



**NATIONAL REPORT NATIONAL  
HYDROGRAPHIC OFFICE  
INDIA**

**NATIONAL REPORT TO REGIONAL HYDROGRAPHIC COMMISSION**  
**REPUBLIC OF INDIA- JUN 2017**

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.

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 littorals. 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 alongwith duration are as follows:-

<b><u>Sl No</u></b>	<b><u>Course</u></b>	<b><u>Duration</u></b>
(a)	<b><u>Long H Course</u></b> Cat 'A' course recognised by IHO and on completion eligible students are also awarded a MSc degree from Goa University.	49 Weeks
(b)	<b><u>Basic H Course</u></b> Cat 'B' course recognised by IHO	29 Weeks
(c)	<b><u>PO 'Q' SR</u></b> 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)	<b><u>Basic 'Q'</u></b> An entry level sailor qualifying course.	16 Weeks
(e)	<b><u>LS SR 'Q' Refresher</u></b> A mid-level sailor refresher course.	11 Weeks

2. **Surveys.** Indian Naval Hydrographic Department (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, four navigation surveys were undertaken in the countries of the IOR. In addition, the Department is engaged in undertaking deep sea surveys using Multibeam in Arabian Sea and Bay of Bengal to update the 'Miscellaneous lines of soundings' with CATZOC A1 data.

2.1 **New Technologies.** The Indian Naval Hydrographic Department (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 survey vessel over the last three years. Technology absorption for data collection and processing has been done with skills developed internally by the Department.

2.2 **Processing System/ Software.** The department is employing the latest software for data acquisition, quality control and chart production. Over the last four years, the CARIS HPD has produced 216 paper charts and 282 equivalent ENC's.

2.3 **Problems Encountered.** Nil

### 3. **New Charts & Updates**

3.1 **ENCs.** The HPD database is being seamlessly populated from usage band 6 upwards. NHO has reviewed the CATZOC classification and categorised all surveys appropriately. Currently the thrust is to populate the database in usage bands 4 and 3 with most of the ENCs in 5 and 6 having been completed. So far, 282 ENCs and equivalent paper charts have been published through HPD with another 40 under various stages of production. As on 31 May 2017 India has produced 312 ENC Cells which includes 30 ENCs of other countries. The breakdown of the ENCs released with their respective usage band is tabulated below:-

<b><u>Category</u></b>	<b><u>Usage Band</u></b>	<b><u>No of ENCs</u></b>
Overview	1	6
General	2	29
Coastal	3	37
Approach	4	45
Harbour	5	118
Berthing	6	77
<b>Total</b>		<b>312</b>

3.2 **Foreign Water Charts and ENCs.** INHD has so far, published 30 ENCs and equivalent paper charts of foreign waters. New charts of Mauritius, Kenya, Tanzania would be added based on latest IN surveys.

3.3 **INT Charts.** India has the responsibility to produce 80 INT charts, of which 78 INT charts with associated ENCs have been produced and the balance are planned to be produced in the by early Aug 2017.

### 4. **New publications and updates**

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

<b><u>Sl</u></b>	<b><u>Description</u></b>	<b><u>No</u></b>
(a)	New Charts	39
(b)	New Editions	11
(c)	Reprints	80
(d)	Publications	03

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](http://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.** All Radio Navigational Warnings (NAV WARNINGS) for NAVAREA-VIII are issued by the Chief Hydrographer to the Government of India. The Naval Chart Depot at Mumbai coordinates the broadcasting of all Navigational Warnings. Reports/ Information may be directly sent to Naval Chart Depot with a copy marked to National Hydrographic Office, Dehradun. Apart from this, information received directly at the office is also transmitted. The Navigational Warnings are transmitted from Land Earth Station (LES) , Pune, for reception by INMARSAT 'C' terminals. The schedule of transmission of Navigational and Met warnings through Safety Net is as follows:-

(a) **Navigational Warnings.** LES Pune - at 1000 and 2200 UTC

(b) **Meteorological Warnings.**

(i) LES Pune - 0900 & 1800 UTC for area N of Equator.

(ii) Aussaguel - 0130, 1330 UTC and at 0000, 0600, 1200, 1800 UTC in case of cyclone warnings for area S of Equator.

(iii) Australia - Tropical cyclone warnings, if any are prepared and issued by Australia as unscheduled broadcasts for area South of Equator and East of 90° via Burum.

(c) **Contingency Plan**

(i) In case of failure of LES Pune, NAVAREA VIII warnings is transmitted through LES 321 Aussaguel, (Operator Vizada).

(ii) In case of failure of NCD (Mumbai), the compilation and monitoring is taken over by National Hydrographic Office, Dehradun.

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

- |   |   |                             |
|---|---|-----------------------------|
| (a) Veraval (Gujarat)                       | } | Transmitting on trial basis |
| (b) Vengrula (Maharashtra)                  |   |                             |
| (c) Muttam Point (Tamil Nadu)               |   |                             |
| (d) Porto Novo (Tamil Nadu)                 |   |                             |
| (e) Vakalpudi (Andhra Pradesh)              |   |                             |
| (f) Balasore (Orissa)                       |   |                             |
| (g) Keating Point (Andaman and Nicobar Is.) |   |                             |
| (h) Mauritius (Cassis)                      |   | Operational                 |
| (j) Seychelles (Mahe)                       |   | Non-operational             |

5.3. Further, all the updated warnings including the Notices to Mariners are available on the INHO website [www.hydrobharat.gov.in](http://www.hydrobharat.gov.in).

5.4. **Problems Encountered.** Nil.

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

7. **Capacity Building**

7.1 India is providing hydrographic assistance to maritime nations of the region. This includes joint hydrographic surveys with onboard training, structured training at NIH and specialized courses for Multibeam and ENC production at NHO.

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.** The MoU on co-operation in the field of Hydrography was signed between the Governments of Republic India and the United Republic of Tanzania on 19 Jun 15. In accordance with MoU, a survey ship was deployed from 26 Oct -26 Nov 16 for survey of Tanga Port. The following charts of Tanzania have been published till date:-

<b><u>S No.</u></b>	<b><u>Chart No.</u></b>	<b><u>Chart Title</u></b>	<b><u>Date of Publication</u></b>
(a)	2516	Dar Es Salaam Harbour	31-Aug-2014
(b)	2517	Dar Es Salaam Anchorage	31-Oct-2014
(c)	2520	Approaches to Dar Es Salaam	15-Jan-2015
(d)	2524	Port of Zanzibar	15-Jan-2015
(e)	2528	Appr. To Mkoani Hr Mkoani Hr.	30-Jun-2016



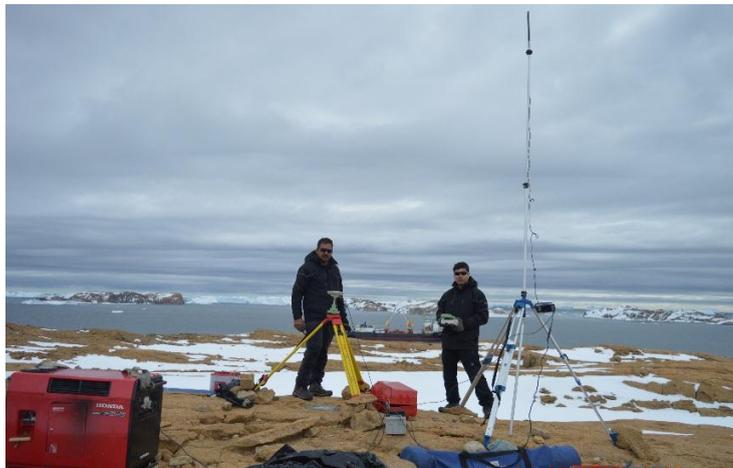
7.2.2 **India- Mauritius**, INHD has completed 25 hydrographic surveys in the last ten years and 07 navigational charts have been published. A Hydrographic Survey Unit is being maintained in Mauritius, since Oct 2013, for undertaking local hydrographic survey and to assist in setting up Hydrographic Infrastructure in Mauritius. The 10<sup>th</sup> Indo-Mauritian Joint Committee Meeting on Hydrography was held at New Delhi from 20 to 21 Mar 17 in continuation of the bilateral cooperation between the GOI and GOM, as envisaged in the Memorandum of Understanding on Hydrography. The following charts of Mauritius have been published till date:-

<b><u>S No.</u></b>	<b><u>Chart No.</u></b>	<b><u>Chart Title</u></b>	<b><u>Date of Publication</u></b>
(a)	2503	App. to Cargados Carajos Shoals	15-Dec-2016
(b)	2504	Mathurin Harbour	31-Jan-2017
(c)	2505	Approaches to Mathurin Harbour	31-Jan-2017
(d)	2506	Grand bay and Grand Riviere noire Bay	31-Jan-2017
(e)	2507	Grand Port	15-Jan-2017
(f)	2512	Agalega Islands	31-Jan-2017
(g)	2514	Approaches to Port Louis Port Louis	15-Dec-2014



7.2.3 **Indo-Myanmar:** The first ever workshop on Cartography / ENC production was conducted for 03 MN officers from 06 Jul to 03 Aug 16 at National Hydrographic Office (NHO) Dehradun.

7.2.4 **Indo – Sri Lanka.** A survey ship was deployed to Sri Lanka from 23 Mar to 28 May 17 for conduct of deep water survey and large scale survey of Weligama Bay. A total of 6500 sq nm has been surveyed using deep sea multibeam.



#### 7.2.5 **Antarctica Survey Programme.**

India is a member of the Hydrographic Committee on Antarctica. A delegation from INHD participated in the 36<sup>th</sup> Indian Antarctic expedition. India is committed to fulfilling the survey and charting requirements in Antarctica.

8. The Long Hydrography CAT 'A' and Basic Hydrography CAT 'B' programmes conducted at National Institute of Hydrography, Goa were recertified by IBSC upto 2019. The institute has adopted S-5A, S-5B versions of the syllabus for CAT 'A' and 'B' courses as promulgated by IHO and implemented the same for the ongoing programmes. Since inception the institute has trained 622 foreign nationals in various programmes. Trainees from various countries of IOR attended courses conducted at NIH.

The details of International trainees at NIH in 2016-17 is tabulated below:-

<u>Sl No</u>	<u>Course</u>	<u>Foreign Trainees</u>	<u>Countries</u>
(a)	Long 'H'	06	01- Bangladesh, 01- Indonesia, 01- Sri Lanka, 01- Nigeria, 01- Fiji, 01- Vietnam
(b)	Basic 'H'	07	01- Thailand, 01- Myanmar, 01- Kenya, 01- Sri Lanka, 01- Fiji, 01- Nigeria, 01- Mauritius
(c)	PO 'Q'	05	02- Sri Lanka, 01- Bangladesh, 01- Mauritius, 01- Nigeria
(d)	Leading 'Q'	05	04- Sri Lanka, 01- Seychelles
(e)	Basic 'Q'	04	03- Sri Lanka, 01- Seychelles

## 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 “Mapping our



seas, oceans and waterways – more important than ever” Workshops, lectures, demonstrations and visits by undergraduate and senior school students were organised.

**IHO 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:	2/1/2016			
Provided by:	INDIA			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT	100	100	100	
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 (%)			80	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	100	0	0	
> 200m	92	8	0	

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