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Analysis of Most Important Indices in Environmental Impacts Assessment of Ports

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Abstract

Ports are the main centers of economic activities and producers of environmental pollutions on the shores and urban areas. Regarding the growth of world trade, transportation of goods through the ports has been undergoing prompt development, possibly experiencing further progress in the upcoming years. In the recent years, the destructive impacts of ports on the environment has been increasing. The type of activities and interactions carried out in the ports have speeded up such destructions. The major sources of pollutions are usually air, noise, water, soil and garbage. The objective of this study is to identify the main and sub-indices in the assessment of environmental impacts of ports (EIAP). To this end, a number of 28 case studies over the world have been analyzed. The indices of the environmental impacts of ports are categorized and evaluated according to four scales: the application and study aspects, the time, the location, as well as the quantity of occurrence of the criteria. Totally 200 main and sub-indices have been identified, within which, the first 10 have been allocated to the pollution of air, noise, water, transportation, traffic, greenhouse gases, garbage, soil, climate change and dredging, since 2000 to 2016. Finally, to better understand the subject, the conceptual framework for EIAP is presented. This study provides with port managers guidance toward identifying significant environmental aspects of ports; it is, at the same time, applicable in order for awareness and prioritization in the environmental management.

Keywords: Environmental Impacts Assessment of Ports (EIAP); Conceptual Framework; Port Managers; Environmental Management; Environmental Indicator.

1. Introduction

Instant progress of sea transportation has left significant impacts on the growth and development of international trade [1], as nearly 90% of the world trade is managed via sea transportation [2, 3]. Coastline development as well as direct and indirect job creation have been some of the favored consequences of the development of sea transport infrastructures [5]. For instance, in 2014 goods transportation through sea has experienced a 3.4% growth over the world [4]. Moreover, Asia has been remarkably expanding its role in import and export through the sea [7]. Likewise, almost half of the American population are working inside the 500-meter vicinity of coastline [10]. Nearly 13 million jobs per year have been provided related to the transport industry of the U.S port users, leading to a 1.5 million dollars annual profit [1]. Thus, ports play a vital role in the economy of a country. The expanded industrial activities for meeting humanitarian demands as well as accommodation of a vast portion of human population inside the coastal ecosystems -as nearly 44%

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