



NATIONAL REPORT OF SRI LANKA  
FOR THE 8<sup>TH</sup> NORTH INDIAN OCEAN  
HYDROGRAPHIC COMMISSION MEETING

GOA, INDIA

14<sup>TH</sup> - 18<sup>th</sup> April 2008

# NATIONAL REPORT TO REGIONAL HYDROGRAPHIC COMMISSION

## NATIONAL HYDROGRAPHIC OFFICE OF NATIONAL AQUATIC RESOURCES RESEARCH & DEVELOPMENT AGENCY, SRI LANKA

### 1. HYDROGRAPHIC OFFICE / SERVICE

<b>NATIONAL HYDROGRAPHIC OFFICE NATIONAL AQUATIC RESOURCES RESEARCH &amp; DEVELOPMENT AGENCY Crow Island, Mattakkuliya, Colombo 15, SRI LANKA</b>	
Department of which the Hydrographic Office is part	Ministry of Fisheries & Aquatic Resources
Principal functions of the H.O.	<ul style="list-style-type: none"><li>• Conducting Hydrographic/Bathymetric Surveys in the Sri Lankan waters and production of nautical charts.</li><li>• Establishing sea level datum and relate them to land datum through analyzing tides.</li><li>• Data gathering &amp; processing of ocean currents, water movement, tides and other oceanographic parameters of interest to navigation &amp; maritime related activities.</li><li>• Charting hazardous zones for navigation.</li><li>• Providing professional services in hydrography and cartography to institutions, dealing with coastal and offshore development and utilization of ocean resources.</li><li>• Establishing and maintaining cooperation with international and national institutes related to hydrography.</li></ul>
National Days	4 <sup>th</sup> February
Telephone Fax E-mail WEBSITE	+94 - 011 - 2521705 +94 - 011 - 2521699 <a href="mailto:nho@sltnet.lk">nho@sltnet.lk</a> <a href="http://www.nara.ac.lk">www.nara.ac.lk</a>
Date of Establishment and Relevant National Legislation	13.03.1984 Parliament Act (NARA)1982 & 1996
Name and Rank of the Director or Head	M.A. Ariyawansa Hydrographer / Head

Tonnage	150088.73 ( as at 1 <sup>st</sup> July 2006)
Staff employed	10 Hydrographic Surveyors , 03 cartographers, 01 systems analyst , 02 ERA, 02 survey recorder, 06 survey helpers
No. of Charts publish	10
Surveying Vessels	Tharanga Mala Services of Naval vessels are utilized under temporary basis when available.

## 2. SURVEYS

### 2.1 Coverage of New Surveys

**We have done several bathymetric maps to cater the local requirements.**

Kalpitiya lagoon - near shore  
Colombo - offshore, near shore and inner harbour  
Tangalle - offshore and near shore  
Chilaw to Lansigama - near shore

In addition to those new surveys, NHO involved in some of custom made bathymetric surveys according to the clients requirements. We mainly cater our consultancy services to institute such as Coast Conservation Dept., Sri Lanka Ports Authority, Ceylon Fishery Harbour Corp., Sri Lanka Navy, Shell Gas Company, Ceylon Electricity Board. and Ceylon Petroleum Corp etc.,

### 2.2 New Technologies / Equipment

The new technology equipment and software used in this institute are RESON Sea Bat 8101 - Multibeam system, SES 2000 – sub bottom profiler, SeaStar 8300 HP / Omnistar GPS, DESO 30 dual frequency echo sounder, RESON SVP 40 sound velocity prob, Leica TCR 1202 Robotic total station, Wild TC 1600 total station, Caris GIS 4.4, Hypack Gold, Leica GEO Office and PDS 2000 multibeam processing software.

### 2.3 Problem encountered

The main problem and the drawback we are experiencing at the present is unavailability of a medium size survey vessel.

There are numerous problems with data acquisition of multibeam system with the software PDS 2000.

Sub bottom strata will not be clearly identifiable with the system.

### **3. NEW CHARTS AND UPDATES**

#### **3.1 INT Chart**

So far we have not published INT charts in Sri Lanka, but we have a bilateral arrangement with UKHO to produce INT charts, specially our main harbour charts with their collaboration. Under that UKHO has already published the Galle harbour chart.

We have done bathymetric surveys of Colombo harbour. We are looking forward to release the Colombo harbour chart on the same basis in near future.

#### **3.2 ENC's**

ENCs : NHO feels the necessity of ENC project, however , could not yet been able to execute the ENC charting scheme as per the requirement of IHO.

UKHO has produced ENC for SRI LANKA - West Coast - Colombo Harbour and Approaches (4115(P)/2007).

Source: Sri Lanka Hydrographic Office (SEP: 2007000052342 - 1).

#### **3.3 National Paper Charts**

Kalpitiya lagoon Scale 1: 30000

#### **3.4 Problems Encountered**

- The project proposal on “new standards for decision support and information management” which was designed together with UKHO to carry out the surveys and mapping of tsunami effected coastal area has been approved by the Government. But the funding arrangement in that proposal has not accepted. The External Recourses Department is seeking alternative funding arrangement.
- We have used manual system for Cartography so far, after receiving Caris / GIS software we have a problem of outputting chart digitally as we are new to the system.

### **4. NEW PUBLICATIONS AND UPDATES**

Approaches to Galle harbour (1: 30,000)  
Adopted charts to Admiralty series.

### **5. MARITIME SAFETY INFORMATION (MSI)**

**5.1** GMDSS facilities are not available in Sri Lanka. Telecommunication Regulatory Commission responsible for the other existing facilities.

At the moment facilities available are

VHF system channel 16

Medium frequency 2182 HZS

Communicating with Bangalore Maritime Earth Satellite Station

## 5.2 Problem encountered

Still no viable project in progress to establish GMDSS system in Sri Lanka

## 6. S-55

### 6.1 State of Hydrographic Survey within 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	8	88	4
>200 m	0	85	15

#### 6.1.1. Amplifying Information

Entire area under less than 200m depth has to be surveyed due to the effect of tsunami in the year 2004. Some areas such as main harbour approaches, fishery harbours, lagoons and near shore passages have been surveyed in large scale with modern standards.

## 6.2 Maritime Safety Information (MSI)

### 6.2.1 Navigational Information (S-53)

Service	Yes	No	Partial	Notes
Local Warnings			√	Via VHF Broadcast
Coastal Warnings			√	Via VHF Broadcast
Navarea Warnings			√	-
Information of Ports and Harbours	√			

### 6.2.2 GMDSS Implementation (IMO Publication 970 – GMDSS Handbook)

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

### 6.2.3 Status of Nautical Charting within the limit of the EEZ

Coverage of charts published by your organization

A = percentage covered by INT series, or a paper

B = percentage covered by Raster Navigational charts

C = percentage covered by ENC's

Purpose / Scale	A	B	C
Offshore passage/Small	0	0	0
Landfall and Coastal passage / Medium	10	0	0
Approaches and Ports / Large	75	0	0

## 7. CAPACITY BUILDING

Training received by NHO

1. Cartography training in UKHO - one placement
2. Multibeam short term training in Australia - one placement
3. Sub bottom profiler (SES 2000) in Germany - two placement

Training received by other allied Institutions

Sri Lanka Navy

1. CAT A in Hydrography (Goa, India) - two placement
2. CAT B in Hydrography (Goa, India) - three placement

Training needed

1. Category A in hydrography
2. Post graduate courses (M.sc)
3. Category B in hydrography
4. Digital Cartography
5. Caris / GIS on the job training including printing.
6. ENC
7. Multibeam - on the job training

## 8. OCEANOGRAPHIC ACTIVITIES

### 8.1 General

Oceanography Division of NARA has been conducting multi disciplinary research and development activities around Sri Lanka Waters. In March 2007, division has established a 24 hrs, 7 days operational centre, called Ocean Observation Centre (OOC) to monitor the real time ocean conditions around Sri Lanka. The centre collaborates with the Ministry of Fisheries and Aquatic Resources, Disaster Management Centre (DMC) and the Department of Meteorology in respect of ocean based disasters, early warning and mitigation of impacts from natural disasters. In addition to ocean based disaster activities, centre gathers and analyses the oceanographic data around Sri Lanka Waters for other applications such as fisheries, navigation, climate changes and environmental studies.

## **8.2 Tide Gauge Network**

Currently three real time transmitting tide gauges covering west, south east and east coasts are operational in Sri Lanka, which are part of Indian Ocean Tsunami Early Warning System and GLOSS. Colombo station has equipped with 02 pressure sensors, 02 floating gauges and radar sensors. It measures sea level every 01 minute and transfers data every 15 minutes via Japanese Meteorological Satellite (JMA) and MeteoSat. Trincomalee and Kirinda Stations measure sea levels every 01 minute and transfer data every 15 minutes via MeteoSat. All three stations are equipped with pressure and radar sensors. Real time data are also in GTS. Plans are in place for further stations, starting with Battalangoduwa in the north-west of the island, which will be equipped with satellite transmission equipment for real-time monitoring as part of the Global Sea Level Observing System and Indian Ocean Tsunami Warning System.

## **8.3 New Equipment**

Two BGAN system tide gauges are planned to be installed in Sri Lanka with the assistance from IOC and Proud Man Oceanographic Laboratory, UK.

## **8.3 Problem Encountered**

Offshore oceanographic surveys (CTD sections) have been hampered due to lack of a research vessel.

## **9. CONCLUSION**

The NHO is highly concentrating to survey near shore tsunami effected coastal areas. During the last year, NHO was mostly engaged with coastal engineering and bathymetric surveys of western and southern coast. Most of these data are frequently used by coastal development institutions such as Coast Conservation Dept, Ceylon Fishery Harbours Corporation and Sri Lanka Ports Authority etc. This data will be used to produce near shore nautical charts too.

The project proposal “New standard for decision support and information management (LiDAR Survey)”, designed for surveys of tsunami effected area, which was developed by UKHO and NHO has been approved by the Government. The External Resources Dept. is seeking for funding arrangement.

The major constrain of NHO is to conduct hydrographic surveys in off shore areas; the substitution of survey vessel “Sayuri” which was damaged by tsunami is still not done. This will take another year.

Training on digital cartography, multibeam data collection and processing are urgently required for newly recruited hydrographic surveyors.