



# ICES 2024

## TITLE OF PROJECT:

**Designing a stormwater drainage network for Dhenkanal town using  
SewerGEMS**

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## ABSTRACT:

Urbanization and climate change have resulted in flood-prone situations occurring in many cities worldwide. Dhenkanal is a town situated in the Indian state of Odisha that has undulating topography and hillocks consisting of a highest elevation of 240m and a lowest elevation of 60m that receives an annual rainfall of 1421.1 mm. It was found that dry weather flow flows in the existing network. The existing shows the disposal of solid waste in it due to which problems such as choking of the drain arises, making it inefficient to carry out the stormwater during heavy rainfall events. Thus resulting in the formation of waterlogged areas. In this study, Bentley software will be used for the sufficiency analysis and designing of the storm water network for area of 19.17 sq.km. Based on a detailed survey, the existing and proposed network, streams, and waterlogged areas were identified. The flow markings and catchment delineation are done on QGIS to determine the outfall locations for draining the stormwater. Rainfall data is analyzed to draw Intensity Duration Frequency (IDF) curves to calculate rainfall intensity which is used for estimation of stormwater runoff. Hydraulic analysis is done to design channels/conduits to convey stormwater runoff for a return period of once in 2-years. The designed network will drain out the stormwater and make the town free from flooding.

**KEYWORDS:**

Stormwater, drainage network, SewerGEMS, QGIS, Urban flood

**CATEGORY:**

Architecture, Infrastructure, and Urban Science