



NATIONAL REPORT
NATIONAL HYDROGRAPHIC OFFICE
INDIA



**19TH MEETING OF THE NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION
(NIOHC-19)
Muscat, Oman, 25 - 28 March 2019**

NATIONAL REPORT TO REGIONAL HYDROGRAPHIC COMMISSION REPUBLIC OF INDIA - MAR 2019

1. Hydrographic Office /Service

1.1 The Indian Naval Hydrographic Department (INHD), with the National Hydrographic Office located at Dehradun, is the sole national authority mandated with the responsibility of publication of nautical charts and other publications for navigation at sea. As part of its international responsibilities, the department provides coverage for Maritime Safety Information (MSI) in the region NAVAREA VIII comprising of Indian Ocean, Arabian Sea and Bay of Bengal. The department has a fleet of seven modern ocean-going survey ships and one twin hulled catamaran survey vessel, fully equipped with latest hydrographic and oceanographic sensors. IHO Publication P-5 is updated and no changes in Annex A.

1.2 The National Institute of Hydrography (NIH), Goa, an integral part of the INHD, has the national responsibility for conduct of hydrographic training and functions under the overall professional supervision of the Chief Hydrographer to the Govt of India. The Institute conducts courses for hydrographic officers, technicians, civilians as well as personnel from the Indian Ocean littoral states. The Long 'H' (IHO recognised Cat 'A' course) and Basic 'H' (IHO recognised Cat 'B' course) courses are conducted by the Institute. The courses conducted along with duration are as follows:-

<u>Sl</u>	<u>Course</u>	<u>Duration</u>
(a)	Long H Course Cat 'A' course recognised by IHO and on completion eligible students are also awarded a MSc degree from Goa University.	43 Weeks
(b)	Basic H Course Cat 'B' course recognised by IHO	29 Weeks
(c)	PO 'Q' SR An advanced level sailor course. On successful completion of PO 'Q' Course a Diploma in Hydrography is awarded from Cochin University of Science and Technology.	20 Weeks
(d)	LS SR 'Q' Refresher A mid-level sailor refresher course.	11 Weeks
(e)	Basic 'Q' An entry level sailor qualifying course.	16 Weeks

2. Surveys.

2.1 INHD has undertaken Hydrographic Surveys both at National and International levels. In the national front, various hydrographic surveys are being undertaken towards the updation of existing charts of the Indian coast and Island territories. An average of 45 navigation and defence surveys are conducted annually. In the year gone by, five navigation surveys were undertaken in the countries of the Indian Ocean Region. In addition, the Department is engaged in undertaking deep sea surveys using Multibeam in Arabian Sea and Bay of Bengal to update and replace the 'Miscellaneous lines of soundings' with CATZOC A1 data.

2.2 **New Technologies.** The INHD is at the forefront of utilization of modern and high end surveying equipment/ technologies. Two AUVs have been commissioned and is being deployed successfully onboard Catamaran hull survey vessel over the last three years. Technology absorption for data collection and processing has been done with skills developed internally by the Department.

2.3 **Processing System/ Software.** The department is employing the latest software for data acquisition, quality control and chart production.

2.4 **Problems Encountered.** Nil

3. **New Charts & Updates**

3.1 **ENCs.** The Hydrographic Production database (HPD) is being seamlessly populated from usage band 6 upwards. NHO has reviewed the CATZOC classification and categorized all surveys appropriately. So far, 322 ENCs and equivalent paper charts have been published through HPD with another 50 under various stages of production. The breakdown of the ENCs released with their respective usage band is tabulated below:-

<u>Category</u>	<u>Usage Band</u>	<u>No of ENCs</u>
Overview	1	6
General	2	29
Coastal	3	37
Approach	4	49
Harbour	5	122
Berthing	6	79
Total		322

3.2 **Foreign Water Charts and ENCs.** INHD has so far, published 36 ENCs and equivalent paper charts of foreign waters.

3.3 **INT Charts.** India has the responsibility to produce 80 INT charts, of which all 80 INT charts and ENCs have been produced.

4. **New Publications and Updates**

4.1 Summary of charts/ publications printed since last report as follows: -

SI	Description	No
(a)	New Charts	27
(b)	New Editions	20
(c)	Reprints	118
(d)	Publications	02
(e)	New ENC's	39
(f)	New Edition ENC's	42

4.2 **Paper Chart Distribution.** The paper charts and associated publications are made available through chart agents. The latest list of chart agents is available on the NHO website. These paper charts are updated by fortnightly Notice to Mariners, which are available on the NHO website www.hydrobharat.nic.in. NHO has incorporated a digital chart catalogue in the web page to enable the mariners to easily identify the required charts.

4.3 **ENC Distribution.** Indian ENCs are distributed worldwide through UKHO, M/s Jeppesen Marine and Norwegian Hydrographic Service. INHD also provides ENCs in S-63 format to the Indian Navy and other national agencies.

4.4 **Problems Encountered.** NIL

5. **Marine Safety Information**

5.1. **Existing Infrastructure for Marine Safety Information Transmission** All Radio Navigational Warnings for NAVAREA-VIII are issued by the Chief Hydrographer to the Government of India. The updated warnings including Notices to Mariners are available on the on the INHD website www.hydrobharat.gov.in. A total number of 896 NAVAREA messages were promulgated in the year of 2018. The country wise list of NAVAREA requests received from the coastal states in the region is as follows:-

<u>Country</u>	<u>Number of Messages</u>	<u>Topics/ Subject of Messages</u>
Bangladesh	28	Firing Exercise, Aid to Navigation
Kenya	02	Aid to Navigation
Maldives	Nil	Aid to Navigation
Mauritius	03	Aid to Navigation
Myanmar	31	Firing Exercise, Survey, Aid to Navigation
Seychelles	02	Aid to Navigation
Reunion Island	11	Firing Exercise, Aid to Navigation
Somalia	Nil	--
Sri Lanka	59	Firing Exercise, Aid to Navigation
Tanzania	01	Aid to Navigation

5.2. **Problems Encountered.**

- (a) Late receipt of NAVAREA warnings request. Many requests are received after the commencement of the operation.
- (b) Follow up reports for NAVAREA cancellation not received.

5.3. **Existing NAVTEX Coverage.** The status of NAVTEX existing is as follows:-

Sl. No.	Station with B1 Character	Status
(a)	Veraval (India) (H)	Operational
(b)	Vengrula (India) (J)	Operational
(c)	Muttam Point (India) (L)	Operational
(d)	Porto Novo (India) (O)	Operational
(e)	Vakalpudi (India) (Q)	Operational
(f)	Balasure (India) (S)	Operational
(g)	Keating Point (India) (V)	Operational
(h)	Cassis (Mauritius) (C)	Operational
(i)	Mahe (Seychelles) (T)	Operational
	Mahe (Seychelles) (M)	

5.4. **Training.** Phase I Skill course under the IHO CB plan was conducted at National Institute of Hydrography, Goa from 28 Jan 19 to 01 Feb 19. Participants from Iran, Mauritius, Myanmar, Oman, Seychelles, Sri Lanka, and Somalia participated in the course. Two trainers from UKHO and one from INHD conducted the classes.



5.5 It is proposed to have a MSI training capsule course this year for NIOHC member states through IHO CB plan.

6. **C-55.** The updated C-55 table is placed at Annexure to the National Report.

7. **Capacity Building**

7.1 India has been providing hydrographic assistance to maritime nations in NIOHC region. This includes joint hydrographic surveys with onboard training, structured training at NIH and specialized courses for Multibeam and ENC production at NHO. In 2018, India has conducted six weeks ENC Production Workshop for Myanmar, Sri Lanka, and Mauritius. MSI Phase I Skill course under the IHO CB plan was conducted at National

Institute of Hydrography, Goa for Participants from Iran, Mauritius, Myanmar, Oman, Seychelles, Sri Lanka, and Somalia from 28 Jan 19 to 01 Feb 19.

7.2 Foreign Cooperation. INHD has carried out hydrographic surveys in Maldives, Mauritius, Kenya, Tanzania, Myanmar, Sri Lanka and Seychelles over the last few years as per the request received from respective Governments. Avenues for cooperation are also being explored with other members of the region. Hydrographic cooperation with the following countries has been progressed in the recent past:-

7.2.1 India -Tanzania. In pursuance of existing MoU on co-operation in the field of Hydrography between the Governments of Republic India and the United Republic of Tanzania in 2015, 07 navigational charts have been published and one chart of Pemba Bay is under compilation.

7.2.2 India- Mauritius. INHD has completed 28 hydrographic surveys in the last eleven years and 08 navigational charts have been published. A Hydrographic Survey Unit is being maintained in Mauritius, since Oct 2013, for undertaking local hydrographic survey and to assist in setting up Hydrographic Infrastructure in Mauritius. The unit has actively contributed in developing the capability of host nation in terms of surveying & nautical charting and is providing active support to various departments and ministries. A survey Ship was deployed to undertake survey off Mathurin Harbour and Rodriguez Island from 02 Dec 18 to 09 Feb 19. A team of 02 officers from Mauritius were trained on Cartography / ENC production from 29 Oct 18 to 08 Dec 18 at National Hydrographic Office (NHO) Dehradun.



7.2.3 India – Seychelles. INHD has conducted hydrographic surveys since 2013 and published 07 navigational charts in the Seychelles waters.

7.2.4 India-Myanmar. A survey Ship is deployed to Myanmar from 30 Jan 19 to 27 May 19 to undertake the joint hydrographic survey. The third workshop on Cartography / ENC production was conducted for 04 Myanmar Navy officers from 10 Sep 18 to 20 Oct 18 at National Hydrographic Office (NHO) Dehradun. 02 Charts & equivalent ENC's have been produced for Myanmar.



7.2.5 **India – Sri Lanka.** A survey Ship was deployed to Sri Lanka from 18 Dec 18 to 07 Feb 19 to undertake hydrographic survey off Galle. A team of 02 officers from Sri Lanka were trained on Cartography / ENC production from 29 Oct 18 to 08 Dec 18 at National Hydrographic Office (NHO) Dehradun.



7.2.6 **Antarctica Survey Programme/Antarctica Expedition.** India is a member of the Hydrographic Committee on Antarctica (HCA), an organisation setup under the aegis of the International Hydrographic Organisation (IHO) based at Monaco and is co-producer of International Chart 9050/9051 of Antarctic waters along with Russia. As long term scientific objective a hydrographic scientific team comprising of one officer and one sailor participates in the summer expedition every year under the aegis of the National Centre for Antarctica and Ocean Research (NCAOR) for carrying out surveys at Antarctica.

7.3 The Long Hydrography CAT 'A' and Basic Hydrography CAT 'B' programmes conducted at National Institute of Hydrography, Goa are certified by IHO/FIG/ICA Board on Standards of Competence. The Institute has adopted S-5A and S-5B versions of the syllabus for CAT 'A' and CAT 'B' courses as promulgated by IHO and implemented the same for the ongoing programmes. The rectification for both CAT 'A' and CAT 'B' course is scheduled in Apr 19. The INHD has till date trained 707 foreign nationals of IOR in various programmes. The details of International trainees trained by the INHD in 2018-19 is tabulated below:-

Sl	Course	Foreign Trainees	Countries
(a)	Long 'H' (CAT 'A')	09	02 each from Bangladesh and Sri Lanka. 01 each from Australia, Indonesia, Philippines, Maldives and Vietnam.
(b)	Basic 'H' (CAT 'B')	07	02 - Sri Lanka and 01 each from Bangladesh, Fiji, Maldives, Turkmenistan and Vietnam
(c)	PO 'Q'	03	01 each from Bangladesh, Myanmar and Sri Lanka.
(d)	Leading 'Q'	06	05 - Sri Lanka and 01 from Myanmar
(e)	Basic 'Q'	10	03 - Sri Lanka, 02 each from Cameroon and Myanmar and 01 each from Mauritius, Tonga and Papua New Guinea (PNG)
(f)	ENC Production Workshop	07	04- Myanmar, 02 each from Mauritius and Sri Lanka,

7.4 03 International trainees from Sri Lanka are presently undergoing Leading 'Q' course at National Institute of Hydrography, Goa, India w.e.f. 28 Jan 19

8. Oceanographic Activities The Indian Naval Survey Ships are equipped with oceanographic equipments and are capable of collecting geophysical and oceanographic data. The data is collected while undertaking hydrographic surveys. Apart from this the department provides assistance to various governmental organizations for collection of the oceanographic data.

9. Miscellaneous

9.1 **World Hydrographic Day Celebrations.** The World Hydrographic Day was celebrated in India at NHO Dehradun, National Institute of Hydrography (NIH), Goa and onboard Ships at Visakhapatnam, Kochi, Port Blair and Karwar. Keeping in view the theme "Bathymetry- the foundation for Sustainable Seas, Oceans and Waterways" Workshops, lectures, demonstrations and visits by undergraduate and senior school students were organised.

9.2 **Disaster Relief.** INHD has participated in relief operation during the flood at Kochi in the month of August 2018.

10. Conclusion

10.1. INHD is committed towards capacity building, imparting training and empowering the hydrographic offices in the Indian Ocean Region.

8IHO SPECIAL PUBLICATION C-55
“STATUS OF HYDROGRAPHIC SURVEYING AND NAUTICAL CHARTING WORLD-WIDE”
QUESTIONNAIRE

C-55 Summary for:				Comments on Charts:
Country:	INDIA			
Country Iso Code:	IN			
Country SubCode:				
INT Region:	J			
Country/Depend:				
Last updated:	20/02/2019			
Provided by:	INDIA			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	
INT	100	100	100	Comments on Surveys:
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			90	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	100	0	0	
> 200m	95	5	0	

MSI	Y/N	Comments on MSI:
Local warning	YES	via NAVAREA VIII (INHD, INDIA is the Coordinator for NAVAREA VIII). Changes to ports and harbours passed to charting authority.
Coastal warning	YES	
Nav warning	YES	
Port warning	YES	
GMDSS	Y/N	Comments on GMDSS:
Master Plan	YES	
Area A1	YES	
Area A2	YES	
Area A3	YES	
NAVTEX	YES	
SafetyNet	YES	