

## INDIA

### India's Location and Historical Background

India is an area of the oldest civilizations with a kaleidoscopic variety and rich cultural heritage. India is the seventh largest country in the world and the biggest democratic country with a population of over 935 million. Bounded by the great Himalayas in the north, the Indian Ocean in the south, the Bay of Bengal in the east and the Arabian Sea in the west, it has a distinct geographical entity. The tropic of Cancer also passes through Indian territory. It measures 3,214 km from North to South and 2,933 km from East to West with a total land area of 3,287,263 km<sup>2</sup>. Lakshadweep in the Arabian Sea and Andaman and Nicobar Islands in the Bay of Bengal also form integral parts of the Indian territory.

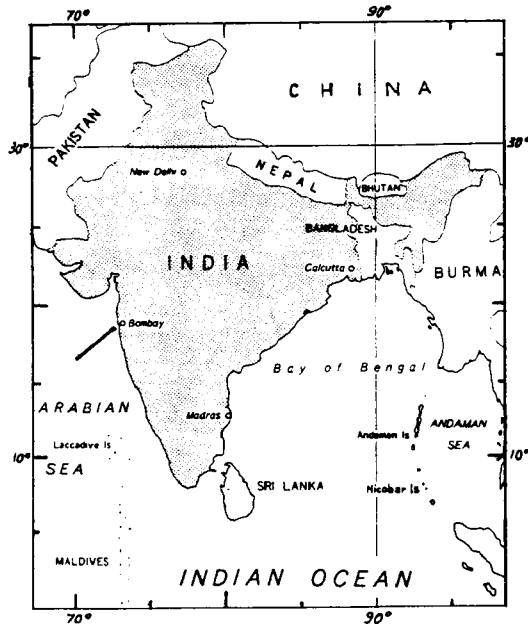


FIG. 1.- India.

Since 1947, India has been a Democratic Republic with a parliamentary system of Government, comprising 26 states and six union territories. The main occupation of the people is agriculture. India is self-sufficient in agricultural production. It is the tenth industrialised country and the sixth nation in the world to

have sent persons into outer space. India has 11 major ports and more than 163 Intermediate or minor ports.

India's sea trade dates back to the 14th century, during which Portuguese traders visited Indian ports. Presently 95% of national trade in terms of volume and 77% in terms of value is moved through sea. It has a fleet of 480 merchant vessels with over 7.10 million gross tonnage. India peninsular has a coastline of about 7,500 km and 1197 islands with an Exclusive Economic Zone of approximately 2,013,000 km<sup>2</sup>.

### **The Hydrographic Department**

The history of the Indian Hydrographic Department dates back to the early 17th century. The Masters of the East India Company's ships provided vital information on depths and Sailing Directions, which formed the basis for the publication of earlier Indian charts. A full-fledged Marine Survey Department was established in 1770 by the East India Company in 1874, the Marine Survey of India, headed by the Surveyor-in-charge, was established in Calcutta under the first Hydrographer, Commander A.D. TAYLOR. In 1954, the Marine Survey of India was named as the "Naval Hydrographic Office" and its Headquarters shifted to the present location at Dehradun. The first Indian Chief Hydrographer Captain Jai CURSETJI later became the Chief of the Naval Staff with the rank of Admiral. The designation of the Chief Hydrographer was changed to the Chief Hydrographer to the Government of India in 1964 and he became an Adviser to the Government of India on all matters related to hydrography including maritime boundary issues. The Department has under its professional control the Indian Naval Surveying Ships, the Naval Chart Depots, the Command Hydrographic Offices and the Naval Dockyard Survey Units.

Since India's independence, the Survey Fleet has increased from three Surveying Ships (converted frigates) to six indigenously designed and constructed modern Surveying Ships fitted with state of art hydrographic equipment/systems. Another two Surveying Ships are expected to join by 1998. Shore based Mobile Survey Units and Airborne Survey Systems are expected to join the Department within the next 2-3 years. Hydrographic Surveys are planned on the advice of the Hydrographic Survey Committee under the Union Ministry of Surface Transport, which lays down priorities for surveys. The Naval Hydrographic Department has also been successfully undertaking Contract Surveys both in India and abroad. The Department is also commencing preliminary surveys in Antarctica.

The Hydrographic School, was established in 1959 at Kochi for the training of hydrographic surveyors, from which it was later shifted to Goa in 1977. The school has attained the status of the regional training centre for South East Asia, Africa and Pacific. The school has been giving training to a number of Hydrographic surveyors from India and its neighbouring countries from both Naval and Civilian sectors related to Nautical Charting and Coastal Zone Management. Efforts are in hand to obtain FIG/IHO recognition for "Industrial Offshore Surveying".

The Hydrographic Office at Dehradun, where nautical charts and publications are produced, has also kept pace with the changing chart production

technology. State of the art Automated Cartographic System and printing equipment are being used. Increased use of computers have resulted in enhanced chart production. To date, 309 charts, giving a complete coverage of India and its neighbouring countries, have been published; the Department has drawn up a plan to produce Electronic Navigational Chart by 1998 covering the entire Indian waters.

The Department has published one volume of the Sailing Directions viz. the West Coast of Indian Pilot. Another volume, the Bay of Bengal Pilot, is under compilation. The Department has also published two volumes of List of Radio Signals.

The Department is the Coordinator for the issue of Radio Navigational Warnings in NAVAREA VIII. Implementation of GMDSS is expected shortly. The Department also publishes Notices to Mariners for the North Indian Ocean every two weeks.

The Naval Hydrographic Department is well represented in many national Committees dealing with Navigational Safety, Development of Ports, Satellite Remote Sensing for Bathymetry and related issues. Naval Hydrographic Office, Dehradun has become one of the Marine Data Centre for Hydrographic parameters under the National Ocean Information System programme of the Department of Ocean Development.

India, became a member of the IHO in 1956 and takes keen interest in its activities. Presently India is a member of various Committees of the IHO, such as the Chart Standardisation Committee, CHRIS (COE), Finance Committee, PWGCA, CPRNW and FIG/IHO Advisory Board. India is also the Coordinator for Area J (North Indian Ocean) for the scheming of International Charts. Two of the India's former Chief Hydrographers, Rear Admiral D.C. KAPOOR, and Rear Admiral F.L. FRASER served as Director and President of the Directing Committee of the IHB, between 1972 and 1987. India takes active part in international issues related to hydrographic surveys and nautical charting.

Technology implementation, Human Resource Development and Management in Hydrography/ Nautical Cartography and cost effective operations are the guiding factors in the administration of the Naval Hydrographic Department by the Chief Hydrographer to the Government of India.