Management and Recommendations of Nautical Simulators and Laboratory: Multiple-Site Case Study

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ABSTRACT
This study aims to manage laboratory management and nautical simulators at Marine Science Polytechnic of Semarang and Polytechnic of Surabaya. Methods This research uses a multi-status study (multiple-site case study) in two institutions. This study uses interview guide instruments, observation sheets, and a list of documentation studies. The results showed that the laboratory management of Marine Science Polytechnic of Semarang and Polytechnic of Surabaya was said to be good. With qualifications in planning, supervising, managing, supervising laboratories and nautical simulators. Laboratory planning and nautical simulators at Marine Science Polytechnic of Semarang through four stages, the procurement preparation stage, the selection preparation stage, the selection implementation stage, and the contract implementation stage and handover of work results. Meanwhile, planning for laboratories and nautical simulators at Polytechnic of Surabaya is divided into 2 (two), procurement of new goods and maintenance. The findings in this study are emphasized on the results of data collection through interviews and documentation sent by resource persons to researchers. And the conclusion of the study shows that the quality management of both marine Science Polytechnic of Semarang and Polytechnic of Surabaya has been running well according to the procedure.

INTRODUCTION
Indonesia is an archipelagic country that has 17,504 islands. These islands are surrounded by a very wide sea of almost 5.8 million km2, leaving 2/3 of the area as an ocean. With this area covered by seawater, Indonesia takes advantage of the potential to become a maritime axis country in Asia and internationally (Rustam, 2020). As a maritime axis, the development of the shipping industry and fishing industry is also increasing (Saragi et al., 2018). The increase in the shipping industry is indicated by data that there is an increase in the number of ships with a carrying capacity of 3,000 TUEs totaling 13 in 2019. This condition indicates that there is an increase in the volume of ship transport (Bappenas, 2019).

The increasing volume of ship transport is a sign that Indonesia’s maritime sector is moving forward (Santoso et al., 2019). However, this increase in the volume of ship transportation is not supported by the availability of human resources (HR). There is a release from the Ministry of Transportation (2020) at this time. Indonesia still lacks skilled human resources for sea transportation shipping, shipping, machinery, ports, fishing technology, marine aquaculture technology, and marine product processing technology (Setiawan et al., 2021). Maritime human resources available as many as 340 thousand seafarers, with 262 people working in the country and 78 thousand people working abroad (Sitoris, 2016). This amount still cannot cover the need for human resources in the marine sector, there is still a shortage of 18 thousand seafarers at the officer level and 25 thousand at the branch level.
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