the IHO CB Programme.

e) EAHC Report

The Representative introduced the report and presented the current status of the EAHC/Training, Research and Development Center (<http://trdc.eahc.asia>) and summarized the assessment of CB Phase stage of coastal States in the region. He reported the CB activities conducted in the region, including those funded outside the CB Fund.

The meeting was informed that many training activities were delivered but there is still a significant level of technology gap among the ten Member States and that developing countries need continuous CB activities to enhance their basic capacity in hydrographic surveying and charting. He highlighted that EAHC region is one of the areas with largest marine traffic in the world and CB is key in managing maritime safety information (MSI) and risk assessment, both reflected in the submissions for the 2019 CB activities.

Participants discussed the need for strong commitment for the development of MSI worldwide and one good example is the development in Nigeria as a result of their participation on a MSI training. The meeting acknowledged the work of Nigeria and France on this success.

f) EAtHC Report

The Representative introduced the report and presented the main CB activities developed since the last meeting: a technical visit to Gambia and to the hydrographic training center in Nigeria. Training assistance was offered to Nigeria MSI Coordinator and France (NAVAREA II Coordinator) started to transmit the coastal warnings of Nigeria via SafetyNET.

He informed the meeting on the planned activities for 2018, with the continuation of the visits to training centers in Gabon and Cameroun, the organization of a regional awareness seminar on maritime geospatial knowledge preceding the EAtHC conference, the promotion of the HydrOMAOC study results, the development of an English version of the MSI e-Learning resource and the development of an e-Learning course on survey specification.

The assessment of the stage of CB phases in the region was presented to the meeting, along with the procedure to prepare the submissions for 2019. He also reported the difficulties and challenges in the West and Central Africa (WCA) sub-region that remain considerable, except for Morocco and Nigeria. Ever-growing needs in term of maritime geospatial knowledge exist and the provision of hydrographic services remain very limited, despite the continuous CB efforts.

He noted that considering the magnitude of the task to develop hydrographic services and the available resources, a different approach for the implementation of the CB strategy may be considered for this region (doc. *CBS16-06F* refers).

g) SEPRHC Report

The Representative introduced the report and presented the main CB activities developed since the last meeting, including the non-IHO activities, and the plans for the 2019-2020 period. He also reported the engagement to attract Panama to participate in the hydrographic activities.

He reported the approach to improve the relationship with other stakeholders looking into synergies and potential financial sources, given the need to promote the hydrographic development in the region. He also noted that CB activities sponsored by IHO and organized by the SEPRHC are fundamentals for the maritime development of the region.

h) SWPHC Report

The Representative of the region introduced the report and started by characterizing the region and the key role played by the maritime sector in supporting economic growth and development in Pacific Island Countries and Territories (PICTs). In this context he presented the status of hydrography in the region and the implementation of the CB activities since last meeting. The status of bilateral arrangements between NZ and Samoa, Cook Islands, Niue and Tonga was reported.

He introduced the Ministry of Foreign Affairs and Trade (MFAT) of New Zealand Aid Programme - Pacific Regional Navigation Initiative (PRNI) with a recent hydrographic risk assessment done in Samoa and a traffic analysis done for Tokelau. He also reported on the Commonwealth Marine Economies (CME) Programme that conducted hydrographic surveys of critical navigation areas and marine habitats in Tonga and the engagement of the Pacific Community (SPC) - Oceans and Maritime Programme.

Progress was reported on gathering data for ENC and paper chart production in the region and the plans for future production, including an extensive programme of Satellite Derived Bathymetry (SDB) for the Cook Islands, Niue, Tokelau and Tonga. The plans for future activities on PRNI to cover extensive hydrographic surveys in Cook Islands, Niue, Samoa, Tokelau and Tonga was reported, with a total 63 ENCs to be produced, including 19 new.

He stressed the challenges faced in the region which has a large geographical extent, with high cost of travel and limited opportunities for meetings. The meeting was informed on the limitations on the capacity of the Capacity Builders and how coastal States are presented with numerous CB and development activities and programmes which can impact their ability to be able to engage meaningfully.

The meeting was informed that there has been considerable progress in CB activities in the region since CBSC15: Vanuatu became an IHO Member in 2017 and Solomon Islands is in the process of becoming a Member; Indonesia became an Associate Member of SWPHC to facilitate the harmonization and coordination of activities; Australia became the Primary Charting Authority (PCA) for Solomon Islands and provided hydrographic training (Category "B" course) to Fiji and New Zealand. He informed the progress made by UK under the CME Programme.

Participants learned of the significant progress made in Fiji with the support from the ROK and other States in the region, the surveys conducted in Papua New Guinea as part of the Asian Development Bank (ADB) Maritime and Waterways Safety Project; the production by USA of six ENCs surrounding Palau; the establishment of a National Hydrographic Committee in Vanuatu and the plans

to survey 10 priority areas and to build a new Hydrographic Survey Unit; the appointment of a National Coordinator for MSI and plans to establish Hydrographic Services in Kiribati; the plans to establish a National Hydrographic Authority and a National Coordination Committee in Niue, the establishment of a National Hydrographic Committee, the appointment of a National Coordinator for MSI and the plans to establish a National Hydrographic Authority in Samoa.

He concluded by emphasizing the strategy of preceding SWPHC meetings with a CB workshop that proved very beneficial. The last workshop had around 40 participants, the large majority from PICTs, all extremely active and contributed to collective and own knowledge of hydrography. He stressed that SWPHC, in collaboration with other international, regional and bi-lateral partners, is committed to carrying forward hydrographic, nautical cartographic and capacity building activities in close alignment with IHO objectives and goals. The meeting then agreed the following:

Decision 5: to note the value and effectiveness of preceding SWPHC meetings with CB related workshops.

Decision 6: to note SWPHC's commitment in carrying forward hydrographic, nautical cartographic and capacity building activities in close alignment with IHO objectives and goals.

i) MACHC Report

The Representative of the region introduced the report and a characterization of the region where it is estimated that over 30% of the world's crude oil passes through the Caribbean which is home to over 50% of the world's cruise shipping. The Caribbean endures a hurricane season from July to November and some storms leave a trail of devastation on the islands and their coasts. The 2017 Atlantic hurricane season was very active with three major hurricanes wreaking havoc in the Leeward Islands, Dominica and Puerto Rico.

He presented the results of the assessment of CB Phase stage of coastal States in the region and the activities completed since the last meeting, including two technical visits, a MSI training and the very successful Hydrographic Awareness Seminar preceding the MACHC18 meeting in November 2017 that not only guarantees attendance but also showcases the importance of regional hydrography and how all coastal states have a part to play, irrespective of size.

Challenges faced in the region were presented as the high number of Small Islands Development States (SIDS) and Central America States with no formal hydrographic infrastructure that are usually reliant on a national Maritime Authority or some other organization for the provision of hydrographic services. Very few of these States are IHO members, including the biggest Flag State in the world.

The meeting was informed on the good level of cooperation with the SWAtHC and SEPRHC, on Mexico's FOCAHIMECA project in building Phase 2 capability in a number of Spanish speaking states and the UK's CME and Overseas Territories Seabed Mapping Programmes that is assisting a number of SIDS with data gathering in their littoral zones. The meeting also acknowledged the participation of IALA as significant in working together with the IHO.

Participants knew about the success story of Venezuela in creating capacity for ENC production that resulted in the first ENCs for the Orinoco River.

j) SAIHC Report

The Representative of the region introduced the report and depicted the region that contains three of the world's 64 major large marine ecosystems - the Benguela current, the Agulhas current and the Somali current. He described the major routes and the shipping lanes along the East Africa coast that carry over 30% of the world's crude oil supplies. This region contains thirteen important commercial ports serving as hubs for traffic emanating from, and destined for Europe, Asia, the Americas and the east and western coasts of Africa. Oil and gas exploration programmes operating throughout the region bring additional risks.

He presented the results of the assessment of CB Phase stage of coastal States and the activities conducted since the last meeting and the activities planned for 2018. He presented the challenges faced in the region

The meeting was informed that one of the most significant challenges is generating engagement from the Associate Members (AM) and that to address this problem, the SAIHC will host its inaugural Hydrographic Awareness Seminar to raise awareness of hydrography, to address technical problems, to foster cooperation and to support the participation to the SAIHC Conference. Apart from Portugal, none of the AM states are IHO members and don't qualify for the higher level training opportunities which are only available to Members.

Participants were informed on the progresses in the region with the steady improvement of the Phase 1 capability based on feedback, the cooperation and joint activities with the NIOHC and the active participation of India over many years in developing hydrographic services in Mauritius while Portugal performs a similar role for the Lusophone African States. The Indian, Portuguese and UK Government's contribution to regional capacity building was acknowledged by the meeting as contributing to improve both the education and data gathering regionally.

k) NIOHC Report

The Representative of the region introduced the report and presented the background of the Indian Ocean that provides major sea routes connecting the Middle East, Africa, and East Asia with Europe and the Americas, around 66% of the world's oil shipments. It is estimated that 40% of the world's offshore oil production comes from the Indian Ocean.

He presented the results of the assessment of CB Phase stage of coastal States, the activities conducted since the last meeting, the activities planned for 2018 and the challenges faced in the region. One of the most significant challenges the NIOHC faces is engaging and communicating with the Maldives and the Red Sea maritime states. Very few of these states are IHO members and thus don't qualify for the higher-level training opportunities which are only available to Member States. In an attempt to generate greater engagement from coastal States the NIOHC will organize a hydrographic awareness seminar to precede the 2019 NIOHC meeting.

Participants were informed on the progresses in the region with the steady improvement of Phase 1 capability based on feedback, the cooperation and joint activities with the SAIHC and with the RSAHC. They were also informed that India has been very active over many years in developing hydrographic services in several Indian Ocean nations, in particular in Mauritius. The meeting acknowledged the Indian and UK Government's contribution to regional capacity building that supported the improvement of both the education and data gathering regionally.

l) RSAHC Report

No report was submitted by the RSAHC and the meeting considered ways to improve the CB coordination in the region and short term actions to mitigate the negative impact on RSAHC Members. The meeting agreed to discuss this under agenda item 9.

m) SWAtHC Report

The Representative of the region introduced the report and presented the main CB activities completed since the last meeting. With the support of the CB activities, Paraguay is more actively engaging in hydrographic surveys in the Parana-Paraguay Waterway and Bolivia is in the process to become an Associate Member.

The meeting was informed on the training and education provided in-kind by Brazil to Mozambique in 2017 for two students in the Category "B" course. In 2018 one Bolivian Officer is enrolled in the Category "A" programme.

The meeting agreed on the following decision:

Decision 7: to note the reports under agenda item 5.1 (Reports from the RHCs, docs. *CBSC16-05.1A to M*).

5.2 Update and closure of the 2017 CBWP

Doc: CBSC16-05.2 Closed 2017 CBWP

Secretary introduced the 2017 CBWP (doc. CBSC16-05.2) that was subsequently reviewed, updated and closed by the CBSC. Closed 2017 CBWP is in **Annex A**.

Decision 8: to approve the closed 2017 CBWP (doc. *CBSC16-05.2*).

6. Regional projects for CB

<i>Docs: CBSC16-06A</i>	<i>Pacific Region Navigational Initiative (NZ)</i>
<i>CBSC16-06B</i>	<i>CME and Overseas Territories Seabed Mapping (UK)</i>
<i>CBSC16-06C</i>	<i>FOCAHIMECA (Mexico)</i>
<i>CBSC16-06D</i>	<i>Cooperation with Lebanon (Italy)</i>
<i>CBSC16-06E</i>	<i>EAHC-TRDC (EAHC)</i>
<i>CBSC16-06F</i>	<i>Towards a new implementation of the CB strategy in the region (EAHC)</i>

Chair invited for the introduction of reports and presentations on ongoing/new developments in regional projects.

a) PRNI (NZ)

NZ presented the current status of the PRNI developed as a Memorandum of Understanding (MoU) between the Ministry of Foreign Affairs and Trade (MFAT) and Land Information New Zealand (LINZ). The project involves the support from LINZ to Cook Islands, Niue, Samoa, Tokelau and Tonga, and from SPC to Kiribati, Tuvalu and Vanuatu. The outputs are: data discovery; hydrographic risk assessment; capacity building; mitigation measures and establishment of partnerships.

USA informed the meeting about available funding in USA under the Security Cooperation Agency (Department of Defense).

b) CME and Overseas Territories Seabed Mapping Programmes

UK introduced the Commonwealth Marine Economies (CME) Programme that aims to collect marine geospatial data, produce navigational charts, undertake science and provide knowledge transfer required to enable SIDS to develop and protect their blue economies. It is a four-year programme to target 17 Commonwealth SIDS in the Pacific and Caribbean, partnered by the UKHO, the National Oceanography Centre (NOC) and the Centre for Environment Fisheries and Aquaculture Science (CEFAS).

The meeting was also informed about the Overseas Territories Seabed Mapping Programme with the Scope to assess the national hydrography framework (legislation and Governance) and to update surveys and charting to ensure compliance with international obligations, and includes Maritime Boundary Delimitation. It has currently allowed for new surveys and chart updates to several of the UK's Overseas Territories.

The CBSC noted that many RHCs are engaging in risk assessment projects that could be used in the Western and Central Africa (WCA).

c) FOCAHIMECA

The MACHC CB Coordinator, on behalf of Mexico, reported on the status of the Project for Strengthening of Hydrographic Capabilities in Mesoamerica and Caribbean Sea (FOCAHIMECA, from the Spanish). It is jointly run by the Ministry of the Navy and the Mexican Agency for International Development and Cooperation (AMEXCID) as a component of the Maritime Short

Distance Transport Initiative, in collaboration with the Association of Caribbean States (ACS). The objective is to improve the safety of navigation in the region through capacity building.

The meeting appreciated the support provided to the region by several nations and noted the need for coordination among projects.

d) Cooperation with Lebanon

Italy reported on the cooperation agreement with Lebanon for building a National Hydrographic Service with a data-centric approach. It started with capacity building, including the provision of hydrographic education and in the long term the goal is to build hydrographic and cartographic operation capacity, develop the national engagement with stakeholders and to place Lebanon into the international geospatial and hydrographic community.

The meeting was informed on the complete up-to-date new equipment and software received by Lebanon, including the installation and professional courses delivered together with hardware and software and the yearly mentoring of teams in Lebanon.

Participants discussed the value of the IHO Technical Visits for creating awareness, like the one in Lebanon in 2014 and then the value of bilateral agreements from promoting and building hydrographic capacity.

e) EAHC/TRDC

The EAHC CB Coordinator reported on the progress done in EAHC to further enhance the capacity of their human resources and to level up Hydrographic Offices (HOs) capabilities in the region, by establishing the Training, Research and Development Center (TRDC). Main challenges are to apply hydrographic concepts in the daily work as many of the resources and training are in English and the turnover of technical staff is high. The EAHC resolved to jointly find sustainable approach to these challenges and developed a customized Training for Trainers (TFT) in Basic Hydrography and Cartography to mitigate these problems.

As part of the CBWP, several TFT – Basic Cartography and Hydrography were hosted by the Korea Hydrographic and Oceanographic Agency (KHOA) in Busan, Republic of Korea. Since 2013, more than 60 participants and nearly all EAHC Member States have conducted the trainings for their respective officers using the training material. The EAHC annual meetings held in 2018 approved the proposal by the TRDC-Board of Directors to share the experience and best practices with other IHO Member States.

He informed the CBSC on the future plans are to review the course syllabi and content for hydrography and cartography in 2019 and 2020 and that the EAHC is pleased to share this TFT programme model, training course syllabi and content with other Hydrographic Commissions from 2019. He noted that some challenges exist in releasing the training material as they have copyright.

The meeting welcomed the initiative of the EAHC to share this valuable resource with the other RHCs and agreed on the following action:

Action 4: ROK to liaise with Malaysia and UKHO to consider the possibility to release the TFT training material and to report back to CBSC (deadline: November 2018).

f) EAthC

The EAthC CB Coordinator informed the meeting on the challenges in developing hydrographic services in WCA as most coastal States in the region remain unable to provide the hydrographic services necessary for safe navigation and more generally to support the protection and sustainable use of the marine and coastal environments. Additionally, from the 19 coastal States in WCA, only two (Cameroon and Nigeria) are IHO and EAthC Members, nine are Associate Members and eight are Observers of the EAthC.

He stressed that the efforts of the IHO and Member States since 2002 has increased awareness of hydrography, including at a high political level (e.g. Ghana, Togo and Senegal have established a national hydrographic commissions), but not led to significant improvements in hydrographic services. He then questioned the relevance of the implementation of the CB strategy for the EAtHC region.

EAtHC CB Coordinator highlighted that CB over the last 15 years has mainly focused on targeted actions either on a country (18 coastal States have been visited since 2002, some of them twice) or on a specific theme (awareness or technical workshops and trainings). In the meantime, the importance of a regional holistic approach has been stressed on several occasions as critical for an effective long term development of the hydrographic services amongst WCA coastal States.

He explained that in 2015, the CBSC agreed to support an initiative for the benefit of WCA by developing a regional approach, the HydrOMAOC (OMAOC stands for *Organisation Maritime de l'Afrique de l'ouest et du Centre*, French for Maritime Organisation for West and Central Africa – MOWCA) definition study conducted in 2016 and 2017. Given the magnitude of the task to promote such a global holistic approach, the limited human resources that member states and IHO can devote to it and the limited involvement of the coastal States directly concerned, the establishment of an ambitious regional project has not yet been possible.

He concluded by recommending to limit "conventional targeted" CB actions and concentrate on the insertion of a hydrographic component in more global maritime projects as regional CB project focused only on hydrography is very unlikely to be funded. This holistic approach needs to be consistent with the 2050 Africa's Integrated Maritime Strategy. He also recommended to strengthen IHO's involvement in the implementation of CB in EAtHC region through the creation of a post within the Secretariat dedicated to CB for the EAtHC region.

The meeting reviewed the recommendations in doc. *CBSC16-06F* and considered that the lack of awareness and lack of synergies is not limited to the EAtHC but rather is universal. The meeting agreed that it is important to target economic development and building of infrastructure and that the IHO should not underestimate the power of trainings as a means to engage with States. A key point acknowledged by the participants is the fact that investment in CB may take years to provide fruits.

The proposal for a dedicated position in the Secretariat for the EAtHC was considered unrealistic both in terms of financial impact and because the IHO is organized in RHCs and should not be operated by a central office. The IHO CB Strategy is fit for purpose and contains the elements for larger projects already in place but that there is need for a dedicated resource mobilization officer, to be discussed in the next agenda item. The following was agreed:

Decision 9: to acknowledge the CB work done in the EAtHC in the past 15 years.

Decision 10: not to endorse the proposal for a dedicated person devoted to the EAtHC in the IHO Secretariat.

Action 5: Chair to address the need for resources for Capacity Building (resource mobilization officer) to allow for the comprehensive projects of CB (deadline: IRCC10).

7. Outcomes of the 1st meeting of the IHO Council and the Strategic Issues of the CBSC

Docs: CBSC16-07A IHO Capacity Building Strategy (Chair)
CBSC16-07B Decisions and Actions from C-1 (Secretary)

The meeting discussed the IHO CB Strategy and the way ahead for the CB Strategy, including the development of projects to seek donor funds and how to measure the success of the CB Programme.

Discussion on the Strategy and the implementation of the CB Work Programmes led to the following:

- 1) Cooperation with IALA: it was considered very fruitful in terms of CB, e.g. in Joint Seminars on Safety of Navigation, on joint technical/needs assessment visits and potentially on risk assessment.

Secretary explained that both organizations share agendas and plans for visits and seminars.

- 2) Resource mobilization: examples exist in the International Maritime Organization (IMO) and in the Consortium for Ocean Leadership (COL) to attract and manage resources properly. There will be benefits in improving capacity in the IHO Secretariat to work on this level in CB, including access to donor organization and development of projects. It could potentially use funds available from the CB Fund for a position at the Secretariat (permanent or temporary) or the use of consultants as posed by the Strategy. However, the proposal to increase staff in the Secretariat should be taken conservatively with full consideration for the terms of reference for such a position. The CBSC should present to the IHO Secretariat the tasks to be performed and the objectives to be achieved allowing the Secretary-General to decide how to comply with them.
- 3) Execution of larger projects: the decision to aim at larger projects beyond Hydrography or to keep trainings at technical level should be appreciated and decided by each RHC. This is in accordance with the IHO CB Strategy, but beyond the regional approach to larger projects, should the IHO have global projects to support the development of hydrography in specific areas?
- 4) Industry engagement: Industry can engage in several different ways as partnering in the execution of projects, in providing funds to develop joint projects to be submitted to donor agencies and in providing consultants to prepare projects to be submitted.
- 5) Approaching donor agencies: it can be beneficial to approach donor agencies to offer support and collaboration for geospatial projects that could benefit from hydrographic components. Example is the Open Geospatial Consortium (OGC) and the International Standardization Organization (ISO) that cooperate with the World Bank by providing geospatial standards and expertise. This can only increase the relevance of the IHO.
- 6) Approach for WCA: EAHC Coordinator explained that HydrOMAOC had a needs assessment but it was too general and lacks the risk assessment and the more objective identification on the needs in Hydrography for the Safety of Navigation. He informed the meeting that France is planning to follow the NZ approach for risk assessment.

Secretary introduced the Decisions and Actions from C-1 and the meeting considered that the elements related to the CBSC have been dealt with at relevant agenda items.

8. Operational issues of the CBSC

8.1 Draft CB Procedures 9

Doc: CBSC16-08.1 Draft CB Procedure 9 on Technical Visits (Secretariat)

Secretary introduced the draft CB Procedure 9 on Technical Visits (doc. *CBSC16-08.1*). Action CBSC15/16 the Vice-Chair and the Secretary to *get feedback from the recent visiting teams and liaise with Norway and UK to submit a draft Procedure 9 to CBSC16 considering the need for self-assessment prior to the visit, reference to the IMSAS questionnaire, development of checklists and the access of the existing knowledge in the Secretariat by the Project Leader.*

Secretary reported that no resources were available to accomplish this task but Norway provided feedback from its staff that it is a good procedure and the visiting teams should follow this procedure to make the report usable and fit for purpose and suggested that there is the need for a strong statement from this Sub-Committee to enforce its use by the visiting teams. The following was agreed:

Action 6: CB Coordinators review draft CB Procedure 9 and identify areas that could be simplified and provide input to the Secretary and the Vice-Chair for the technical and high-level visits (deadline: October 2018).

Action 7: Vice-Chair and Secretary to compile the inputs to draft Procedure 9 and provide a new draft to the CBSC for adoption during CBSC17 (deadline: December 2018).

Decision 11: to have one single report for each country visited by an IHO visiting team and to reflect this in Procedure 9.

8.2 CB Management System update

Doc: CBSC16-08.2 CB Management System update (ROK, Secretariat)

Secretary introduced the history of the CB Management System (CBMS) since 2011 and the work done with Norway to define the specifications for contract, overtaken by the increasing number of CB procedures and the need to link data with IHO databases, publications, workflows and a future country profile.

ROK presented the status of the CBMS and the plans for development. The system aims to facilitate efficient operation and management of IHO CB programme, moving to an online-based business process with database construction and systematic data management, improving efficiency for the CBSC and the IHO Secretariat.

He introduced an overview of the system and the plans to be ready for submissions to CBSC17. In the meantime the IHO Secretariat will test and validate it using the submissions from CBSC16.

8.3 C-55 Status and Developments

Docs: CBSC16-08.3A C-55 Status and Developments (Secretariat)
CBSC16-08.3B Review of C-55 (UK and France)

Secretary updated the SC on the status of C-55 and current developments in the IHO Secretariat (doc. *CBSC16-08.3A*), both using the current available text strings to generate graphic outputs and the possibilities for a plain GIS system using geospatial data, linked to S-100 series.

Chair invited UK, on behalf of UK and France, to introduce proposal for review of *C-55 Status of Hydrographic Surveying and Nautical Charting Worldwide* (doc. *CBSC16-08.3B*). He started by presenting the aim of C-55 *to present a clear picture of the worldwide coverage of surveys and nautical charts and of the extent of effective organizations for the timely promulgation of navigational safety information.*

However, the confidence in the indicators are severely limited by the non-uniform approach each coastal State (or their PCA) use to derive the input to C-55, a database that underpins IHO advice to the UN, IMO and other agencies, and is used in particular in the context of IMSAS.

He recommended a short term action to get more standardized and relevant indicators by improving the Guidelines to estimate the C-55 status of hydrographic surveying indicator that should be more prescriptive or at least more documented through sharing of national experiences, and by using the CATZOC survey qualification to derive the C-55 indicator as a standardized methodology could be considered as an interim solution.

The meeting also received a recommendation to review the purpose, use and mechanism for collecting, managing and presenting C-55 data. There should be a dual C-55 indicator on the state of hydrographic surveying: one focusing only on areas of interest for navigation (SOLAS obligations) and the other to reflect the state of global bathymetric knowledge ("Hydrography is Much More than Just Nautical Charts").

Participants discussed the proposal and the need to receive the contribution of data from States and one possible solution could be for the RENCs to provide such data on behalf of Members. They were also informed on the work being done on S-44 that may affect the redefinition of C-55, with maybe a conversion table from S-44 to C-55 and the work in the ARHC to compile data and provide chart adequacy to the Arctic Council were also noted by the meeting.

The meeting considered that the use of CATZOC may put pressure to improve CATZOC. Despite the envisioned problems with CATZOC, it is better than the current input to C-55 based on subjective assessment. There was general agreement that C-55 is not fit for purpose and a revision of the methodology is required, in particular the Hydrographic component, to pursue the use of CATZOC as an interim solution in developing an objective version of C-55 and that the RENCs could be approached to provide CATZOC data as input to C-55.

The CBSC also agreed on the need for a GIS C-55 and to recommend to the IRCC that the GIS version of C-55 available in the IHO Country Information System (CIS) and Geographic Information System (GIS) should be made available to MS. The following was agreed:

Decision 12: CBSC to review C-55 as indicated in doc. *CBSC16-08.3B*.

Decision 13: to establish a C-55 Review Project Team (C-55RPT).

Decision 14: to consider introducing CATZOC information as an interim solution as an indicator for survey adequacy.

Action 8: Chair to invite the IRCC to support the use of CATZOC information as an interim solution as an indicator for survey adequacy and to encourage Member States, via RHCs, to provide CATZOC information for C-55, directly or via RENCs (deadline: IRCC10).

Action 9: Chair to encourage IRCC to invite the IHO Secretariat to make the IHO GIS and CIS available to Member States (deadline: IRCC10).

An ad-hoc drafting group was established during the meeting to draft the Terms of Reference and Rules of Procedure of the C-55RPT. The draft document was presented to the meeting (**Annex B**) and the meeting agreed the following:

Decision 15: to approve the ToR/RoP of the C-55RPT and appoint Norway (Evert Flier), UK (Jeff Bryant) and France (Vincent Lamarre) as Chair, Vice-Chair and Secretary, respectively.

Turkey objected to decisions 12 to 15 and provided the following statement:

"There are difficulties arising during the allocation process of CATZOC values in S-57 and exchange national methodologies from survey data to CATZOC. TR believes that this is purely a technical issue and related HSSC Working Groups are still working on the issue. When the standards are OK and all the HOs have a common reference, using CATZOC in C-55 may be an issue of CBSC".

8.4 Performance Indicators and Statistics

Doc: CBSC16-08.4 Performance Indicators (Chair)

Chair introduced the performance indicators (doc. *CBSC16-08.4*) and the meeting discussed the requirements for the Performance Indicators and the establishment of the relevant statistics related to CB. The work of the Strategic Plan Review Working Group (SPRWG) was also considered.

8.5 National Hydrographic (Coordinating) Committee (NHC/NHCC)

Chair invited the meeting to discuss the importance of the establishment of the National Hydrographic (Coordinating) Committee (NHC/NHCC). There was consensus that the establishment of a NHC is of paramount importance for developing countries and that a collection of legislation and recommendations is beneficial. The following actions were agreed:

Action 10: Secretary to compile legislation and related documents for NHC, best cases, uses, benefits, stakeholders and distribute to the CBSC (deadline: August 2018).

Action 11: CBSC Members to provide comments and feedback to the Secretary on legislation for NHC, according to Action 10 (deadline: November 2018).

Action 12: Secretary to compile inputs and comments from CBSC Members and provide a draft guiding document to CBSC on legislation for NHC, according to Actions 10 and 11 (deadline: CBSC17).

8.6 Review of the 3-year RHC Work Plans 2018-2020

Docs: CBSC16-08.6A MBSHC 3-year Work Plan
CBSC16-08.6B EAHC 3-year Work Plan
CBSC16-08.6C EAHC 3-year Work Plan
CBSC16-08.6D SEPRHC 3-year Work Plan
CBSC16-08.6E SWPHC 3-year Work Plan

<i>CBSC16-08.6F</i>	<i>MACHC 3-year Work Plan</i>
<i>CBSC16-08.6G</i>	<i>SAIHC 3-year Work Plan</i>
<i>CBSC16-08.6H</i>	<i>NIOHC 3-year Work Plan</i>
<i>CBSC16-08.6I</i>	<i>RSAHC 3-year Work Plan</i>
<i>CBSC16-08.6J</i>	<i>SWAtHC 3-year Work Plan</i>

Chair invited the CB Coordinators to provide updates of the 3-year Work Plans of each RHC that has one. The following updates were noted by the CBSC:

- a) MBSHC Plan was updated to include a TV to Bulgaria in 2019, as the Country became a new Member State of the IHO in 2018.
- b) EAHC Plan is in the process of review and it will be submitted to the EAHC Conference in October 2018.

Chair explained the rationale for the 3-year Work Plan and that the level of details required that should be less than those in Procedures 1 and 4. The following was subsequently agreed:

Decision 16: to note the reports under agenda item 8 (docs. *CBSC16-08-6A to J*).

9. CB Management

9.1 Update of the 2018 CBWP

Doc: CBSC16-09.1 Updated 2018 CBWP (Secretary)

Chair invited the meeting for feedback to the 2018 CBWP. The MBSHC CB Coordinator and Norway reported that there is an opportunity for a High-level Visit (HV) to Albania, in order to promote the importance of hydrography in the country, to foster the creation of the legislation and of the hydrographic service.

The EAHC CB Coordinator informed that a proposal to visit Timor Leste will be submitted in the future and recommended the Sub-Committee to cancel activity A-06.

The EAHC CB Coordinator reported the situation of the activities in the region and requested the SC to reduce the budget of P-12 from 15 000 to 3 000 Euros and to postpone P-13 and P-15 to 2019. He informed the meeting on the status of development of e-learning training material with the support of CHS and that a future proposal for funding will be submitted.

Since no project was submitted from RSAHC to the 2019 CBWP, Iran requested whether participation could be granted to RSAHC Members in the NIOHC CB Activities. The meeting agreed to adjust the budget of P-07 from 18 951 Euros to 21 961 Euros in order to allow for two participants from RSAHC to attend the Phase 1 Skills training in India.

The SWPHC CB Coordinator informed the meeting on the status of the technical implementation visits to Samoa and Niue and requested the CBSC to postpone activities A-04 and A-05 to 2019, both approved by the meeting.

The SAIHC CB Coordinator and the Secretary informed the meeting that a request from Angola for a Technical Visit was received and the proposal (Procedure 1 and Procedure 4) for an extraordinary visit was presented to the meeting.

The following was then agreed:

Decision 17: to add 3 010 Euros in activity P-07 of the 2018 CBWP to allow the participation of 2 members from RSAHC in the Phase 1 Skills training to be conducted in India, later in 2018.

Decision 18: to approve the extraordinary proposal for a high-level visit to Angola in 2018.

Decision 19: to adopt the 2018 CBWP (as off 1 June 2018, **Annex C**).

9.2 Finance Report

Doc: CBSC16-09.2 Finance Report (Secretary)

Secretary introduced the finance report for the consideration of the CBSC. Chair suggested the meeting to hold the current surplus forecast of nearly 50 000 Euros in the 2018 CBWP to be used in the 2019 CBWP and the following was agreed:

Decision 20: to approve the Finance Report (doc. CBSC16-09.2).

Decision 21: to transfer the 2018 CBWP surplus to be used in the 2019 CBWP.

9.3 Management Plan

Doc: CBSC16-09.3 Draft 2019 CB Management Plan (Secretary)

Chair invited the CBSC to review and update the draft 2019 CB Management Plan (doc. CBSC16-09.3) and agreed on the final document (**Annex D**). The following was agreed:

Decision 22: to approve the 2019 CB Management Plan (Annex D).

Action 13: Secretary to develop the 2019 CBWP considering the 2019 CB Management Plan (done during the meeting).

9.4 Adoption of the 2019 CBWP

Docs: CBSC16-09.4A Adopted 2019 CBWP (Secretary, developed during the meeting)
CBSC16-09.4B Chart Adequacy Workshop (USA)

Chair invited the CBSC to adopt the 2019 CBWP (doc. CBSC16-09.4) drafted during the meeting following the approval of the 2019 CB Management Plan (agenda item 9.3). The meeting also agreed that the following budget from the 2018 CBWP to be transferred to the 2019 CBWP:

- a) A-04 3 300 Euros
- b) A-05 3 000 Euros
- c) P-13 2 600 Euros
- d) P-15 2 600 Euros

with a total to be included in the 2019 CBWP of 11 500 Euros. The following was agreed:

Decision 23: to approve the Adopted 2019 CBWP (Annex E).

10. Report from the CBSC to the IRCC10 Meeting

Chair invited the meeting to contribute to the preparation and review of the CBSC Chair report to the IRCC10 meeting. The CBSC agreed with the following topics for the Chair report:

- a) Chair to bring the IMO issues to the IRCC and request its Members to encourage Member States to engage with their delegations in the IMO to provide support to the IMO Member States that are not IHO Members to comply with SOLAS Chapter V (agenda item 4)
- b) Chair to invite the IRCC to encourage the IHO Secretariat to make the IHO GIS and CIS available to Member States (agenda items 4 and 11).
- c) Highlight the need for resource mobilization (agenda item 6).
- d) The need to develop comprehensive projects (agenda item 6).
- e) The status of CB Coordination in the RSAHC (agenda item 6).
- f) Development of MSDI training material to be delivered in RHCs (agenda item 11).
- g) Stakeholders' Seminar in 2019 (agenda item 11).
- h) Next meetings (agenda item 12).

11. Any other business

Docs: CBSC16-11A Category "B" Hydrography Programme (Italy)
CBSC16-11B Availability of Training and Consultancy services (Chartwise)

CBSC16-11C Invitation for a Tsunami training (Chile)

Chair invited participants to introduce any other items and the following were reported:

- a) Italy Cat B: Italy introduced doc. CBSC16-11A and presented the possibilities of training in Italy with a Category "B" recognized programme.
- b) Chartwise: Secretary, on behalf of Chartwise, introduced doc. CBSC16-11B and highlighted the possibilities of tailored trainings and consultancies that are available to support CB activities in RHCs.
- c) The need for training material was identified by RHCs that are willing to deliver trainings for MSDI using available personnel. The following was agreed:

Action 14: Chair to request to the IRCC to task MSDI WG to consider developing basic MSDI training material in order to allow RHCs to deliver trainings with their own personnel (deadline: IRCC10).

Action 15: CB Coordinators to consider making training material available via the IHO website (permanent).

- d) Stakeholders' seminar in 2019: the meeting considered the organization of a Stakeholders' seminar in conjunction with the IBSC (reference 2018-2020 IHO Work Programme), in order to improve CB programme with the participation of academia, industry and other organizations. The meeting agreed to hold the seminar in one and half days before the CBSC17 (27 May pm and 28 May 2019). The following action was agreed:

Action 16: CBSC Members to provide input for the organization of the CB/IBSC stakeholders' seminar (deadline: August 2018).

- e) Invitation for a Tsunami training: the meeting considered the invitation from Chile regarding an invitation for a training on Tsunami to be held in Chile in August 2018. The meeting agreed that this is a great opportunity to prepare plans for readiness and response to disasters. Chair recommended its wide dissemination but there was not enough time for the CBSC to take any additional action.
- f) IHO CIS/GIS: Secretary presented the IHO CIS and GIS and how it can support the work of Member States, IHO bodies, CB Coordinators and Visiting Teams. Participants agreed that this infrastructure, currently available to the IHO Secretariat only, could have a major impact in the work of the IHO if available elsewhere.
- g) RSAHC CB Coordination: the meeting considered the current situation in RSAHC where there is no assigned CB Coordinator which impacts negatively the region and the assessment and the delivery of CB activities in the region, putting navigation at risk with respect to provision of hydrographic services. The meeting agreed that it is necessary to raise the awareness of the importance of having a permanent CB Coordinator in the RSAHC:

Action 17: Chair to write to the RSAHC Chair raising awareness of the importance of having a permanent and operational CB Coordinator (deadline: July 2018).

12. Next CBSC Meetings (venue and date)

Chair invited participants to agree on dates and venue for CBSC17 and CBSC18 and to offer to host CBSC19. The Sub-Committee subsequently decided on the following:

Decision 24: to adopt the dates for future meetings of the CBSC as below:

- a) CBSC17: 29 – 31 May in Italy (venue TBD)
- b) CBSC18: May / June 2020 – Gdynia, Poland
- c) CBSC19: May / June 2021 – Galapagos, Ecuador

d) CBSC20: May / June 2022 – Japan (to be confirmed)

13. Review of the List of Actions

Doc: CBSC16-13 Draft list of actions and decisions from CBSC16 (Secretary)

Chair invited the Secretary to present the draft list of decisions and actions with deadlines and assigned lead, drafted during the meeting (*Doc. CBSC16-13*). Final confirmed List of Actions and List of Decisions are in **Annex F** and **Annex G**, respectively.

14. Closure

Chair ended the meeting at 15h30

END OF THE MEETING

ANNEXES:

Annex A: Closed 2017 CBWP

Annex B: Draft ToRs and RoPs of C-55RPT

Annex C: Updated 2018 CBWP

Annex D: Draft 2019 CB Management Plan

Annex E: 2019 CBWP

Annex F: Draft List of Actions

Annex G: Draft List of Decisions