ABSTRAK

Pendangkalan mulut sungai memberikan dampak negatif bagi daerah sekitarnya, sehingga harus dilakukan pengendalian. Dalam rangka melakukan pengendalian, Balai Besar Wilayah Sungai Serayu Opak melakukan pembangunan *Jetty* Muara Sungai Bogowonto pada tahun 2020-2023 dan sebelumnya pada tahun 2017-2019 membangun *Groin* di Muara Sungai Ijo. Analisis perbedaan kedua proyek dilakukan untuk melihat *improvement* yang dilakukan. Ketidaksesuaian antara perencanaan dengan kondisi lapangan memerlukan rekayasa untuk melakukan penyesuaian. Pembangunan yang belum memanfaatkan *Building Information Modelling* (BIM) dan belum mempertimbangkan eko-infrastruktur mendorong studi sejauh mana penerapan *Building Information Modelling* (BIM) dan eko-infrastruktur bangunan pengaman pantai di dunia. Penelitian dimulai dari studi literatur melalui buku dan penelitian-penelitian terdahulu yang terkait. Selanjutnya melakukan pengumpulan data primer yang diperoleh dari kegiatan magang, survei, dan wawancara. Data sekunder diperoleh dari konsultan supervisi, kontraktor, dan jurnal. Setelah data diperoleh, maka dilanjutkan dengan analisis permasalahan pada setiap tinjauan. Berdasarkan hasil analisis dapat disimpulkan bahwa metode pelaksanaan Pembangunan *Jetty* Muara Sungai Bogowonto melakukan *improvement* dari Pembangunan *Groin* Muara Sungai Ijo. Rekayasa yang diterapkan cukup banyak meliputi jenis tipe semen tahan sulfat, pemasangan cerucuk bambu dan matras, batu pengunci (*crop*), perubahan *alignment* tanggul, toleransi untuk berat blok beton, penyesuaian porositas di lapangan, pemasangan yang mempertimbangkan stabilitas produk, penentuan berat *toe* mempertimbangkan ketinggian *crane*, penambahan beton *interlock* dan *concrete cap*, dan penomoran produk beton untuk pengecekan jumlah. *Penerapan Building Information Modelling* (BIM) pada bangunan pantai sudah mencakup 3D, 4D, 5D, 6D, dan 7D dan mendukung SDGs poin 1, 4, 5, 6, 8, 9, 11, 12, 13, 14, dan 17. Namun, masih sangat perlu dimasifkan. Penerapan eko-infrastruktur pengaman pantai di dunia sudah banyak, mendukung tujuan SDGs poin 1, 6, 9, 11 12, 13, 14, dan 17. Namun, perlu dikaji lebih mendalam disesuaikan dengan kondisi lokasi.

Kata kunci: muara sungai, rekayasa, eko-infrastruktur, *Building Information Modelling* (BIM)

ABSTRACT

The silting of the river mouth harms the surrounding area, so it must be controlled. To carry out control, the Serayu Opak River Basin Center carried out Jetty at the Bogowonto River Estuary in 2020-2023 and previously in 2017-2019 built Groin at the Ijo River Estuary. Analysis of the differences between the two projects was carried out to see the improvements made. The discrepancy between planning and field conditions requires engineering to make adjustments. Developments that have not utilized Building Information Modeling (BIM) and have not considered eco-infrastructure encourage studies of the extent to which Building Information Modelling (BIM) and eco-infrastructure of coastal protection buildings are applied in the world. The research started with a literature study through books and related previous studies. Next, collect primary data obtained from internships, surveys, and interviews. Secondary data were obtained from supervising consultants, contractors, and journals. After the data is obtained, it is continued with problem analysis in each review. Based on the results of the analysis, it can be concluded that the implementation method of the Jetty at the Bogowonto River Estuary made improvements to the Groin at the Ijo River Estuary. Engineering applied includes types of sulfate-resistant cement, installation of bamboo cones and mattresses, cropping stones, changes in embankment alignment, tolerances for the weight of concrete blocks, porosity adjustments in the field, and installation that considers product stability, determination of toe weight considering height cranes, the addition of concrete interlocks and concrete caps, and the numbering of concrete products to check the quantity. The application of Building Information Modelling (BIM) to coastal buildings already covers 3D, 4D, 5D, 6D, and 7D and supports SDGs points 1, 4, 5, 6, 8, 9, 11, 12, 13, 14, and 17. However, it still really needs to be massive. There are many applications of eco-infrastructure for coastal protection in the world, supporting the SDGs goals points 1, 6, 9, 11 12, 13, 14, and 17. However, it needs to be studied more in-depth according to location conditions.

Keywords: river mouth, engineering, eco-infrastructure, Building Information Modelling (BIM)