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### Sustainable Planning of Coastal Urban Wastewater Treatment Investments: Case Study of Mersin Bay

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In the last few decades, due to the enormous increase of urbanization, industrialization and tourism activities, eutrophication risk has been gradually gaining more significance, especially for closed/semi closed bays of Turkey. Similar environmental deterioration problems have been indicated for some particular bays at the Mediterranean coastal waters of Turkey by means of assessment of the national coastal area monitoring program results.

In order to protect marine environment suffering from urbanization activities, the necessity of implementation of sound pollution prevention measurement programs and developing realistic investment plans have been recognized by decision-makers and implementing organizations. In this frame, "Urban Wastewater Treatment Regulation" based on "Urban Wastewater Treatment Directive (91/271/EEC UWWTD)" was come into force in the beginning of the 2006. According to UWWTD, classification of water environment as to their sensitivity to eutrophication has crucial importance in planning the urban wastewater treatment investments.

In this context, the present study aims firstly to develop an evaluation methodology for the determination of sensitive/less sensitive areas based on coastal eutrophication assessment and then to apply this methodology to classify Mediterranean coastal zone of Turkey considering their sensitivity to eutrophication by using adequate parameters and data sets. In the methodology, morphological, geographical, hydrodynamic, biochemical and physical/optical characteristics of coastal areas and human activities were taken into account. By applying this quantitative methodology, Mersin Bay was designated as sensitive area. After designation of the sensitive/less sensitive areas, urban wastewater investment alternatives taking into account receiving water bodies characteristic were developed for the Mersin Bay case.

**Keywords:** coastal zone, eutrophication, sensitive area