

Israel's and the Gaza Strip Coasts: CZM and Earth-Science Aspects

Daniel Hartmann

*Department of Geography and Environmental Development,
Ben-Gurion University, Beer Sheva 84105, Israel*

The southeastern Mediterranean coastal plain is heavily inhabited by Israel and the Palestinians of the Gaza Strip. The demographic pressure on this narrow belt will increase in the coming decades. The coastal belt, the coastline and the nearshore zone are most important economic resources and compose a sensitive, dynamic geomorphic system that reacts to any kind of impact

The geological stability of this sea-land system, namely the Nile littoral cell, has been in existence only for the last six thousand years, since the relative standstill of the postglacial sea-level. However, this stability is not assured for time scales of decades and centuries. Today there is much evidence, based on prehistoric and historic information, about fluctuations in sea level and interaction between sea level and coastline which is accompanied by loss of land and by destruction and retreat of the friable coastal cliff along the coast of Israel. The southeastern Mediterranean coast is of a balanced erosive type, meaning that as long as there is a positive sediment budget, the retreat of the coastline due to rising sea-level is minimal. Any negative change in the amount of the incoming sediments will turn the coast to a fully erosive, leading to severe coastal erosion and retreat. The Nile Delta was for many thousand of years a typical depositional environment due to the huge amounts of sediments brought in by the river Nile. Damming the Nile changed the picture and in recent times, along some coastal areas in Egypt the coast is fully erosive.

The man-created physical impacts cause rapid changes which stand in contrast to the slow uncontrollable global geological processes. In our century, since the beginning of intensive settlement demanding coastal oriented infrastructure as deep water harbors and marinas, the Israeli coastline suffered shortage in sediment budget resulting in sand starvation, leading to coastal cliffs erosion that are comparable to the damage caused by thousands of years of natural actions.

There are no studies related to long range impact of human actions and of artificial coastal structures on the environmental equilibrium and the direct and indirect economic damage that they cause the environment and the cost they impose. At the present time, there exists a very severe "knowledge gap" in all that relates to earth-science information about coasts and coastal processes in the southeastern Mediterranean. This gap is severely amplified by the usage and exploitation of beaches by different authorities and entrepreneurs. The attitudes of politicians and engineers in dealing with local interests and their domineering position in decision making cause serious damage over a period of time to the large scale coastal system. The purpose of CZM is to keep the equilibrium between conflicting interests which are struggling for the given amount of natural resources and to optimize the man-nature system with regard to the long range point of view.

In order to save the coastal system in the southeastern Mediterranean it is necessary to increase public awareness, to establish an earth-science scientific research infrastructure and finance it constantly, to prepare professional environmental impact studies for human activity and to come up with proper legislation.