

**NATIONAL REPORT TO REGIONAL HYDROGRAPHIC COMMISSION**  
**REPUBLIC OF INDIA**

1. **Hydrographic Office / Service**

<b>NATIONAL HYDROGRAPHIC OFFICE</b> <b>Post Box No. 75</b> <b>107-A, Rajpur Road</b> <b>DEHRADUN – 248 001, INDIA</b>	
Department of which the Hydrographic Office is part	Indian Navy, Ministry of Defence
Principal functions of the H.O.	Hydrographic Surveys, Project Surveys, Nautical Charts, Electronic Navigational Charts (ENC), Notices to Mariners (Fortnightly), Radio Navigational Warnings, Lights Lists, Sailing Directions, Nautical Almanac, Tides, Tidal Streams and Currents, Oceanographic data analysis and publications, Marine and Earth Sciences, Coastal Zone Regulation Plan Charts, UNCLOS Charts, Procurement & Maintenance of Hydrographic, Oceanographic and Cartographic equipment for the department, Consultancy and Hydrographic Training for International Hydrographic Cooperation.
National Days	Independence Day                      15 August Republic Day                                26 January
Telephone Fax E-mail WEBSITE	+91-135 - 2744873 / 2747365 +91-135 - 2748373 incho@dataone.in www.hydrobharat.nic.in
Date of Establishment and Relevant National Legislation	1776 Govt. of India, Rules of Business; The Territorial Waters, Continental Shelf, EEZ & Maritime Zones Act 1976.
Name and Rank of the Director or Head	Rear Admiral B.R. Rao, NM, VSM, FIS, IN Chief Hydrographer to the Government of India
Tonnage	8417493 (GT) as on 31 December 2006
Total Budget	Rs. 1000 millions approx (Annual Revenue Budget) including survey ship operations
Staff employed	For Details, consult WEBSITE : <a href="http://www.hydrobharat.nic.in">http://www.hydrobharat.nic.in</a>
No. of charts published	312
No. of INT charts published	(a) Small scale                                2 (b) Medium & Large Scale 45
No. of ENC cells published	228

Type of publications produced (e.g. Tide Tables, Sailing Directions, and List of Lights etc.)	<ol style="list-style-type: none"> <li>1. List of Lights</li> <li>2. Sailing Directions</li> <li>3. Nautical Almanac</li> <li>4. Symbol and Abbreviations</li> <li>5. Notices to Mariners</li> <li>6. Oceanographic Data</li> </ol>																																			
Surveying Vessels / Aircraft	<table border="1"> <thead> <tr> <th>Displacement</th> <th>Date Launched</th> <th>Crew</th> </tr> </thead> <tbody> <tr> <td>SANDHAYAK</td> <td>1820</td> <td>1981</td> <td>200</td> </tr> <tr> <td>NIRDESHAK</td> <td>1820</td> <td>1983</td> <td>200</td> </tr> <tr> <td>NIRUPAK</td> <td>1820</td> <td>1985</td> <td>200</td> </tr> <tr> <td>INVESTIGATOR</td> <td>1820</td> <td>1990</td> <td>200</td> </tr> <tr> <td>JAMUNA</td> <td>1820</td> <td>1991</td> <td>200</td> </tr> <tr> <td>SUTLEJ</td> <td>1820</td> <td>1993</td> <td>200</td> </tr> <tr> <td>DARSHAK</td> <td>1820</td> <td>2001</td> <td>200</td> </tr> <tr> <td>SARVEKSHAK</td> <td>1820</td> <td>2002</td> <td>200</td> </tr> </tbody> </table>	Displacement	Date Launched	Crew	SANDHAYAK	1820	1981	200	NIRDESHAK	1820	1983	200	NIRUPAK	1820	1985	200	INVESTIGATOR	1820	1990	200	JAMUNA	1820	1991	200	SUTLEJ	1820	1993	200	DARSHAK	1820	2001	200	SARVEKSHAK	1820	2002	200
Displacement	Date Launched	Crew																																		
SANDHAYAK	1820	1981	200																																	
NIRDESHAK	1820	1983	200																																	
NIRUPAK	1820	1985	200																																	
INVESTIGATOR	1820	1990	200																																	
JAMUNA	1820	1991	200																																	
SUTLEJ	1820	1993	200																																	
DARSHAK	1820	2001	200																																	
SARVEKSHAK	1820	2002	200																																	
Outsourcing strategy	<ol style="list-style-type: none"> <li>1. Nil on Survey</li> <li>2. Nil on ENC Production</li> </ol>																																			
Other information of interest	<ol style="list-style-type: none"> <li>1. National Hydrographic School is an ISO 9001/2000 Certified institute for hydrographic training. The Long Hydrographic Course and Basic Hydrographic Courses Conducted by the National hydrographic School have been awarded CAT 'A', CAT 'B' Accreditation by IHO/FIG Advisory Board on standards of competence for hydrographic surveyors. In April 06, the accreditation has been renewed for further six years.</li> <li>2. 90% of National Water ENCs have been released to market. Regular updates of ENCs promulgated fortnightly.</li> <li>3. Out of 56 INT charts to be produced by India, 47 have already been published and balance would be published in due course.</li> <li>4. The Hydrographic Department of India has the required resources, Infrastructure, and technical expertise to assist littoral states in the following areas : - <ul style="list-style-type: none"> <li>(i) Conduct of Hydrographic, Oceanographic and Coastal Zone Regulation Plan surveys.</li> <li>(ii) Training in Hydrography and Cartography.</li> <li>(iii) Setting up of hydrographic Infrastructure and Hydrographic Office</li> <li>(iv) Exchange of personnel</li> <li>(v) Production of Nautical Paper Charts and Electronic Navigational Charts (ENCs).</li> <li>(vi) EEZ/Continental Shelf surveys.</li> </ul> </li> </ol>																																			

## 2. Surveys

**Coverage of New Surveys** Indian Naval Hydrographic Department (INHD) presently has eight indigenously build surveying ships. The department has undertaken Hydrographic Surveys both at National and International level. For the survey season 2006-07 important surveys of some major and minor harbours in India, based on the periodic updation scheme, have been planned such as **Mumbai, Chennai, Tuticorin, Karwar and Hutbay**. In addition to these Navigational updation surveys, surveys of National importance are also allotted to ships such as **Sethusamudram Ship Channel Project survey, LCS surveys and Antarctica surveys**. In addition the department also undertook surveys in Seychelles, Maldives and Mauritius waters.

(b) **New Technologies and / or Equipment** The Indian National Hydrographic Office has a varied genre of hydrographic equipment and software. The new technology equipment and softwares used in this department are GPS1230, Digital Side Scan Sonars 4200 FS, Atlas Deso-30 and Multibeam echo sounders, Current Meters/2DACM, Automated Tide Gauges, Automated Data Logging Systems(ADLS), Sound Velocity Profilers, Motion Sensors & Heave Compensators, Magnetometers, Gravimeters, ENC Production software CARIS HOM, SAMI, GIS Professionals, d Kart Inspector ENC validation software, Tide Calculation/Prediction software, Photogrammetry software, Image Processing software – ERDAS Imaging software, CARIS LOTS software and Bathymetric data processing software- CARIS HIPS/SIPS. Acoustic Doppler Current Profilers (ADCPs), Current Temperature and Depth (CTD) sensors, Long range, Medium range & Short range Differential Global Positioning System (DGPS), Leica Geo Office (LGO) software.

(c) **New Ships.** At present this department has 08 modern survey ships. 06 more ships of catamaran hull are under construction and induction is likely to commence by 2008 in phased manner.

(d) **Problems encountered** Nil.

## 3. New Charts & updates

(a) **ENCs** India has produced around 228 ENC Cells of its National waters. Of all these ENC released, the break up as per usage band index is as follows:-

<b>CATEGORY</b>	<b>USAGE BAND</b>	<b>NO OF ENCs</b>
Overview	1	5
General	2	6
Coastal	3	55
Approach	4	43
Harbour	5	104
Berthing	6	15
<b>Total</b>		<b>228</b>

INHO is applying stringent QA/QC on all its ENCs before releasing them to market. Besides this regular ENC Database is being prepared and ENC updates are being generated and supplied every fortnight. Updates are also being checked for QA/QC against Standard Validation tools. India has set its priorities for production of ENCs covering its national waters and jurisdiction.

(b) **Identification of Producer Nation** India is the producer nation of small scale INT Charts, ENC's viz IN17705a & IN17706b for which its ENC production has already been done. As regards producer Nation, India will be producer nation of all ENC's covering its National Waters. In the areas where ENC coverage is falling between two nations, the matter will be resolved bilaterally.

(c) **Assistance with ENC Production** Indian HO is fully capable and willing to share its experience and assist other NIOHC members in production and management of their ENC datasets. We can advise technically on all issues of production/updates and QA/QC to any other MS who requires our assistance.

(d) **ENC Distribution Method**

(i). Indian ENC's are presently being distributed via its appointed distributor M/S C-Map India.. At present C-Map is marketing these ENC's in CM-93/3 and S-63 IMO Compliant SENC Distribution format for ECDIS systems. ENC users who are using Indian ENC's can update their ENC's for safer Navigation by subscribing to either RTU , HTTP or e-mail service of M/s C-Map.

(ii). As on 31 Dec 2006 , 403 ENC's have been sold by C-Map India in the market.

(iii). India is in the process of establishing RENC in this region for wider and integrated coverage to end users.

#### 4. **New Publications & Updates**

(a) **New Publications** The following Books /Publication were published during the last year.

(i) Nautical Almanac – 2006

(b) **Updated Publications**

(i) **Indian**

(aa) West Coast of India Pilot

(ab) List of Lights D & E

(ac) List of Lights F & K

(ad) List of Radio Signals I to VIII

(ii) **Admiralty (Corrections to Navarea VIII)**

Admiralty East Coast of India Pilot

(c) **Means of Delivery e.g. Paper, Digital** Paper

(d) **Problems encountered** Nil.

5. **MSI**

(a) **Existing Infrastructure for Transmission** All Radio Navigational Warnings for NAVAREA-VIII are issued by the Chief Hydrographer to the Government of India. The Chart Depot, Mumbai, Coordinates for broadcasting all Navigational Warnings. Reports/Information are directly sent to Chart Depot by various authorities with a copy of information to Naval Hydrographic Office, Dehradun. This office closely monitors all broadcasts and in case of any erroneous broadcast, it is corrected and Chart Depot is directed for retransmissions. Apart from this information received directly in this office are also communicated to Chart Depot for transmission. All Ports, with Radio Station also broadcast these Navigational Warnings limited to their coastal perimeters. The Navigational Warnings (NAVAREAS) are forwarded to the Earth Station, at Arvi, (Pune) for transmission through INMARSAT 'C' terminals, which are mandatory for all ships. These Navarea Warnings are monitored at the National Hydrographic Office. Further-more, all the update warnings including the Notices to Mariners are available on the NHO website [www.hydrobharat.nic.in](http://www.hydrobharat.nic.in) .

(b) **Problems Encountered** Nil.

6. **S-55**

Country	:	India
Date of validity of information	:	31 Dec 2006
National Hydrographic Organisation	:	National Hydrographic Office 107-A, Rajpur Road, PB No. 75 Dehradun – 248001, (Uttarakhand) India E-mail: inho@dataone.in Website: <a href="http://www.hydrobharat.nic.in">http://www.hydrobharat.nic.in</a>
Government department of which the Hydrographic Organisation is a part	:	Integrated Headquarters of Ministry of Defence (Navy), Govt. of India
Principal function of the Hydrographic	:	Production of Navigational Charts & related publications to provide Marine Safety Services.
Details of specialist personnel	:	Hydrography – 100 Officers and 500 Assistants Cartography – 23 Officers, 44 Draftsman and 21 Press personnel.
Details of surveying ships	:	8 Surveying vessels
Details of outsourcing policy	:	Nil

(a) **Status of hydrographic survey of all navigable waters, including internal waters, out to the limits of the EEZ:**

Survey coverage, where:

A = percentage which is adequately surveyed.

B = percentage which requires re-survey at larger scale or to modern standards.

C = percentage which has never been systematically surveyed.

Depth	A	B	C
< 200m	100	0	0
> 200m	90	10	0

(b) **Amplifying information:**

(i) The entire Navigational area in depths less than 200 meters has been adequately surveyed. There are few small areas where the chartered data is based on old surveys. These areas are well away from the shipping routes and are of no interest to the Mariners.

(ii) There are some areas in Indian waters like Gulf of Kachch & Khambat, Sandheads etc where the seabed is unstable. A cautionary note to this effect is printed on Navigational charts covering such areas. These areas are re-surveyed as per National Survey Programme.

(c) **Status of Nautical Charting within the limits of the EEZ**

Coverage of charts published by your organisation, where:

A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.

B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.

C = percentage covered by ENCs meeting the standards in S-57.

Purpose/Scale	A	B	C
Offshore passage/Small	100	0	55%
Landfall and Coastal passage/Medium	100	0	75%
Approaches and Ports/Large	100	0	95%

Amplifying notes : Nil

Significant gaps in coverage : Nil

(e) **Maritime Safety Information (MSI)**

Fill in the tables to indicate the status of implementation of the services: Yes, No, Partial.

Use the Notes Columns to indicate services which are provided by another state, and facilities co-ordinated and/or shared with other coastal states.

**Navigational Information (S-53)**

Service	Yes	No	Partial	Notes
Local Warnings	√			
Coastal Warnings	√			
Navarea Warnings	√			
Information of Ports and Harbours	√			Agreements in place with all port authorities

**GMDSS Implementation (IMO Publication 970 - GMDSS Handbook)**

Service	Yes	No	Partial	Notes
Master Plan	√			
A1 Area	√			
A2 Area	√			
A3 Area	√			
NAVTEX	√			
Safety NET	√			

(f) **National Priorities for International and / or Regional Co-Operation**

If international or regional projects are underway in your waters, please indicate here:

Project involving assistance by Naval Hydrographic Department of India for setting up of Hydrographic Office/Unit, and undertaking joint hydrographic surveys in Mauritius is being undertaken. A similar project for carrying out surveys in Maldives and setting up of their Hydrographic Office is being progressed.

7. **Capacity Building**

(a) **Indo - Mauritian Hydrographic Cooperation** India has signed a MoU on hydrographic cooperation with Mauritius in Oct 05. The MoU envisages India to carry out survey of Mauritian waters, training of personnel and setting up of Hydrographic Infrastructure at Mauritius. India has completed 3 navigational surveys in Mauritian waters. Some more surveys are planned for 2007.

(b) In addition, India has undertaken hydrographic surveys in Maldives and Seychelles in 2006. One navigational survey is planned for Maldives in 2007.

8. **Oceanographic Activities** The Indian Naval survey ships are equipped with oceanographic equipment and are capable of collecting geophysical and oceanographic data.