

# **Integrative Approach for Designing the Collection System Network for Malappuram City, Kerala using MIKE+ Model**

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## **ABSTRACT**

MIKE+ model is used to design the collection system of Malappuram city situated at 54 km south west of Calicut and 90 km North West of Palakkad of Kerala state. The shapefile of the study area, SRTM 30m Digital Elevation Model, and rainfall data for the years 2017-2020 were collected and added as layers in MIKE+. Through manhole digitization followed by link creation, catchment delineation, catchment connection, and various boundary conditions, the rainfall-runoff model and catchment discharge by rational formula were determined. In Malappuram city, there are nine outlets, majority of sewers are delivering water to outlets at nodes 1156, 2344, and 2955 to reduce the burden of waste. According to the diameter of the manholes, the collection system was observed to be oversized, but it is capable of collecting all wastewater from each residence and catchment runoff to outlets without the need of pumps by gravity flow. In future perspective, if the water level exceeds the set critical level, mainly for the trunks sewer A and G, it will be a point of concern and requires attention.

**Keywords:** MIKE+; 1-D Pipe hydrodynamics; Time area Method; Manhole digitization.