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WATER TRANSPORT IN INDIA

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Abstract
The general objective of the Inland Waterways and Port Rehabilitation Project is to enhance the capacity, efficiency, and safety of inland waterway transport in the Mekong Delta in Vietnam. To achieve this objective, the project comprises three components: 1) waterway improvements, specifically, improving the two main inland waterway routes by: widening and deepening the routes through excavation and dredging; replacing and or improving bridges; treating canal side slopes where needed with proper surfacing materials to afford stability and prevent erosion; rehabilitating existing and installing new navigation aids; constructing a landing stage and relocating markets located on the waterways; constructing a navigation lock with a pedestrian overpass to both limit salinity intrusion and permit the passage of barge convoys; and using dredging will require people to be resettled and/or compensated according to a resettlement plan; 2) Can Tho Port improvement, consisting of replacing the existing fenders with an improved system along the berth, and collecting vessel bilge water and chemical spills; providing cargo handling equipment; and providing consultant services and staff training in marketing, financial management, business development, and port management; and 3) institution building by providing vessels, vehicles, and communications equipment for waterway operations and maintenance, as well as engaging specialists to help develop staff skills and consultants to assist in project implementation and management

Coastline of more than 7,500 km, India forms one of the biggest peninsulas in the world. The country has 13 major seaports and about 200 non-major seaports and intermediate ports. India's major seaports are located in the following states - Maharashtra, Gujarat, Odisha, Tamil Nadu, Daman and Diu, Andhra Pradesh, Andaman and Nicobar Islands, Kerala, Karnataka, West Bengal, Lakshadweep, Puducherry and Goa. The major ports are administered by India's Shipping Ministry, while the minor ports fall in the jurisdiction of the respective shipping or transport ministry in the state in which they are located.

Keywords: Indian waterway, water transport in India, waterway, port and waterway transport.

Introduction

India has a long coastline of about 7,517 km along the western and eastern shelves of the mainland. With 12 major ports and 187 minor ports, India ranks 16th among maritime countries and has one of the largest merchant shipping fleets in the world. According to the Ministry of Shipping, approximately 95% of the country's trade by volume and 70% by value moves through maritime transport, highlighting the importance of ports and their contribution in sustaining the growth and development of the Indian economy. The Indian Government plays an important role in supporting the ports sector. It has allowed Foreign Direct Investment (FDI) of up to 100 per cent under the automatic route for port and harbour construction and maintenance projects. It has also facilitated a 10-year tax holiday to enterprises that develop, maintain and operate ports, inland waterways and inland ports.

Objectives

1. Port and waterway authorities to better understand the issues associated with habitat management and to find a feasible balance between ongoing operations or new developments and bird habitat management.
2. Define the environmental contact for habitat management and develop environmental management principles.
3. Encourage and facilitate ongoing communication inform and guide the decision-making process through the provision of information.

Review of literature

Paik and Bagchi (2000)[10] in their studyhighlighted that in the age of globalization, seaports play a vital role in connecting national supply chains to the global marketplace, improving port operations has become a priority for many countries. One of the ways to achieve this objective is process reengineering. This paper reviews the IT-enabled reengineering process at Pusan port, South Korea. It also examines the issues and problems leading to process reengineering the steps involved in the reengineering process, and major performance improvements. Lessons learned from the case have been highlighted for the benefit of port planners in developing country. The case thus forms the baseline on which further adaptation can be made to suit their specific needs.

Slack (2001)[12]in his article studied a newly formed consortium of container shipping companies, SeaLand-Maersk, announced its intention to consolidate its services on the East Coast of North America at one port, and invited bids from

interested parties. Because the business represents a traffic volume in excess of 600,000 TEUs per year, many responded, eager to attract this trade. Six ports were retained in the evaluation process and their submissions included major concessions. The process was very much a contest, in which separate port authorities felt obligated to enter into a competitive bidding war without any guarantee that the concessions made would be successful. This contest is instructive and important, being an early indicator of a trend that is likely to be repeated elsewhere in the years ahead. Ports are being confronted by forces of change and uncertainty that are reducing their abilities to control their own destinies.

Cuadrado etal.,(2004)[21]said that the recent years, ports have experienced a period of significant growth and development along with intense inter-port rivalry as a consequence of intermodality andhinterland development. It is therefore, vital that port management bodies define and implement suitable strategies. This paper aims to adapt the benchmarking technique to the sphere of ports. Compares the activity of a port with that of its competitors, which is considered to be excellent. This is a strategic approach where consideration of the needs of the client, shipping lines and export-import companies is the axis of the benchmarking process.

Water Transport in India

India has a long coastline, about 90% of sea borne trade is handled via major ports of Kandla, Mumbai, Nhava Sheva, Marmagao, Cochin, Tuticorin, Chennai, Vishakapatnam, Paradwip, Haldia, Goa and Kolkata. India is bordered by Bay of Bengal, Arabian Sea andIndian Ocean and has a coastline of more than 7,000 kms. It has an extensive network of inland waterways and seaports. The inland waterways include rivers, canals, backwaters and creeks. The total navigable length of inland waterways is 14,500 km. Inland Waterways Authority of India (IWAI) is the statutory authority in charge of the waterways in India.

Indian waterways

India has eleven major seaports**:** Kandla, Bombay, Nhava Sheva, Marmagao, New Mangalore, and Kochi (formerly known as Cochin) on the west coast, and Calcutta-Haldia, Paradip, Vishakhapatnam, Madras, and Tuticorin on the east coast. The port at Nhava Sheva, located across the harbor from Bombay Port, was established in 1982 under the administration of the Jawaharlal Nehru Port Trust as a separate port rather than an adjunct to Bombay. The eleven ports are the responsibility of the Ministry of State for Surface Transport but are managed by semi-independent port trusts overseen by boards appointed by the ministry from government departments, including the navy, port labor and industry, and ship owners and shipping companies.

In order of gross weight tonnage conveyed annually, Bombay, Vishakhapatnam, Madras, and Marmagao are the most important ports. In addition, there are some 139 minor working ports along the two coasts and on offshore islands administered by local, state, or union territory maritime administrations. Total traffic at the eleven major ports increased from 107 million tons in FY 1984 to 179 million tons in FY 1993. In FY 1993, some US$250 million in profits were earned, an achievement that attracted some US$4.5 billion in foreign investments in the ports in FY 1992-FY 1993.

In 1995 there were three government-owned shipping corporations, the most important of which was the Shipping Corporation of India. There were also between fifty and sixty private companies operating a total of 443 vessels amounting to 6.3 million gross registered tons, more than 300 of which were 1,000 gross registered tons or more. Indian tonnage represented 1.7 percent of the world total. Overall, the share of Indian vessels in total Indian trade is around 35 percent. Approximately 40 to 50 percent of capacity is underused. As a result of the global slump of the late 1980s, shipping companies experienced financial difficulties; the leading private shipping company, Scindia Steam Navigation Company, collapsed in 1987. The collapse left most Indian shipping under public ownership. The government's director general of shipping provides oversight for all aspects of shipping.

In addition to its coastal and ocean trade routes, India has more than 16,000 kilometers of inland waterways. Of that number, more than 3,600 kilometers are navigable by large vessels, although in practice only about 2,000 kilometers are used. Inland waters are regulated by the Inland Waterways Authority of India, which was established in 1986 to develop, maintain, and regulate the nation's waterways and to advise the central and state governments on inland waterway development.

Waterways

The Ministry of Shipping encompasses within its fold shipping and ports sectors which include shipbuilding and ship-repair, major ports, national waterways, and inland water transport. Ministry of Shipping has been entrusted with the responsibility to formulate policies and programmes on these subjectsand their implementation. The Transport Research Wing is the nodal agency for data collection, compilation and dissemination for both Ministry of Shipping & Ministry of Road Transport and Highways.

The Major Publications which depict the quantity and quality of data collected in respect of marine transportation system include:

1. Basic Port Statistics of India
2. Statistics of Inland Water Transport
3. Ship Building & Ship Repair Statistics
4. Indian Shipping Statistics

The Agencies at the grass-root level which supply data include State Maritime Boards, State Governments and the Indian Ports Association.

Inland water Transport

Inland Water Transport (IWT), like coastal shipping has not been able to realize its full growth potential despite being an extremely energy efficient, environmentally clean and economical mode of transport. India has navigable waterways aggregating 14,544 kms., of which about 5,200 kms. of major rivers and 485 kms of canals are navigable for mechanized crafts. Currently, most of these waterways suffer from navigational hazards like shallow water and narrow width of channel during dry weather, siltation, bank erosion, absence of infrastructure constrained by the absence of proper surface road links to facilitate the smooth transit of cargo. Furthermore, less than 400 vessels are available for IWT. This includes tankers, bulk carriers dumb barges and others, with an average capacity of less than 600 tones.

Reduce duplication of effort reduce costs and increase on how port and waterway authorities around the world have effectively addressed potential conflicts between projects or operation and bird habitat management.

Port and waterways Facility

The Port Facility spreadsheet is similar to the Complete Dock List but has an expanded list of attributes not including mile points. The additional attributes include a location description, street address, city, state, zip code, county, congressional district, owners, operators, highway-and-railway connections, commodities, type of construction, cargo-handling equipment, water depth alongside the facility, berthing space, and deck height.

The Master Docks Plus Public Extract database is a Microsoft Access database that contains a complete extract of the Navigation Data Center's dock database with all data that may be released to the public.

The Port Boundary Data identifying port boundaries are extracted from Master Dock Plus and converted into a GIS layer called Port Boundary. This GIS layer is a kmz format shape file utilizing Google Earth Pro. The port boundary is represented by the geographic location of docks and other navigation points of interest. Each facility carries essential information like Longitude, Latitude, Port ID, Mile Point, Location Code, Dock Code, Waterway, Port Facility Type and Official Dock Name. Color coded icons are used to identify the facility locations for an individual port.

Conclusion

India has about 14,500 km of navigable waterways, which comprise of rivers, canals, backwaters, creeks, etc. About 55 million tones of cargo are being moved annually by Inland Water Transport (IWT), in a fuel-efficient and environment-friendly mode. Its operations are currently restricted to a few stretches in the Ganga-Bhagirathi-Hooghly River, the Brahmaputra, the Barak River, the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari-Krishna rivers. Besides these organized operations by mechanized vessels, country boats of various capacities also operate in various rivers and canals. Substantial quantum of cargo and passengers are transported in this unorganized sector as well. The Ganga-Bhagirathi-Hooghly between Allahabad-Haldia (1620 km) in UP, Bihar, Jharkhand and West Bengal, the Sadiya-Dhubri stretch of river Brahmaputra (891 km) in Assam and the Kollam-Kottapuram stretch of West Coast Canal along with Champakara and Udyogmandal Canals (205 km) in Kerala have so far been declared as national Waterways and are being developed for navigation by IWAI.

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