



Identification of Coastal Protective Measurers in The Southern Coast of Sri Lanka Using GIS and RS Techniques Over 15 Years Period

A.P. Madarasinghe· E.P.D.N. Thilakarathne· T.W.S. Warnasuriya
epdarshananuwan@gmail.com

Abstract

Coastal erosion is regarded as a global problem, not limited to the Southern coast of Sri Lanka. It became severe due to the increment in population and infrastructure resulting in socioeconomic and environmental problems. Coastal protection structures are used to protect and prevent further loss of coastal lands that are bases of economic activities. This study used Google Earth pro platform to identify and digitize established hard protective structures namely Revetment, Groins, Breakwater, and physical alterations during 2005, 2010, 2015, and 2020 years. Physical alterations are making physical changes to the coastline including harbors, ports, jetties, and landfilling. A questionnaire survey was conducted to obtain responses from villagers on the Southern coast about hard protective structures. Results show that the length of Revetments in Galle district and Matara district increased to 12749.77 m and 5791.2 m respectively at the end of 2020. Since 2020, the total length of Breakwater in Galle and Hambantota districts increased to 382.6 m and 168.4 m respectively. The number of Groins in Galle, Matara and Hambantota districts increased to 20, 10, and 4 at the end of 2020. Groins in Galle district increased from 13 to 20 over 15 years. Questionnaire survey results revealed villagers are aware of protective structures and have 84% of satisfaction with established hard structures. They suggest “**Pana Wetii**” method as a coastal protective measure. Total harbor area increased by 2332133 m² and total jetty area increased by 754 m² from 2005 to 2020. Galle district had the highest concentration of hard structures as Southwest monsoon directly affects the Southwest coast and increases coastal erosion during that time. The establishment of those structures is highly subjective to the coastal area. So, it is not possible to appoint exact structures for the coastal area. In addition to that, hard coastal protection techniques can be combined with soft coastal protection techniques as long-term solutions.

Keywords: Protective structures, Southern coast, Sri Lanka, GIS, Survey

