

MITIGATION OF FLOOD RISK IN THE MANNAR URBAN COUNCIL AREA

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The elevation of lands in the Mannar peninsula varies from 0.5 m MSL to 3.0 m MSL and 26.0 % of lands are below 0.5 m MSL and most of the basins along the coastal belt are higher than the lands inland. Water pools are created inland when outflow canals to the sea are blocked. During the North East monsoon, particularly in November and December, the movement of storm surges from the surrounding sea inundates low lying coastal lands. After inundation water stagnates for more than 4 to 6 weeks until it gets evaporated to the atmosphere. The high tide level of the sea can go up to 1.25 m MSL during the monsoonal rains. The average high tide level is 0.75 m MSL.

Major problems in the city are the poor drainage and sea water intrusion. Besides, most of the human-made ponds have become the dumping ground for garbage and thus those ponds do not detain flood water.

This study presents a thorough investigation of flooding and its causes over a part of the Mannar city. This study further shows the possibilities to reduce vulnerability against flooding of Mannar Urban Council area by implementing a gravity drainage system with automatic flap gates. These flap gates automatically open to the seaside to drain inland flood water to sea and automatically closed when the sea-side storm surge tide level is higher than the inland drainage water level.