

## **Operations Research in Port Logistics**

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### **Abstract**

This document presents a description of research that relates to port operations in favor of operational efficiency and highlights the avenues of academic research used in solving problems of relevance in the port operational chain. It identifies the focus of the literature that focuses on berthing allocation, dock crane scheduling and internal freight transport operations as the productivity and performance of the terminals are linked to these operation nodes. Given that port activities are sequential and that many ports worldwide have port access channels on which the access and departure of vessels depend, the programming of ship transit on these channels has taken on great relevance in research to avoid traffic conflicts and subsequent delays in other operations.

### **Keywords**

Port Logistics, Restricted Access Channels and Port Traffic Scheduling.

### **Biographies**

Cinthya Mariam Peña Rua is a Civil Engineer from the National University of Colombia. Master's student in Engineering at the University of Antioquia. Interests in spatial analysis, sustainability in planning projects, systems of geographic information, modeling of projects infrastructure, data analysis and port logistics.

Juan Sebastián Jaén Posada is an Administrative Engineer, Master's in systems Engineering and Doctor of Engineering from the National University of Colombia. He is a teacher of the General Systems Theory, Systems Dynamics, and Research Methodology courses. He is a member of the ALIADO group of the Department of Industrial Engineering of the Faculty of Engineering of the University of Antioquia, and his field of research is focused on business logistics and the health sector.

Carlos Alberto Pastrana Arango is a Teacher at the Faculty of Administration Sciences in International Business and Logistics, with experience in national and international university institutions, holding positions as researcher, teacher, and dean. His professional experience has allowed him to participate and lead important research projects related to transport, international logistics, port management, supply chain management and business management. These projects and his postgraduate studies have resulted in important publications in international scientific journals. Proceedings of the First Central American and Caribbean International Conference on Industrial Engineering and Operations Management, Port-au-Prince, Haiti, June 15-16, 2021

Juan José Bravo Bastidas is a Teacher at the School of Industrial Engineering of the Universidad del Valle. Doctor of Engineering with an emphasis in Industrial Engineering from the Universidad del Valle and Magister in Systems Engineering from the Universidad del Valle. Interests in optimization of abstention chains, humanitarian logistics models (in the case of floods and landslides), manufacturing capacity analysis (with simulation), inventory management and modeling and port management.