1ST EAHC CHARTING AND HYDROGRAPHY COMMITTTEE MEETING
26TH TO 28TH JUNE 2013
BOHOL, PHILIPPINES

MINUTES OF MEETING

WELCOME ADDRESS AND OPENING ADDRESS

1. The Provincial Administrator of Bohol, Mr Alfonso R Demalario II, welcomed all EAHC delegates to the 1st CHC Meeting in Bohol. The Welcome Address appears as **Annex 1A**. He expressed sincere thanks for the presence of regional hydrographers at the meeting. The List of Delegates appears as **Annex 2**. He emphasized the importance of hydrography and marine science and its impact to the safety of navigation and the marine environment. He hoped that the meeting will strengthen the capacity of hydrography and cartography through training and cooperation for the betterment of the welfare of all, especially in the protection of the marine environment.

2. The Administrator of NAMRIA, Dr Peter N Tiangco welcomed all delegates to the inaugural meeting. He said that Philippines as the Chair of the EAHC strongly supports the protection of the marine environment and navigational safety. He stressed that through the production of ENCs and use of new technology and through cooperation amongst Member States (MSs) our goal of safety of navigational safety and protecting the marine environment could be achieved. His Welcome Address appears as **Annex 1B**.

3. Commodore Romeo I Ho, Chair of the EAHC welcomed all delegates to Bohol and opened the 1ST East Asia Hydrographic Commission Cartography and Hydrography Committee Meeting. He said the meeting was significant as the Chair and Vice Chair of the CHC would be nominated to lead this important committee. His Opening Address appears as **Annex 1C**.

ADOPTION OF AGENDA

4. The Meeting agreed to adopt the Agenda with some amendments and the Approved Agenda appears as **Annex 3**.

5. ROK sought clarification on the name of the Committee. Singapore said that the term “Cartography” referred to both land and marine mapping. Hence the term “Charting” was used to differentiate them and the name Charting and Hydrography was approved at the last Steering Committee (SC) Meeting in Busan, ROK. The Meeting agreed to use of the name approved by the SC ie “Charting and Hydrography Committee”.

NOMINATION AND APPOINTMENT OF CHAIR AND VICE CHAIR OF THE CHARTING AND HYDROGRAPHY COMMITTEE

6. The Chair(EAHC) proposed the nomination of the Chair and Vice Chair of the CHC by each Head of Delegation to cast their nomination. The Chair (EAHC) proposed Singapore and Indonesia as the Chair and Vice Chair (CHC) respectively. MSs China, Japan, Malaysia, Thailand and ROK supported the Chair (EAHC)'s nomination. As there we no other nominations Singapore and Indonesia were elected Chair and Vice Chair of the CHC.

7. The Chair(CHC) and Vice Chair(CHC) thanked MSs for their support in the election. Chair(CHC) asked for MSs continued support in bringing the EAHC to the next level of Charting and Hydrography.

DISCUSSION ON THE TERMS OF REFERENCE FOR CHC

8. Chair(CHC) gave an overview of the new EAHC Organisation structure and the CHC's Terms of Reference (TORs), which appears as **Annex 4A**. Chair(CHC) also raised the need to discuss the frequency and timing of CHC meetings and study the roles and responsibilities of this Committee.

9. Japan sought clarification on the role of the ENC TG and said that the work of the TG has been one of the driving forces behind the success of the EAHC. Chair(CHC) agreed to the observation and this should be taken into account in the review. He added that any proposal to amend the TOR should be submitted to the EAHC Steering Committee (SC) for approval.

10. Malaysia said that the Committee should not solely focus on ENCs and needed to expand on the scope of charting to include paper and electronic charts and hydrography. Malaysia added that each MS published different types of products and whether there should be common publications. Furthermore, the ENC TG should be dissolved and the relevant ENC TG TOR be absorbed into the CHC TORs. This would help minimise the number of Task Groups to be formed. The Meeting agreed that due to limited resources and to minimize travelling, WGs should be formed as and when required.

11. Philippines suggested modifying the TOR 1 by replacing "Monitor" with "Satisfy". Chair(CHC) commented that monitoring implied engagement with stakeholders. By way of example, Singapore carries out an annual marine services survey to measure Mariners' satisfaction which includes charting and aids to navigation. Thailand said that their office has adopted a proactive approach by carrying out local area to gather feedback on AtN and providing technical advice to the local authorities on IALA specifications. Japan said that "Satisfy" was a subjective word and difficult to measure. Hence they proposed to retain the original expression.

12. The Chair(CHC) said that one way to address Mariners' satisfaction was to refer to TOR 4 where the Committee would have to engage relevant stakeholders and gather their feedback on the use of our publications.

13. Japan viewed that the ENC TG was active and was a driving force for the EAHC and hence the TORs should be included in the CHC TORs.

14. From Malaysia's comment to amend TOR 4 to better reflect the stakeholders' feedback, the Chair(CHC) proposed to form a Drafting Group led by Thailand to review the TORs for the Committee for consideration and submission to the EAHC SC for approval. Representatives from each MS took part in the Drafting Group. The proposed amendment would be submitted to the EAHC SC for their comments.

15. The Drafting Group presented the revised TOR which appears as **Annex 4B**. The Drafting Group felt that the ENC TOR was important and proposed to include it as an Annex to the TOR. The Drafting Group also felt that this format would allow any additional TORs to be included in future, eg. on paper charting and hydrography.

16. The Meeting deliberated on the revised draft TOR and the following comments were received:

a). Malaysia commented that it should state specific projects that the CHC should monitor as stated earlier, WGs to be formed as and when required.

b). ROK highlighted that there was some overlap in TORs between CHC and RECC, in particular on the harmonisation of the ENCs.

c). Japan commented that the RECC should focus on the daily operation and maintenance of ENCs. Japan added that a holistic review of the TORS of all the EAHC Committees should be carried at the next SC meeting in Jan 2014.

d). Chair(CHC) commented that the RECC would look at regional ENCs and MS that want their ENC to be distributed through it. On the other hand, the CHC would look at both the standards that affect the regional ENCs as well as the MSs of EAHC. Malaysia added that there should be further details for hydrography and charting as the TORs focused on ENCs. For example, looking at the standards and specifications of hydrography. In reply, Chair(CHC) said that this was the first meeting on hydrography and the CHC would have to formulate any additional WGs to look at standards that concerns hydrography.

e). Singapore said that RECC looked at harmonisation of ENCs from EAHC MSs and even non-MS ENC which could include larger scale ENCs from individual MSs. The CHC could be seen as the "guiding agency" of EAHC ENC production and harmonisation.

f). China and Japan said that there should be greater clarity in the TORs of the RECC and CHC.

g). Chair(CHC) said that the RECC would focus on the distribution of ENCs. He suggested that to include a term to say that the CHC is to work closely with the RECC on ENC harmonisation. Chair added that it was important for the CHC to maintain the EA ENC Catalogue.

h). In reply to Malaysia on the origin of the CHC, the Chair(CHC) said that the CHC was formed to address the rapid technological development in charting and hydrography. The CHC was formed to close the technical gap amongst EAHC MSs. The EAHC should not just focus on ENCs as in the past, but also keep abreast in hydrography and charting developments.

17. From the comments received, the TOR was further revised and the amended version appears as **Annex 4C**. The Meeting agreed to the TOR and the proposed revised TOR would be sent to the SC for approval.

Action 1 : Chair(CHC) to submit the proposed revised CHC TOR to EAHC Steering for approval.

REPORT ON ENVIRONMENT MARINE INFORMATION OVERLAY (E-MIO) WORKING GROUP

Member Formation of Environment MIO WG

18. ROK commented that at the previous Coordinating Meeting, all MSs expressed interest in E-MIOs but ROK had only received 3 nominations for E-MIO membership. Hence he requested all MSs to submit their nomination at this meeting.

19. ROK presented their report on the E-MIO WG and their report appears as **Annex 5.** ROK shared that E-MIO website housed the E-MIO background information and allowed MSs to access information such as the WG's workplan, membership and discussion. This information is included in the EAHC website under the heading of S-100 Study Group.

20. In reply to Chair's comment on S-100, ROK shared they were present at the IALA organised S-100 Seminar held in Paris in June 2013. ROK added that more information would be presented at the Agenda on S-100.

21. Japan expressed great interest to participate in the WG and regretted that Japan did not receive the invitation letter and requested the letter be resubmitted.

22. Malaysia, Singapore and Philippines said they would register to participate in the WG.

Action 2 : MSs to complete and submit names of their E-MIO WG representatives nominations to ROK as soon as possible.

Workplan of the Environment MIO WG

23. ROK presented their report on the E-MIO WG Workplan and their report appears as **Annex 6**. ROK presented the 5 phased implementation procedure which was proposed at the 10th ENC TG Meeting. The phases included:

i). Analysing the current situation and requirements of the marine environmental information.
ii). Developing E-MIO product specifications
iii). Establishing the E-MIO test dataset
iv). Verifying the E-MIOs using ECDIS
v). Presenting the E-MIO Product Specifications and supporting the establishment of the E-MIO database for the EAHC region.

24. ROK added that the E-MIO Project Workplan was reviewed and the implementation procedure was revised to better reflect the details of the process and included a timeline. The revised workpan was divided into 3 stages :

i). Trial Business Stage (Jun 2013 – Jan 2014)
ii). Actual Business Stage (From Feb 2014) and
iii). S-100 Standards Application Stage

25. The Meeting noted Chair(CHC)'s comment that at present there was no commercially available software to create or view S-10x data. ROK commented that R&D was being carried out. Chair(CHC) highlighted that it was also important to consider ECDIS users to allow also them to access and display the E-MIO objects.

26. Malaysia asked if other RHCs have made any similar R&D projects. Chair said that NOAA had done some work in this area. ROK said they had developed a test project that they had developed a database on MIOs for ENCs for ECDIS. ROK added that they had organised seminars to study and investigate the S-100 and the standard is flexible to meet users' needs.

27. The Meeting commended ROK's initiative and said that as there was no commercially available ECDIS software to access and manage the S-10x database. Chair(CHC) shared that with the richly embedded information contained in the ENCs, users could in the future able to easily switch between usages eg. normal navigational display and E-MIOs.

28. Japan commended ROK for their proactive efforts in this project and commented that the proposed ROK timeline could be a bit ambitious.

29. Chair(CHC) acknowledged the good work of the WG and proposed ROK as leader of the WG, to submit a technical paper to next IH Conference in 2014. Philippines supported the proposal and informed MSs to also provide documents including papers to the office of the Chair (EAHC) and copied to the Permanent Secretary of the EAHC. .

Action 3 : E-MIO WG to consider submitting a paper on the E-MIOs development to the next Extra-Ordinary International Hydrographic Conference in 2014.

Consideration on the demonstration area for E-MIO

30. ROK presented their paper on the demonstration for E-MIO and the presentation appears as **Annex 7**. The focus of the demonstration was on oil spill and the development of an Oil Spill Response Sensitivity Map. He drew reference to the NOAA Environmental Sensitivity Index. He said that the key points were chart scale and source data for the objects, eg. types of seabed types and shoreline, sensitivity of these objects to an oil spill.

31. As ROK and Japan have Environment Sensitive Index (ESI) maps, ROK proposed that both MS could be candidates for the demonstration test area. Singapore also proposed that a possible area could be the Malacca and Singapore Straits, as some work had also been done there under the Marine Electronic Highway project.

32. Chair(CHC) enquired if the NOAA ESI was the international standard. ROK said that the NOAA and IMO/IPIECA/OGP ESI guidelines were the two standards used internationally.

33. The Philippines queried on the test area chart scale and ROK said that the scale was from 1: 25,000 to 100,000 .

34. Japan commented that the ESI was important but there other factors to consider, such as location of oil spill facilities, equipment and dispersants. They suggested for other MSs to be candidate areas for the demonstration trials.

35. Chair(CHC) commented that the work of the E-MIOs was related to hydrographic surveying as hydrographers would also acquire seabed type information through acquired multibeam acoustic returns.

36. From the discussion, the Chair(CHC) summarised the following:-

a) ROK requested MS to actively participate in the WG;
b) More MS to join in the test project; and
c) Work would be carried out through correspondence

37. Malaysia sought clarification on how the E-MIOs would be graded, eg. colour coding of E-MIO and how to present the information dynamically. ROK said that the standards for displaying the information would have to be developed. Chair(CHC) said that the oil spill E-MIOs would be separate software application where Mariners could access when he encountered an oil spill.

38. In view of the work involved, Japan suggested to reconsider the project timeline.

39. Singapore suggested that the ROK work on the E-MIO on oil spill be test bedded in a port area and the resources needed to build up the E-MIOS might be easier. This would allow other MSs to appreciate the resources needed to build up the Oil spill E-MIO Database.

40. The Chair(CHC) summarised that the CHC agreed in principle to the project provided that international standards be adopted.

41. The Meeting suggested an E-MIO demonstration be shown at the next CHC or SC meeting as this would allow MSs to better visualise the application.

Action 4 : E-MIO to present an E-MIO demonstration at the next CHC or SC Meeting.

REPORT ON IRCC5

42. Japan presented a report on the IRCC5 which appears as **Annex 8**. The major items discussed included :

a). Status of the Approval of Amendments to the convention on the IHO, so far 39 of 48 of the minimum number of approvals needed.

b). Status of the approval of the new MS to the IHO :
- i. Vietnam 34 of 52 of the minimum number of approvals needed.
- ii. Brunei 29 of 52 of the minimum number of approvals needed.

c). WEND WG :
- i. Membership is open to all IHO MS.
- ii. IRCC approved the Cartographic Boundary definition proposed by Malaysia.
- iii. Development of a Risk Assessment Tool for ENC overlaps. The risks include criteria on size of overlaps and traffic density. The UKHO was leading the assessment.

d). France proposed extension of the scope of the Resolution1/2500 on “IHO response to Disaster”.
- i. The IHB would issue a Circular Letter to MS to vote on the proposed amendment to the Resolution.
- ii. The proposal encouraged MS to exchange sea level data in near real time to provide data to tsunami warning systems.

e). Satellite Derived Bathymetry (SDB)
- i. SDB was a cost effective means of measuring waters depths over large areas.
- ii. SDB produced results quickly as compared to LIDAR and mulitbeam surveys. However the SDB water depth accuracy was poorer than LIDAR and mulitbeam surveys as SDB depended on sea bottom and water clarity.
- iii. France had produced about 100 charts derived from SDB. Feedback on the charts was that it was useful in areas where there no hydrographic surveys conducted.

f). Crowd sourcing

i. Due to the legal responsibility of the HO, HOs should to verify the use of any third party data.
ii. HOs should seek other sources of data inputs, especially in areas where there is little data available, eg. depth data acquired by commercial companies covering the polar regions.

43. From the above presentation, the following feedback were received:

Tsunami Warning System (IRCC Agenda 7)

44. Malaysia commented that there was a tsunami warning framework for Malaysia, Indonesia and Singapore.

45. Philippines said that 6 of their near real time tidal stations are linked to the IOC website, 3 of the 6 stations are linked to the University of Hawaii Sea Level Centre and to the Regional Integrated Multi-hazard Early Warning System (RIMES) in Thailand.

46. The Chair(CHC) said that each MS had its own tsunami warning stations and in some States, other national agencies were responsible for such systems. For example, in Singapore the National Environmental Agency was the responsible body for tsunami monitoring and the HO was providing the near-time tidal information. Chair(CHC) said that there was a need for the provision of regional real time tidal data, and there was need to identify who could provide relevant and timely information. The Chair(CHC) cited the example of the MEH project on the use of the tide gauge and AIS transmission to transmit tidal data in real time to both mariners and International Oceanographic Commission (IOC).

47. Thailand said that they had 6 near real time tidal stations which could be used for the regional warning system.

48. The Chair(CHC) noted that though each MS had its own tsunami warning system but encouraged EAHC MSs to provide real time tidal data in a coordinated manner to relevant agencies, eg. IOC. Chair(CHC) urged Japan to consider how to translate this into a more sustainable project and to report to the next CHC Meeting.

Action 5: Japan to consider how to translate this into a more sustainable project and to report to the next CHC Meeting.

WEND WG

49. The Chair(CHC) noted the changes said that Hong Kong (China) was the appointed EAHC representative at the WEND WG. However, in view of HK's inability to confirm various positions in the EAHC, the position for an EAHC

representative to WEND WG was needed at this important WG. The Chair(CHC) proposed for Japan to also represent the EAHC at the WEND WG meetings.

50. Japan commented that WEND was an important WG as its policies on membership has changed. Hence Japan proposed that the EAHC representative comprise the MSs which attend the WEND WG Meetings. Japan, ROK and Hong Kong (China) could be candidates to monitor and report on relevant issues relating to the EAHC.

51. The Meeting supported the proposal as they had been faithfully participated in previous WEND WG meetings. The Chair(CHC) said that it was important to monitor this WG's developments as it have impact to the CHC work.

ENC Overlap Risk Assessment Tool

52. Hong Kong (China) shared that for the production of the SCS and EA ENCs, they addressed ENC overlaps and conflicting data by assessing the overlaps and then liaised with the producer MSs to resolve the differences.

53. Japan shared that the UKHO also adopts a risk assessment methodology to pick up differences in content between paper charts and ENCs.

54. Chair(CHC) said that the RECC would be in the better position to assess the harmonisation of ENC overlaps.

55. Japan opined that the ENC harmonisation should be addressed at this committee level as not all MSs would distribute their national ENCs through the RECC. Chair recalled that MSs' participation and contribution to the RECC was voluntary.

56. China said that from the experience accumulated since 2005, Hong Kong as the SCS ENC Administrator as well as the EA ENC Coordinator has proven to be the appropriate body as an harmonisation coordinator to harmonise the ENCs. He said that more time was needed to decide whether or not to accept their nomination as the EA ENC Administrator.

57. From the comments received, the Chair(CHC) commented that CHC was the appropriate forum to address the ENC harmonisation. And as an interim, the Meeting agreed for the CHC to address the ENC harmonisation issues.

Satellite Derived Bathymetry (SDB)

58. Japan said there were about 100 French SDB derived charts. As some MSs expressed interest in SDB, Chair(CHC) tasked Japan to request France for a sample SDB chart for the CHC's review.

59. Japan commented that the UKHO used satellite colour imaging technology to determine the waters depths.

Action 6 : Japan to request a copy of the SDB derived charts from France.

SCS AND EAST ASIA ENC

60. Chair(CHC) emphasised the dire need to :

- release the 4 EA ENCs which were already produced and being updated, and
- to work on the new edition of the SCS ENCs as there were numerous updates.

61. Secondly Chair(CHC) was sadly disappointed of the news from China that Hong Kong's position of the EA ENC Administrator was in state of flux, and particularly the SCS ENC Administrator was due to be reviewed in Jan 2014. China expressed regret that Hong Kong is unable to accept the role of EA ENC Administrator and sought patience for more time from the MSs for the matter to be resolved.

62. After some deliberation, the Meeting agreed that in view of the delay to release the new EA cells in Jul 2013, there is a need to seek a solution to the vacated EA ENC Administrator's position. As most MSs present did not have mandate to take on this position, the Meeting agreed on the position of the EA ENC Administrator be taken over by the Chair(EAHC) on an interim basis until the EAHC SC meeting in Jan 2014, where a longer term solution could be found.

63. Malaysia enquired how long the EAHC must wait before the decision of the Administrator position was decided. Hong Kong (China) said there was no instruction from the Hong Kong Marine Department senior management, i.e. the Director of Marine, to say anything on this. No further information could be provided.

64. From the discussion, the Chair(EAHC) said that his office would be able take on the interim role of EA ENC Administrator and EA Coordinator until a permanent body could be appointed.

Proposed Sales Of SCS ENC And Appointment Of Revenue Manager

65. The appointment of the SCS ENC Revenue Manager was delayed because Hong Kong was still uncertain on all the appointments. The Chair(CHC) shared that the sales of the SCS ENCs as it was originally proposed as a funding source for EAHC Capacity Building. After some deliberation, the Meeting decided to postpone the sale of the SCS ENCs until a Revenue Manager and a permanent EA ENC Administrator was appointed.

Launch of EA ENC Cells – Proposed release on 1st July 2013

66. The Philippines opined that the geographical names used in the SCS area should be based on commonly used names. For example, naming could be referenced to UKHO charts. The Philippines proposed that the launch of the EA ENC cells be postponed to October 2013 to complete encoding of the affected geographical names. The Meeting agreed to the naming convention proposed by the Philippines.

Appointment of Administrator of EA ENC

67. As discussed earlier, the appointment of the EA ENC Administrator would be held by Chair(EAHC) until the next EAHC SC Meeting in Jan 2014 to discuss the way forward.

68. Hong Kong would facilitate the transfer of the EA ENC data base to Philippines.

Report by Member States on Harmonisation of ENCs, including bilateral arrangements

Indonesia

69. Indonesia shared on their ENC harmonisation procedure and their presentation appears as **Annex 9A**.

Japan

70. No new updates. The Meeting noted that discussion on overlapping areas with ROK was on going.

Thailand

71. Thailand shared on their ENC harmonisation procedure and their presentation appears as **Annex 9B**. They had overlapping Band 2 cells with Malaysia and Indonesia. They will take follow up action on the use of the proposed zig-zag lines after IHO's approval on the definition of the Cartographic Boundary.

Malaysia

72. Malaysia shared on their ENC harmonisation procedure and their presentation appears as **Annex 9C**. They have Band 2 cells which overlap with Thailand and Indonesia.

73. Malaysia shared that the way forward for their ENC Harmonisation was to adopt the Cartographic Boundary once the definition has been approved by the IHO.

Nevertheless, Malaysia urged EAHC MS to discuss and adopt the use of zig-zag lines as a possible cartographic boundary.

74. Japan commented that from the recent IRCC meeting, the IRCC supported the definition of cartographic boundary. The IHO would issue a Circular Letter for IHO Member States to vote on the adoption of the definition.

75. The Chair(CHC) suggested placing a copy of the Malaysia paper and all other papers be submitted to the EAHC website for MSs reference. This type of professional paper would serve as a very useful resource for future reference.

Philippines

76. No new updates.

Singapore

77. No new updates.

ROK

78. No new updates.

China

79. China said that resolving the overlapping issue was not easy. China added that one way to overcome the issue of ENC overlaps was to use regular gridded ENCs.

80. Chair(CHC) queried how a regular grid cells could address boundary limits with neighbouring States. ROK shared that for their boundary with Japan, a middle line was used to divide the overlapping cell and this could only be achieved through bilateral discussions.

S-100 STUDY GROUP

Overview of the Discussion Website for S-100 Study Group

81. ROK presented the establishment of the Discussion Website for S-100 Study Group and the presentation appears as **Annex 10A**. The meeting noted that not all EAHC MS were able to attend IHO technical meetings, especially on the S-100 development. The website would allow MSs to be engaged in the development and to develop a Road Map on the transition from S-57 to S-100.

Introduction of S-100 Seminar funded by IHO CBSC

82. ROKs presentation is attached as **Annex 10B**. The details of the Seminar would be held:

- KHOA, Busan
- 9 – 13 Sep 2013
- 1 participant from each MS would be invited.

The lecturers include:

- Dr Lee Alexander (University of New Hampshire, USA)
- Mr Jens Schroder-Furstenberg (BSH, Germany)
- Mr Eivind Mong (Jeppesen Marine, Canada)
- ROK (3 – 4 lecturers)

83. ROK shared that a survey was carried out. To date only 7 respondents from 2 MSs have provided feedback on the proposed Seminar course syllabus. ROK urged more MSs to complete and reply the Survey Questionnaire by the end of June 2013.

84. Chair(CHC) referred to question 3 of the questionnaire and the feedback showed that a management level officer should also attend the Seminar. The Meeting noted that IHO funding catered for one officer from each MS to attend. However additional officers from MS may attend the Seminar at their own cost. There would not be any seminar fee.

85. MSs were urged to complete their nomination to ROK as soon as possible so as to allow KHOA to make logistics arrangements.

Action 7 : MSs to MSs urged to complete and submit their feedback on the S-100 Seminar syllabus to ROK as soon as possible.

Major Issues regarding S-100/S101 discussed at TSMAD26 and DIPWG5

86. ROK presented the reports on TSAMD and DIPWG meetings and the presentation appears as **Annex 10C**. The major issues were:

a) Revision on S-52 Presentation Library
The Library was endorsed.

b) S-58 5.0.0 Draft Document
DIPWG S-101 Portrayal Rules Sub WG to be created.

c) S-101 Risk Register Update
The Risk Register was updated so as to consider the S-101 standard.

d) Master Plan for the development and Implementation of S-100
A Roadmap for S-100 issues and to identify the impact of the S-100 on HOs and the stakeholder community.

87. The ROK also presented :

a). A proposed Guideline for establishing feature and symbols standard management system for HOs for thematic maps, customized ENCs, eg. E-MIOs, AMLs, Inland and Port ENCs. The Guideline would ensure consistent approach to the encoding and display of such thematic maps and customised ENCs.

b). A plan for the East Asia Region MIO.

88. In reply to Philippines' query, the ROK has set up a project team of 10 staff to carry out the above study.

89. Singapore highly commended the work and the foresight of the ROK especially on the development of the guidelines as HOs will see more customised ENCs being produced and the rapid development of electronic charts produced by commercial companies, eg. for use with ECS and even on mobile phones.

90. Chair (CHC) enquired if there was a convertor for S-57 to S-100. In reply, the ROK said that a current version was available and a new version of the Convertor would be available next year. Japan agreed and said that the S-57 to S-101 Convertor was important for the transition and requested ROK to share on the Convertor, not only executive file but also source file. They suggested that the WG could be good platform to share the information.

91. Based on the S-101 Roadmap, Chair(CHC) requested ROK to prepare a Roadmap for the EAHC to be proactively involved in the production of S-100 dataset for the trials. This would send a strong signal to the OEM that official S-100 data is available. He added that we should learn from our experience with S57, where OEM were reluctant to embark on ECDIS until S57 was produced and the standards stabilized. ROK was requested to present the roadmap at the next CHC meeting.

92. Malaysia enquired of impact of S-100 database on the production of current ENC compilation, eg. currently ENCs are compiled from paper charts. Secondly, whether the present ECDIS could display S-100 type data. In reply, the Chair(CHC) said that the present ECDIS would not be able to present the S-100. However, for future ECDIS, they would be able to present S-100 and also S-57, at least during the initial phase in the introduction of S-100.

93. ROK said that S-100 would have minimal impact in terms of database management. They added that there was a study by France and the document is available from TSMAD. Secondly, when the Product Standard is finalized in 2018, ECDIS OEM manufacturers would have to prepare for the change and to allow ECDIS users to access and display the data.

94. Chair(CHC) said that 2014 and 2015 would be important period and the EAHC should be prepared for the change. He added that from past experience, the ECDIS should be backward compatible to also read S-57.

95. The Meeting agreed to ROK's request for the SCS and EA ENC datasets to be used for S-101 trial tests.

REPORT ON PAPER CHARTS

Member States To Report On The Status Of Paper Charting And Updating

Indonesia

96. Indonesia reported that they publish 540 paper charts and about 87% of the charts are on WGS84 datum. The presentation appears as **Annex 11A**. They shared that some of the hydrographic data were collected from third parties and the surveys were carried by both single and multibeam. In reply to Malaysia, they said that quality control was carried by a DISHIDROS officer on board the survey vessel, data post processing and even in encoding the CATZOC as a lower category if needed. The Meeting noted that Indonesia covered 9 UTM zones.

Japan

97. Arising from the tsunami experience, Japan presented on the usage of new attributes on their charts. The presentation appears as **Annex 11B**. The attributes include:-

a). "Before or after" on their CATZOCs.
b). "No go" lines due to unsurveyed areas and suspected underwater debris.

98. These symbologies have been submitted to IHO WG on the use and adoption of these symbologies on nautical charts.

Thailand

99. Thailand presented their report and their presentation appears as **Annex 11C**.

Malaysia

100. Malaysia presented their report and their presentation appears as **Annex 11D**.

- The chart numbering was divided into 4 zones based on latitude.
- For 2013, 16 charts to be updated.

Philippines

101. The Philippines presented their chart schemes and their presentation appears as **Annex 11E**. They shared that chart 4726A of Benham Rise had been deposited to the United Nations Commission on the Limits of Continental Shelf. The chart showed the outer limits of the Extended Continental Shelf (ECS) in Benham Rise

and the limits were recognized as binding with effect from 17 July 2012. The ECS area covered about 135,500 sq Km and multibeam echo sounder data were used to support the connection of Benham Rise to the Luzon mainland area.

Singapore

102. Singapore presented their chart schemes and the presentation as **Annex 11F**.

ROK

103. ROK presented their chart schemes and the presentation as **Annex 11G**. There were 394 paper charts produced. The meeting noted that the chart number was revised to reflect the chart scale.

104. In reply to Japan on the chart numbering, ROK acknowledged that some mariners wanted to retain the chart numbering but ROK said the new numbering was necessary so that new charts could be included.

China

105. China shared that MSA and NGD together produced ENC of Band 1 to 6. Hong Kong was in charge of charts within Hong Kong waters. The Chinese ENCs coverage was the same as paper charts. There were about 500 cells in Band 3- 6 and a total of 534 paper charts.

Responsibility of Charting

106. Japan presented a case study of a vessel grounding. They added that legal proceedings were currently ongoing. Lesson learnt from this case was for MSs to be aware of their responsibility of charting. :

Proposed Definition of Cartographic Boundary

107. Malaysia presented their paper as shown in **Annex 12**. The definition was supported by the WEND WG.

108. Thailand said that the term “margin” instead of “boundary” could be used to differentiate cartographic and political boundaries. Malaysia said that the definition was submitted to IRCC and a Circular Letter would be sent for MSs comments. We, therefore, we should await the comments of MSs and the IHO.

109. Indonesia queried how the zig-zag limits were defined. Malaysia said that the zig zag line is determined from an agreement between relevant States and that a zig-zag lines need not always be used and even a median line could be considered.

POSSIBLE COLLABORATIVE PROJECT WITHIN EAHC :

- **PROPOSED CONCEPT STUDY OF TIDES AND SEA LEVEL IN THE SOUTH CHINA SEA**

110. Singapore presented a background of the origin of the proposed study that was presented at the 7th Coordinating Meeting in Busan. The presentation appears as **Annex 13**.

111. The Philippines supported the proposal and said the use of a common vertical datum, ie. LAT would be very beneficial.

112. Malaysia said that for the model would be useful but a fine gridded mathematical model was needed. Malaysia shared that it had worked with a local university to look at hydrodynamic regime in the east coast of Malaysia. He further added that other applications the paper looked at. Singapore added that the paper was based on satellite based measurements to input into the model.

113. Chair(CHC) shared that navigational safety is always a priority for the EAHC but we also needed to better measure and study the sea levels in our efforts to contribution to understand climate change.

114. Japan said that a Professor from a Japanese university, who was a geodetic expert, who could contribute the proposed study.

115. From the presentation, Chair(CHC) drew reference to the following for the CHC to consider :

- Resources needed
- Project Funding
- Formation of a Working Group
- Engagement of a Professional Consultant

116. Malaysia commented that funding was needed to secure the project.

117. ROK said that they could consult the Korean professor who authored the paper and enquire whether he could provide more information on the proposed study.

118. The Meeting agreed to form a Working Group to be led by Singapore. The group would work through correspondence. The Chair(CHC) urged MSs to provide tidal data to the Professor.

119. China commented they supported the WG and commented that the tidal data was housed by various departments.

120. The WG contact points are :

- Singapore : Mr Lee Weng Choy, MPA
- China : Mr Xu Binsheng, China MSA
- Philippines : Cdr Rosalino C Delos Reyes, NAMRIA

- ROK : To be provided.

REPORT BY MEMBER STATES ON THE STATUS OF HYDROGRAPHY

Equipment Used, Survey Standards Adopted and Future Plans

China

121. China said that they used MBES for survey and a National Standard was used. The standard was similar to IHO S-44.

122. Hong Kong (China) reported that they have 3 survey vessels equipped with single and multibeam echosounders. The S-44 standard was used.

123. In reply to the Chair(CHC), China said that the survey frequency depended on the types of ports, fairways and channels. The frequency depended on the geographical area, eg. 3 monthly resurvey for the Yangtze River. Other areas may have a 3 – 5 year survey intervals. The criteria for the resurvey frequency include :

- Directives from the Ministry of Communication
- Vessel traffic density – from VTS and AIS historical tracks
- The area with great depth changes, ie. Chang Jiang River

ROK

124. The ROK presented their status of the hydrography and the presentation appears as **Annex 14A**.

125. In reply to the Chair(CHC) query, ROK shared that the airborne laser bathymetry was outsourced to a commercial company.

126. In response to Indonesia's query on how the airborne survey correlated the state of tide during the coastline survey, ROK said that a geodetic model was considered and the timing of the airborne survey was important.

Singapore

127. Singapore presented their status of the hydrography and the presentation appears as **Annex 14B**.

Philippines

128. The Philippines presented their status of the hydrography and the presentation appears as **Annex 14C**.

Indonesia

129. Indonesia presented their status of the hydrography and the presentation appears as **Annex 14D**. The survey area covered an area of 5.9 million sq Km, which includes 3 Archipelagic Sea Lanes covering 9 UTM zones.

130. In reply to Japan on disaster survey, Indonesia said the survey covered not only covered the port area but also the approaches so as to facilitate vessel access.

Malaysia

131. Malaysia presented their status of the hydrography and the presentation appears as **Annex 14E**. They would engage a Leasing Ship plan where survey would be outsourced and using multibeam survey equipment. The plan would be implemented from 2014 to 2018.

Thailand

132. Thailand presented their status of the hydrography and the presentation appears as **Annex 14F.**

133. The Meeting noted that the hydrographic surveys in Thailand are carried out by agencies from the Hydrographic Department Royal Thai Navy, Port Authorities of Thailand and Marine Departments.

Japan

134. Japan presented their status of the hydrography and the presentation appears as **Annex 14G.** The Autonomous Underwater Vehicle (AUV) would be used to survey deep water seabed features, eg. underwater volcanoes. The Meeting noted that the survey data obtained from AUVs may not meet S-44 standards.

135. In response to Malaysia's query on any shortcomings of S-44, Japan said that S-44 should be updated as new survey technologies are used, eg. LIDAR and AUV. Malaysia made reference to the shortcomings of the S-44 and commented that the CHC TOR could be amplified to address these shortcomings through the use of an Annex.

136. China queried on how to quality control the survey data from Port Authorities. Japan said that it was mandatory for Port Authorities to submit the data JHOD. JHOD conducted quality checks on the submitted data. Surveys would be redone if the data did not meet standards.

137. The Chair(CHC) summarised the action items for the relevant MSs to study and make their present at the next meeting:

a). Equipment

i). Dual head multibeam transducer - Japan to share survey accuracy, maintenance cost and survey productivity.
ii). AUV – ROK to examine and share development of the AUVs.

b). Survey Standards
i). Use of S-44 standards – Malaysia to examine the survey standards used by MSs, ie. comparison of national and S-44 standards.
ii). Third party survey data – Indonesia to examine how to monitor and improve survey quality, eg. provision of national survey guidelines, accreditation of commercial surveyors.
iii) Interval between Survey Matrix – Singapore to present survey interval criteria for surveying planning.

Action 8 :

a). Japan – To examine and present on the use of dual head multibeam transducers.

b). ROK - To explore and to share any development of the AUVs, if any.

c). Malaysia – To examine, compare and present on the use of national and IHO survey specifications.

d). Indonesia - To examine and present how to monitor and improve survey quality from 3rd party sources.

e). Singapore to present survey interval criteria for surveying planning.

ANY OTHER MATTERS

Submission of Papers for EAHC Meetings

138. Japan as EAHC Secretariat requested for MSs to send any papers for upcoming meeting to Japan so that the papers can be uploaded to the EAHC Homepage. This would allow MSs to have ample to evaluate the papers and to produce a fruitful discussion. Japan proposed to provide guidelines on the submission of the papers in preparation for meetings.

NEXT MEETING DATE AND VENUE

139. The Meeting supported the proposal to tentatively hold the 2nd CHC Meeting (2 days) back to back with the next Steering Committee Meeting in early 2014 in Malaysia.

ADOPTION OF THE MINUTES OF MEETING

140. The Meeting adopted the Minutes of Meeting.

CLOSE OF MEETING

141. The Chair(CHC) and all participants expressed their deep appreciation to NAMRIA and the Secretariat for their excellent arrangements and the warm hospitality extended to all EAHC participants.

142. The Chair(CHC) closed the Meeting and thanked all EAHC delegates for their contribution to this successful meeting.