

## INTISARI

*Yogyakarta International Airport (YIA)* merupakan bandara baru yang beroperasi di Daerah Istimewa Yogyakarta tepatnya berada di Kecamatan Temon, Kabupaten Kulon Progo. Kehadiran bandara baru tentunya akan membawa berbagai manfaat seperti peningkatan kegiatan ekonomi di kawasan sekitar bandara. Akan tetapi, lokasi tersebut memiliki masalah yaitu risiko terjadinya banjir. Ancaman banjir akan berdampak buruk bagi masyarakat sekitar bandara bahkan dapat mengganggu operasional bandara seperti pengiriman barang serta akses menuju dan keluar bandara. Dengan adanya permasalahan tersebut dibutuhkan upaya penanggulangan banjir agar aktivitas bandara YIA serta kawasan disekitarnya tidak terganggu. Salah satu upaya yang dapat dilakukan yaitu dengan memodelkan sistem drainase sekitar bandara dengan aplikasi EPA SWMM 5.1. Pemodelan tersebut bertujuan untuk mengetahui titik-titik lokasi banjir beserta penyebabnya dan kemudian melakukan upaya normalisasi serta penambahan tanggul di saluran tersebut. Pemodelan dengan EPA SWMM 5.1 membutuhkan beberapa input data seperti data distribusi hujan, karakteristik DAS, dan tampang melintang saluran drainase. Hasil penelitian menunjukkan terjadi luapan di 15 saluran drainase yang dikaji. Penyebab terjadinya luapan yaitu tingginya limpasan permukaan, sedimentasi di dasar saluran dan terjadinya *backwater*. Upaya penanggulangan dengan cara normalisasi dan penambahan tanggul dirasa cukup untuk mengatasi banjir di beberapa saluran. Sedangkan untuk saluran yang masih mengalami banjir membutuhkan upaya penanggulangan lain seperti kolam retensi.

**Kata Kunci:** SWMM 5.1, Drainase, Pengendalian Banjir, Normalisasi

## **ABSTRACT**

Yogyakarta International Airport (YIA) is a new airport that operates in the Special Region of Yogyakarta, located in Temon District, Kulon Progo Regency. The presence of the airport will undoubtedly bring various benefits, such as increasing economic activities in the area around the airport. However, the location has a problem, namely the risk of flooding. Flooding can affect activities around the airport, such as freight forwarding activities and access to or from the airport. Based on this problem, efforts are needed to prevent the flood that occurs does not have an impact on the activities of YIA airport and the surrounding area. In this case, the researcher used the EPA SWMM program in modelling the drainage system at the site under study. Modelling the point of occurrence of flooding will make it easier to normalize and add embankments to the channel. Modelling with EPA SWMM 5.1 requires input data such as rain distribution data, watershed characteristics, and the transverse appearance of the drainage channel. The results showed an overflow in the 15 drainage channels studied. The causes of overflow are high surface runoff and sedimentation based on channels and backwaters. Efforts to overcome by normalizing and adding embankments are sufficient to overcome flooding in several channels. Meanwhile, for channels that are still experiencing flooding, other countermeasures, such as retention ponds, are needed.

**Keywords:** *SWMM 5.1, Drainage, Flood control, Normalization*