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APPRECIATION

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Planning and Development of Waterway Transportation for Coastal Cities – A Review.

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Abstract— The provision of smooth transportation facilities became crucial task due to Mumbai ranks eighth in the world and second in India in terms of population. Because of Mumbai's growing population and migration, the transportation system is being strained, resulting in traffic congestion and overcrowding. The Vasai-Virar region contributes a sizable population to the overall population of Mumbai. As a result, the transportation medium, namely rail and roads, fall short of meeting the needs for space and frequency of transportation. The presence of coastline in the Vasai-Virar region provides an opportunity to propose an alternative mode of waterway transportation in specific Mumbai cities. This paper briefly overviews the research carried out in the planning and development of waterway transportation along coastal cities. The various case studies throughout the world for inland waterways along with the roots and their applications are summarized. This review suggests the most important parameters such as environment, fuel consumption, economy, capital cost of infrastructure, maintenance, revenue generation, accessibility, etc. for planning and development of inland waterway transportation. Furthermore, in this review the application of GIS and other modelling software's for mapping and route defining purpose are also discussed. This review contributes to transportation engineering and management by assessment of critical survey in Inland Waterway and Coastal lines construction projects.

Keywords— *Inland waterways, routes, transportation, GIS, population*

II. INTRODUCTION

Historically, civilization has flourished either in the coastal areas or near the river basins as water is an

Approximately 40% of the world's population now resides in coastal regions, and many of the largest cities are situated along rivers or the ocean [1]. The abundance of towns situated around coasts and accessible rivers is proof that waterborne transit has always served as a stimulant for human economic progress. While waterways provided safety and security, they also gave communities a method to bring goods to market instead of using more time-consuming and sometimes longer land routes [2]. Many Greek, Arab, Persian, and Roman traders and merchants who entered through the west coast of India used Vasai-Virar as a commercial hub. The significance of waterway transportation in the city has diminished throughout time due to the development of more roadways and railroads. A 50 km stretch of shoreline roughly surrounds the city and its surroundings. Mumbai is ranked second in India and eighth in the globe in terms of population. Mumbai's transportation infrastructure is severely impacted by the city's growing population and migration, which leads to concerns regarding congestion and overcrowding while travelling. The Vasai-Virar region contributes a significant amount of people to Mumbai's overall population. Because of this, the modes of transportation, such as rail and roadways, fall short of meeting the requirements for space and frequency. The coastline in the Vasai-Virar areas provides an opportunity to propose an alternative transportation mode via waterways in particular Mumbai cities. By doing so, it is possible to maximize resource use while decreasing issues like congestion, overcrowding, and pollution.

This paper presents review on planning and development of waterway transportation for coastal cities. The reviews are segmented in three sections II, III and IV respectively. Section II reviews the various case studies of Inland waterway transportation. The application of GIS and other modelling software in the inland waterway transportation are discussed in Section III. The most influencing factors which affects for the