MARITIME AGENDA : 2010 - 2020

सत्यमेव जयते

Government of India

Ministry of Shipping

January, 2011

(Rs in crore)

Articl l No	Name of Project	Approx. Cost	Year of Project preparation/ Commence ment	(a) Expec ed date for Compl
1	**2**	**3**	**7**	**8**
1	Visual Aids	50.00	2011	2020
2	Recapitalization of DGPS	25.00	2012	2013
3	Establishment of Racons	05.00	2011	2020
4	Vessel Traffic Service	150.00 300.00	2011 2012	2020 2015
5	Establishment of National AIS Network	90.00	2011	2013
6	Establishment of Navtex Chain	20.00	2011	2013
7	Establishment of e-Loran Chain	350.00	2014	2018
8	Measurement of Tides and Currents in Gulf of Kachchh & Gulf of Khambhat	100.00	2014	2016
9	e-Navigation	25.00	2015	2017
10	e-Governance	25.00	2011	2015
11	Automation of Cochin/Chennai/Vishakhapatnam /Kolkata Lighthouses	30.00	2011	2014
12	Replacement/Acquisition of Vessels	350.00	2011	2020
13	Improvement of Local Aids to Navigation (i) Improvement of Local Lighthouses (ii) Vessel Traffic Service for Minor Ports	 10.00 300.00	 2011 2012	 2017 2015
14	Provision of Green Energy at Lighthouses	20.00	2011	2015
15	Construction of Deep Bhawan & Staff Quarters at Visakhapatnam	12.00	2011	2014
16	Beautification of Lighthouses	20.00	2011	2020
17	Human Resource Development	10.00	2011	2020
18	ISO Certification for the DGLL	02.00	2015	2016
	Total	**1594.00**		

a third frequency which will enable tracking of small vessels with a compatible transponder, appreciable expenditure on this account too likely to incur by the Directorate.

7. Establishment of Navtex Network (Rs 20 crore)

Navtex is an international automated direct-printing service for promulgation of navigational and meteorological warnings and urgent information to ships. The Directorate is in the process of establishing a Navtex Network of 7 transmitters. The administrative approval of the scheme is awaited. The work is likely to commence from 01 April 2011 and is likely to be completed by 31st December, 2013.

8. Establishment of *eLoran* (Enhanced LOng-RAnge Navigation) chain (Rs 350 crore)

Enhanced Loran is an internationally-standardized positioning, navigation, and timing (PNT) service for use by many modes of transport and in other applications. It is the latest in the longstanding and proven series of low-frequency, Loran systems, one that takes full advantage of 21st century technology. *eLoran* meets the accuracy, availability, integrity, and continuity performance requirements for aviation non-precision instrument approaches, maritime harbor entrance and approach maneuvers, land-mobile vehicle navigation, and location-based services, and is a precise source of time and frequency for applications such as telecommunications.

eLoran is an independent, dissimilar, complement to Global Navigation Satellite Systems (GNSS). It allows GNSS users to retain the safety, security, and economic benefits of GNSS, even when their satellite services are disrupted.

Enhanced Loran (*eLoran*) is rapidly emerging as the primary GNSS backup for the new, global, maritime e-Navigation concept. Europe was ready to turn off all the Loran transmitters at the end of 2005. However, an increased understanding of GNSS vulnerability and a growing appreciation of *eLoran's* role within e-Navigation, a new interest has arisen in the UK and France who are experimenting with the system. The USA too is contemplating to use its existing Loran resources for the purpose of *eLoran.* Saudi Arabia has already floated the bid for induction of *eLoran.* The existing Loran operating countries like South Korea, Japan and Russia too are actively contemplating for the change to *eLoran.*

India too had Loran systems which was discontinued during 2007- 08. The Directorate contemplates to utilize the existing resources at these stations apart from adding more stations in Southern Peninsula to provide an independent PNT service for vessels plying up to our EEZ.

The project is likely to be commence from 2014 and will be completed by 2018.

9. Measurement of Tides and Currents in Gulf of Kachchh & Gulf of Khambhat (Rs 100 crore)

The advent of GPS Real-Time kinematic (RTK) in recent years has realized a significant advancement of GPS to provide three dimensional navigation at the centimeter level of accuracy. One of the fastest emerging trends in hydrographic surveying is the use of the vertical component of RTK GPS to determine real-time water level corrections. The system becomes most suitable for the Gulf Khambhat and the Gulf of Kachchh where tidal and current variations are appreciable and real time corrections of these parameters can indeed help in berth to berth navigation and also enable vessels in carrying extra cargo thus having a long term economic implications. It is proposed that the system is established by the Directorate whereas post processing of data can be carried out by the NHO and relayed to the vessels in real time. The project is likely to start in the year 2015 and will be completed by 2017.

10. e-Navigation (Rs 25 crore)

If current technological advances occur without proper coordination, there is a risk that marine navigation systems of the future could be hampered by a lack of standardization (ashore and shipborne), incompatibility between vessels, and an unnecessary level of complexity. Hence harmonization of such aids by way e-Navigation is needed which is a holistic concept of enhanced navigation through electronic systems, based on user needs and derived user requirements. In particular, the e-Navigation concept simultaneously targets:

- the harmonization of shipborne and shore-based functionality;
- the harmonization of shore-based operational and technical functionalities and services of different shore-based stake-holders;
- multi-dimensional quality improvements of shore-based operational and technical services;
- demonstration of service levels achieved, using appropriate management and engineering methods.

Clearly, there is a need to equip both ship borne and shore-based users responsible for safety of shipping with modern proven tools that are optimized for decision-making. The overall goal is to reduce errors by making maritime navigation and communications become more reliable and user-friendly.