

**Directorate General of Lighthouses and Lightships
Ministry of Shipping
Government of India**



Expression of Interest

for

Hiring of consultant

for preparation of

Detailed Project Report (DPR)

On Establishment of National Coastal VTS

December, 2016

**Directorate General of Lighthouses & Lightships,
Ministry of Shipping, Government of India**

1. Introduction

Directorate General of Lighthouses and Lightships (DGLL)

The Directorate General of Lighthouses and Lightships (DGLL), Ministry of Shipping, Government of India provides Aids to Marine Navigation along the coast of India. The Directorate has also established and is maintaining Vessel Traffic Service for the Gulf of Kutch, Gujarat.

2. Vessel Traffic Services

Vessel Traffic Services is a service implemented by a competent authority. VTS is designed to improve the safety and efficiency of navigation, safety of life at sea and the protection of the marine environment. VTS is governed by SOLAS Chapter V Regulation 12 together with the Guidelines for Vessel Traffic Services [IMO Resolution A.857(20)] adopted by the International Maritime Organization on 27 November 1997. The VTS traffic image is compiled and collected by means of advanced sensors such as radar, AIS, direction finding and VHF or other co-operative systems and services. A modern VTS integrates all of the information in to a single operator working environment for ease of use and in order to allow for effective traffic organization and communication. All sensors are connected in single network.

2.1 Service Provided by VTS

A VTS shall provide following service to vessels in pre-defined area.

(a) Information Service* (INS)

A service to ensure that essential information becomes available in time for on-board decision-making.

(b) Traffic Organization Service (TOS):

A service to prevent the development of dangerous maritime traffic situations and to provide for the safe and efficient movement of vessel traffic within the VTS Area.

(c) Navigational Assistance Service (NAS):

A service to assist onboard navigational decision-making and to monitor its effects.

2.2 COMPONENTS VTS

Following are the various components of the VTS as per the IMO resolution A857(20) and IALA Guidelines V 128 :

- (a) Radar
- (b) Automatic Identification System (AIS)
- (c) Environmental Monitoring (Hy-Me Sensors)
- (d) Electro-Optical equipment
- (e) Radio Direction Finders
- (f) Radio Communications
- (g) Data Processing
- (h) Human / Machine Interface (HMI)
- (i) Decision Support
- (j) External Information Exchange

3. DETAILS OF EXISTING VTS IN INDIA

All major ports in India, have their own vessel traffic service which is part of the VTMS (Vessel Traffic Management System) of the port. Most of the VTMS stations are installed with one Radar only, VTS in Mumbai and Kolkata is provided with three and four Radars respectively to cover the bigger area of operation.

Mumbai High, is an offshore oilfield 176 kilometres (109 mi) off the coast of Mumbai, India, in about 75 m of water. The oil operations are run by India's Oil and Natural Gas Corporation (ONGC). To cater the vessel traffic in the area, there are 16 Radars installed in 2006 and the same is managed privately. These Radars are not providing coverage in coastal area.

VTS Gulf of Kutch: The Gulf of Kutch in Gujarat was established by DGLL and is operational since February 2012. The VTS GoK provide services to Kandla major port and another 10 minor ports including GAPL in Mundra. There are 9 radar stations and 03 repeater stations providing VTS coverage to 16000 sq. kilometers area in GoK. Three radar stations are established in Saurashtra region (Okha, Chudeshwar and Balachadi) and six Radar stations in Kutch region (Koteshwar, Jakhau, Chachhi, Mundra, Navinal and Kandla).

VTS Gulf of Khambhat: Gulf of Khambhat also known as Gulf of Cambay is another inlet of the Arabian Sea along the west coast in the state of Gujarat. It is about 130 kilometers (80 nm). The Gujarat Marine Board (GMB) has awarded the right for development and establishment of Vessel Traffic & Port Management System of Gulf of Khambhat, to M/s Aatash Norcontrol Limited (ANCL) on BOOT basis for a period of 30 years. This VTS is providing services to 20 minor ports grouped in ports of Magdalla, Bharuch, Bhavnagar, Alang and Jaffrabad. There are eight radar stations(Jafrabad, Mahuva, Sartanpur, Gagha, Dahej, Hazira, Magdalla and Dumas) and two repeater stations(Alang and Bhagwa).VTS fee is applicable to all vessels plying to Gulf of Khambhat.

The VTS services available in India are as follows:

Sl. No.	Location	No. of Radars	Equipment	Year of Installation
01	Gulf Of Kuchh, Gujarat	09	Terma	2012
02	Gulf of Khambhat, Gujarat	08	Selesmar	2010
03	Mumbai High ONGC, Maharashtra	16	Raytheon	2006
04	JNPT-Mumbai, Maharashtra	03	STN Atlas	2011
05	Murmugaon, Goa	01	GEM	2001
06	New Managalore, Karnataka	01	STN	2016
07	Cochin, Kerala	02	Raytheon	2009
08	Tutucorin, TN	01	Vissim	2014
09	Chennai, TN	01	Selesmar	2012
10	Visakhapatnam, AP	01	Transas	2016
11	Paradeep, Odisha	02	Raytheon	2012
12	Kolkata-Haldia, WB	04	GEM	1996
13	Ennore, Chennai	01	Konsberg	2015

4. National Coastal VTS

DGLL is planning to establish VTS services along complete coastal water in India. National coastal VTS shall provide seamless VTS coverage along Indian Coast. NCVTS shall enhance the safety of navigation and security in Indian water, shall aid in efficiently management of the projected growth of Marine trade in Indian Ports and help in protection of marine environment. The “National Coastal Vessel Traffic Management System

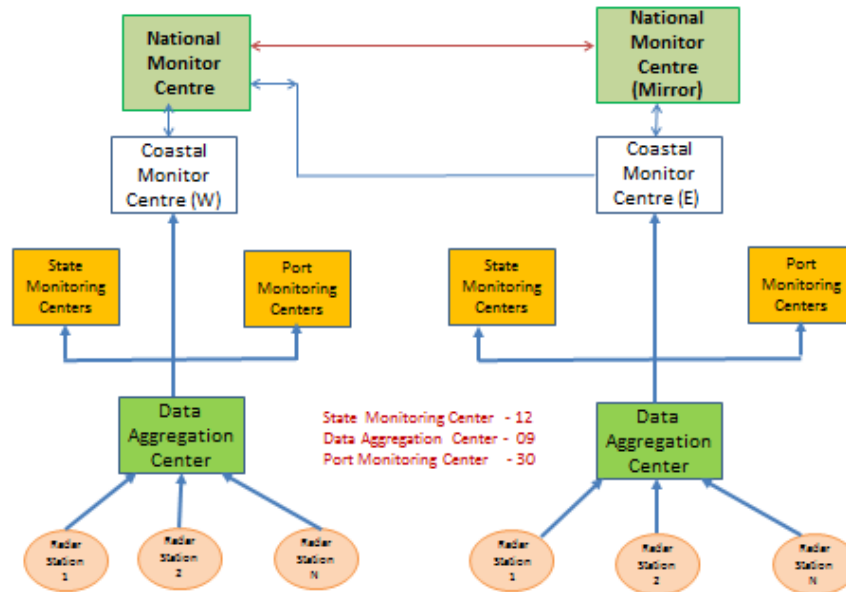
(VTMS)” shall have AIS (Automatic Identification System), Radar System and Communication links enabling operators to manage vessel traffic, monitor the environment and support Port & Harbor resources along Indian coast.

NCVTS shall provide integrated VTS picture through Data aggregation Center (DAC) located in each Lighthouse District. Details of Lighthouse districts is available on departmental website dgll.nic.in. DAC would integrate feed from various equipments installed at VTS sites, under its coverage area (data from Radar, AIS, CCTV and VHF radio communication etc.). The data from existing infrastructure (existing VTS at major ports, AIS equipment of NAIS, raw radar feed from static sensors of ICG) is to be integrated in the NCVTS. Integration of data will include:

- VTS feed from existing VTS systems at major ports and other ports,
- Raw radar feed /IVEF from static sensors established by ICG and other Radars
- 45 new radars from static Sensor to be established in NCVTS
- National AIS network established by DGLL

The Data aggregation Center (DAC), will be connected to a Coastal Monitoring Centers at both East and West coast. Both of the Coastal Monitoring Centers will be integrated with a National Monitoring Centre with mirror image. Port Monitoring stations will be established at State owned non major ports. State Monitoring Center will be established in each Coastal State/UT. Block diagram is indicted as below:

System Architecture for NCVTS



The NCVTS shall be able to meet the requirements of a VTS authority for the next decade and beyond and conform to latest relevant standards of ITU, IEC, the latest guidelines, recommendations, performance standards on VTS/VTMS issued by IALA and IMO.

A provision shall be made in the NCVTS system to extend feed to Indian Navy, Indian Coast Guard, State Maritime Authorities, Port Authorities, State Maritime Police, Border Security Force, Customs etc.

5. Scope of Work

The consultant for NCVTS shall prepare DPR by considering present and future requirements. He shall have knowledge of all relevant Indian, International Rules, regulations and legislations in field of Maritime Sector, IALA guidelines and Recommendations, IMO resolutions, relevant ITU/IEC standards, guidelines, IALA VTS manual.

The consultant shall visit the sites and advise Design concept & philosophy, interfacing & integration of various systems and sub-systems, equipment, sensors constituting NCVTS and examine and study followings to render suitable advise on;

- Feasibility of utilizing existing VTMS installed in various ports, Coast Guard Coastal Surveillance Network system
- Present communication system available with DLL and advise on additional
- Requirement for data connectivity and voice communications including augmentation where required

He shall list Merits and constraints for each of the above.

The scope of Detailed Project Report shall include:

- a. Identification of proven optimum technology suitable for marine navigation and traffic monitoring in as per prevailing global standards. The equipment selected shall be Commercial-Off-the- Shelf (COTS) to the maximum extent.
- b. Firming up of technical specifications of the system, its sub-systems including power supply requirements for the proposed systems.
- c. Software features & main operating system for NCVTS
- d. Identification of communication requirement of the voice and data, firming detailed specifications for revamping/ up-gradation of the existing communication network
- e. Prepare detailed networking model with relevant standardized protocols, concepts adopted, scalability, provision for future expansion etc.
- f. Formulate detailed Project Report along with important milestones, time schedule, cost implications etc.
- g. Advise on security requirements of the data transmission and of the system as a whole and include required hardware and software in the scope of system specification.
- h. To enlist the role and area of responsibilities (Technical, administrative and operational) of Central Government (DGLL, Major Ports, DG Shipping) and State Govts.
- i. To assess the possibility of increase in Light Dues, due to increase in marine traffic (domestic as well as foreign) due to implementation of the project.
- j. Possible Funding methodologies i.e.
 - Totally owned by DGLL i.e. procurement and maintenance,
 - With percentage of share from each stake holders,
 - Build Operate and Transfer Model.
- k. Manpower requirement
- l. Identify possible scope and responsibilities of state/central agencies taking into account of law of Land involved for various situations/functions such as
 - Normal navigational assistance services
 - Collision detection and avoidance
 - Disaster management
 - Security threat.

The above analysis will be made for following conditions when the vessel is plying within

- Port limits
- Contiguous waters
- Territorial waters

Essential Qualifications/ experience

1. Should have experience of rendering consultancy services for establishment of at least two radar based VTS in last seven years.
2. Should have prepared at least two DPRs in Maritime Sector preferably Radar based system.
3. Should have executed at least one radar based project as lead Project Manager.

Time schedule

The DPR shall be prepared and submitted within 180 days from award of the work. After submission of the DPR the consultancy services are to be extended till acceptance of the DPR by the cabinet committee/tendering & award of the work/execution and completion of the project.

Annexure-I

Submission of EOI

(On Letterhead, including full postal address, telephone, fax, e-mail addresses)

Date:.....

To,

Directorate General of Lighthouses & Lightships,
“Deep Bhawan”
A-13, Sector-24,
Noida-201301 (U.P.)

Sir,

1. Being duly authorized to represent and act on behalf of the undersigned hereby apply for EOI for preparation of DPR for Establishment of National Coastal VTS
2. Attached to this letter is a duly filled format for the Expression of Interest as prescribed by the Directorate General of Lighthouses & Lightships, along with copies of original documents defining:
 - a) The Applicant's legal status;
 - b) The principal place of business;
 - c) All documents as specified in EOI(Qualification & Experience)
3. The Directorate General of Lighthouses and Lightships and its authorised representatives are hereby authorised to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application, and to seek clarification from client regarding any aspects. This letter of Application will also serve as authorisation to any individual or authorised representative of any institution, to provide such information deemed necessary to verify statements and information provided in this
4. This application is made in the full understanding that:
 - a) The Directorate General of Lighthouses and Lightships reserves the right to reject or accept any application, cancel the process, and reject all applications; and
 - b) The Directorate General of Lighthouses and Lightships shall not be liable for any such actions and shall be under no obligation to inform the Applicant of the grounds for them.
5. The undersigned declare that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail.

Signed
Name
For and on behalf of (-----)

Annexure-II

Name of firms /Applicants

(Organizational Structure)

1.	Name & Address of the applicant with Telephone No. / Fax No. /email address	
2.	a) Year of Establishment b) Date & Year of commencement	
3.	Legal status of the applicant (attach copies of original document defining the legal status)	
	a) A proprietary firm	
	b) A firm in partnership	
	c) A limited company or Corporation / Joint venture /Consortia	
	d) State owned	
4.	Any other information considered necessary but not included above	

Authorized Signatory

Annexure-III

Experience for establishment of Vessel Traffic System

Name and locations/ Port/ Maritime Authority where consultancy for establishment of VTS system was rendered. (Copy to be enclosed)	
Details of VTS courses completed, if any.	
List of positions held with organization details in chronological order	
Brief Description of the works carried out year wise	
Total Value of the work	
Annual Turnover of the firm in last three years (in US \$)/(in Indian Rupees)	

Signature

Note: Please enclose separate sheet for each Project

N0. 1/7/2016-D&P

Date: 05/12/2016

**GOVT. OF INDIA
MINISTRY OF SHIPPING,
DIRECTORATE GENERAL OF LIGHTHOUSES & LIGHTSHIPS
A-13, SECTOR -24, NOIDA (U.P.), 201 301**

**INVITATION OF EOI FOR HIRING CONSULTANT FOR PREPATION OF
DPR FOR ESTABLISHMENT OF NATIONAL COASTAL VTS**

The Director General of Lighthouses and Lightships invites **Expression of Interest** from registered firms/agencies having requisite qualifications and experience for hiring consultant for preparation of DPR for Establishment of National Coastal Vessel Traffic Service (NCVTS). The offer shall be submitted with relevant documents on experience, qualifications etc. The last date of submission of the offer is 20 Dec 2016. The detailed document for EoI may be downloaded from departmental website www.dgl.nic.in.