



**REPORT OF THE
INDIAN NAVAL HYDROGRAPHIC
DEPARTMENT**

REPUBLIC OF INDIA

**8TH NORTH INDIAN OCEAN
HYDROGRAPHIC COMMISSION**

GOA, INDIA

NATIONAL REPORT TO REGIONAL HYDROGRAPHIC COMMISSION
REPUBLIC OF INDIA

1. **Hydrographic Office / Service**

General Update for IHO Year Book

NATIONAL HYDROGRAPHIC OFFICE Post Box No. 75 107-A, Rajpur Road DEHRADUN – 248 001, INDIA					
Department of which the Hydrographic Office is part	Indian Navy, Ministry of Defence				
Principal functions	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	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Independence Day</td> <td>15 August</td> </tr> <tr> <td>Republic Day</td> <td>26 January</td> </tr> </table>	Independence Day	15 August	Republic Day	26 January
Independence Day	15 August				
Republic Day	26 January				
Telephone Fax E-mail Website	+91-135 - 2744873 / 2747365 +91-135 - 2748373 <i>incho@dataone.in</i> <i>www.hydrobharat.nic.in</i>				
Date of Establishment and Relevant National Legislation	1961 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	14300000 (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 : http://www.hydrobharat.nic.in		
No. of charts published	318		
No. of INT charts published	(a) Small scale	2	
	(b) Medium & Large Scale	45	
No. of ENC cells published	234		
Type of publications produced (e.g. Tide Tables, Sailing Directions, and List of Lights etc.)	<ol style="list-style-type: none"> 1. List of Lights 2. List of Radio Signals 3. Sailing Directions 4. Symbol and Abbreviations 5. Notices to Mariners 6. Nautical Almanac 		
Surveying Vessels / Aircraft	Displacement	Date Launched	Crew
SANDHAYAK	1820	1981	164
NIRDESHAK	1820	1983	164
NIRUPAK	1820	1985	164
INVESTIGATOR	1820	1990	164
JAMUNA	1820	1991	164
SUTLEJ	1820	1993	164
DARSHAK	1820	2001	164
SARVEKSHAK	1820	2002	164
Outsourcing strategy	<ol style="list-style-type: none"> 1. Nil on Survey 2. Nil on ENC Production 		
Other information of interest	<ol style="list-style-type: none"> 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. 2. 90% of National Water ENCs have been released to market. Regular updates of ENCs promulgated fortnightly. 3. Out of 54 INT charts to be produced by India, 47 have already been published. Three more charts are planned for the ensuing year and balance would be published in due course. 		

	<p>4. The Hydrographic Department of India has the required resources, Infrastructure, and technical expertise to assist littoral states in the following areas : -</p> <ul style="list-style-type: none"> (i) Conduct of Hydrographic, Oceanographic and Coastal Zone Regulation Plan surveys. (ii) Training in Hydrography and Cartography. (iii) Setting up of hydrographic Infrastructure and Hydrographic Office (iv) Exchange of personnel (v) Production of Nautical Paper Charts and Electronic Navigational Charts (ENCs). (vi) EEZ/Continental Shelf surveys.
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2. Surveys.

(a) **Coverage of New Surveys.** The Indian Naval Hydrographic Department (INHD) functions under the aegis of the Indian Navy. The department has undertaken Hydrographic Surveys both at National and International level. In addition to the naval tasks the department carries out surveys for the private sector also. Some of the major surveys carried out in the recent past have been amongst others towards the updation of the charts for the Andaman and Nicobar Is and the Gulf of Kachch. In addition the department also undertook surveys off Seychelles, Maldives and Mauritius on bilateral co-operation.

(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. Six more ships of catamaran hull are under construction and induction is likely to commence by end 2008 in a phased manner.

(d) **Problems encountered** Nil

3. **New Charts & Updates.**

(a) **ENCs.** India has produced 234 ENC Cells of its National Waters. Of all these ENC released, the break up as per usage band index is as follows :-

CATEGORY	USAGE BAND	NO OF ENCs
Overview	1	5
General	2	7
Coastal	3	55
Approach	4	44
Harbour	5	104
Berthing	6	19
	Total	234

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) **ENC Distribution Method.** Indian ENCs are presently being distributed via its appointed VARs viz M/s Jeppesen Marine and UKHO. At present Jeppesen Marine is distributing ENCs in CM-93//3 and S-63 IMO formats. UKHO is distributing ENCs in S-63 format.

(c) **INT Charts.** India, as the coordinator of International charting group for the North Indian Ocean (Area J) has responsibility to produce 54 INT charts on medium and large scale. Out of 54 INT charts, India has produced 47 INT charts and remaining are planned to produce during 2008-09.

(d) **National Paper Charts.** Indian National Hydrographic Office is responsible for production of Nautical Charts and publications. At present India has produced 321 Nautical charts of Indian Ocean.

(e) **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 is the 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.

4. **New Publications & Updates.**

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

(i)	Bay of Bengal Pilot	-	2007 Edition
(ii)	Nautical Almanac	-	2008
(iii)	List of Radio Signals (Vol. II)	-	2007

(b) **Updated Publications.**

(i)	Indian	
	(aa)	West Cost of India Pilot
	(ab)	List of Lights D & E
	(ac)	List of Lights F & K
	(ad)	List of Radio Signals Vol 1, 2 & 6

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

(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 Naval Chart Depot, Mumbai, coordinates the broadcasting of all Navigational Warnings. Reports/Information are directly sent to Naval Chart Depot by various authorities with a copy of information to National Hydrographic Office, Dehradun. This office closely monitors all broadcasts. Apart from this, informations received directly in the office are also communicated to Naval Chart Depot for transmission. The Navigational Warnings (NAVAREAS) are forwarded to the Earth Station, for transmission through INMARSAT 'C' terminals, which are mandatory in accordance with GMDSS guidelines for all ships. Furthermore, all the updated warnings including the Notices to Mariners are available on the INHO website www.hydrobharat.nic.in.

(b) **Problems Encountered.** Nil.

6. **S-55 (Updated Table)**

Country	:	India
Date of validity information	:	31 Dec 2006
National Hydrographic Organisation	:	National Hydrographic Office 107-A, Rajpur Road Post Box No. 75 Dehradun - 248 001 Uttarakhand India Email : inho@dataone.in Website : http://www.hydrobharat.nic.in
Government department of which the Hydrographic Organisation is a part	:	Intengrated 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 - 94 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
<200 m	100	0	0
>200 m	93	7	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 charted data is based on old surveys. These areas are well away from the shipping routes and are of no relevance 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 ENC's meeting the standards in S-57.

Purpose/Scale	A	B	C
Offshore passage/small	100	0	58%
Landfall and Coastal passage/Medium	100	0	79%
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 Indian Naval hydrographic Department 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. Two more surveys are presently being undertaken. India is also assisting the Mauritian authorities to make a road map for creating the infrastructure of the Mauritian hydrographic department. India has also assisted Mauritius in the oceanographic data collection for the path breaking Mauritian Land based Ocean Industry project.

(b) **Indo-Maldives.** India has undertaken two joint surveys off Maldives in 2006 and 2007. The charts utilising the said data of 2006 have been handed over to the Maldivian authorities.

(c) **Indo Seychelles.** Joint surveys have been undertaken with the Seychellois authorities in 2003, 2006 and 2008.

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