

Coastal erosion

Coasts are among the most vulnerable areas on our planet. They are sensitive to both human and natural threats. They are subjected to disruptive phenomena, e.g. coastal erosion and floods, which can be caused by processes connected with climate change, like sea-level rise. The increase in the mean wave height and in the frequency of wave storms implies an increase in sediment transport processes, bringing about more intense coastal erosion.

About 40% of the current world population lives within 100 km from the coast and the population density in those regions is almost three times that of the inner regions. Developing countries feel the socio-economic impact of coastal erosion in a much harsher way, because the damages brought about by these processes can only be repaired with costly engineering solutions. In tropical areas, erosion threatens the stability of dunes and of the vegetation that develops on them, which play an important role in the mitigation of hurricanes and the protection of inland regions. In Italy the current state of many beaches is not reassuring: one third of Italian coasts is threatened by erosion which is changing the coastal landscape and has a profound impact on tourist economy.

In this scenario, low-cost and ecologically sustainable solutions are needed for mitigating the effects of coast erosion.