Workshop
Stakeholder
Platform Conference

Best practices in the sustainable development of the ports

Port Management with Green Port Criteria

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PORT MANAGEMENT WITH GREEN PORT CRITERIA

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1. INTRODUCTION

- Sustainable development is a philosophy with scientific, economic and political implications.

- The problem addressed in this workshop is the selection and application of environmental sustainability indicators to classify the port activity based on the concept of green port. This new term is also a factor by which competitiveness of ports can be measured

1. INTRODUCTION

- The authorities and large companies operating in the ports and citizens living around, will demand in the future working conditions compatible with sustainable port activity, because the impact of port activities in the environment is considered of great importance for sustainable development to be achieved in ports.

- In Spain, Puertos del Estado asks every year to the Port Authorities to publish Sustainability Annual Reports that have developed methodology based on Global Reporting Initiative, adapted to the specific characteristics of the port system. The scope of sustainability is very broad and includes the social, environmental and economic areas.

1. INTRODUCTION

- Focusing on the environment, in recent years, it is clear the importance that has taken on the responsibility and commitment of the ports on pollution and environmental conservation on land, sea and air, due to the impact generated by port activities and transport chains on which they rest.
- Some work done on the concept of green port are focused on pollution in the harbor and are of limited scope, but their study is useful. Meanwhile, international law seeks to implement certain regulations that must be met in ports and navigation, related to water pollution, air emissions and safety at sea and ashore. These regulations are increasingly stringent and restrictive because of the implications for human health and the damage done to the environment for years.

1. INTRODUCTION

- Our work is supported by studies of cities and transferred to the port area for a categorization of ports according to environmental indicators. To do this, have been chosen appropriate indicators to assess sustainable environmental activity of the ports.
- Once defined the indicators has been carried out their assignment through the collection of available data. With the values of these indicators, it is possible to classify the ports through statistical cluster analysis, considering that this model can handle and classify the values provided by the indicators.

1. INTRODUCTION

- The clustering results obtained were analyzed with expert criteria of port domain. Thereafter, considered ports can be classified in terms of the values that have taken the indicators, finding out which of the indicators are the more meaningful and discriminatory in the classifications.
- It has also been studied the relationship that may exist between environmental sustainability indicators with port activities and services (dry bulk, for example) and see how they influence each other.

2. METHODOLOGY

- The proposed methodology is based on various research techniques through a dual orientation, qualitative and quantitative, with which have sought address the complexity of the phenomenon being studied.
- The qualitative analysis provides a longitudinal study of secondary statistical sources, with the aim of analyzing the selection of ports examined.

2. METHODOLOGY

- One of the most serious problems in this work is the availability of data, without which no one could perform the subsequent classification. Have been collected data in different ways, mainly by direct evidence of the Sustainability Reports of Port Authorities, statistical yearbooks and others that have been made from other primary and secondary data available. This data must meet certain characteristics such as: objective, measurable, public, etc.

2. METHODOLOGY

- Regarding quantitative point of view, will proceed to assigning values for indicators for further analysis. Using different statistical techniques, mainly cluster analysis, will proceed to study the data. This phase should consider the distributions, clusters, residual values, interrelationships and regression analysis.

2. METHODOLOGY

- The methodology applied is firstly a source analysis, which includes not only the form of collection, study and processing of survey data, but in a first stage the limiting of the selection of examined ports, that represent all the spanish ports of general interest. So that there are no previous grouping and neither its choice corresponds to conditioned criteria by the orientation of this study.

2. METHODOLOGY

- It is also noted that it is necessary to use the methodology of weighting in the determined factors due to its influence on the objective of the classification. That is, not all indicators have to have the same influence and, therefore, its effect will be different from others. Therefore expert criteria have been used to adjust their importance.

2. METHODOLOGY

We have used two different groups of indicators. The first group will consist of sustainability indicators refer only to the environment by:

- Impacts of port activities on the environment.
- The actions taken by the Port Authority to limit the impact.

So these indicators are linked to:

- Environmental management and financial resources dedicated.
- Environmental quality.
- Ecoefficiency.
- Implementation of management systems in the port community.

2. METHODOLOGY

The second group of indicators is a group of generic indicators that have to do with the type of port operations: dry bulk, liquid bulk, general cargo, etc.; with the physical characteristics of the ports: surface, spring length or number of cranes; and economic factors, such as gross domestic product (GDP). These indicators are used to supplement environmental indicators and will be used to analyze the relationship between the main port activity and the values of environmental indicators.

3. CASE STUDY: APPLICATION TO THE SPANISH PORTS

- It has been chosen nine of the 28 Spanish Port Authorities. These ports are spread around the Spanish coast and belong to five different Autonomous Communities and, it has been also considered the autonomous cities of Ceuta and Melilla because of its relevant characteristics.
- The ports selected for the study are: Alicante, Bahía de Algeciras, Baleares, Castellón, Ceuta, Melilla, Santander, Sevilla and Tarragona.

3. CASE STUDY: APPLICATION TO THE SPANISH PORTS

The assumptions that are intended to compare to classify ports according to the concept of green port are as follows:

1. Environmental indicators reflect the impact of port activities on the environment, and this is a fact that must be taken into account in port competitiveness (domestic and international).

2. The port area is suitable to transfer the concepts of sustainability, efficiency, marketing, etc. that have been made in city environments and to achieve a classification of ports based on the factors chosen.

4. CONCLUSIONS

The greatest difficulty in reaching reliable results in the grouping of ports is to determine appropriate environmental indicators. Of course, should represent the sustainability aspects that wish to be measured. So that, the indicators that have been used in compliance with the qualities to be objective, manageable and reliable, are considered perfectly adequate for measuring environmental sustainability. However, in some cases, indicators are not always as representative as them are required or are somewhat imprecise, redundant or poorly homogenized.

4. CONCLUSIONS

The main conclusion to be drawn is that it is possible to use sustainability indicators for classification of a port within the characteristics of green port. These indicators can be operated to perform grouping, like other groupings are performed based on other criteria and other indicators. It is also possible to make a study of dependence between variables to check the impact they have each other, and in turn, to study the relationship between environmental indicators and among other environmental indicators of different types.

Thank you for your attention !

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