DEVELOPMENT OF SHIP INSPECTION STRATEGY BY INTEGRATION OF AUTOMATIC IDENTIFICATION SYSTEM (AIS) DATA AND GEOGRAPHIC INFORMATION SYSTEM (GIS)

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Abstract
Poor implementation of safety standard is considered as one reason of high ship accident level in Indonesia. One attempt to increase the safety standard of ship is to implement one of rules published by International Maritime Organization (IMO) regarding to inspection strategy for ships that operate in port area. The inspections are done by port state control officer (PSCO). In respect to the inspection strategy, Tokyo MOU requires that 25% population of ocean going ships other than home flag state that enter the port area should be inspected by PSCO. Based on this condition, PSCO needs to define a rank for each ship to make priority ranking for conducting the inspection. This study aims to develop an internet-based ship inspection strategy by utilization of automatic identification system (AIS) data and geographic identification system (GIS). Ship inspection strategy is done by calculating inspection score as consideration to determine the inspection priority of ship. Inspection score is determined by weighting inspection variables defined by Tokyo MOU using analytical hierarchy process (AHP). AIS data which is combined with ship database, inspection score is then to be overlaid with Google Map to develop this internet-based ship inspection strategy. The developed system was done using AIS data at Tanjung Perak and Gresik Ports. The system displaying
ship position, identity, inspection rank and inspection status of ship.

Keywords: Inspection Score, Automatic Identification System (AIS), Geographic Information System (GIS), Analytical Hierarchy Process (AHP)