

Letter to the Editor**Economic, Social and Environmental Aspects of Coastal areas, Lagoons and Wetlands in the era of Climate Change****Munir Ozturk**

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The majority of the world's largest cities are situated 50 kilometers or less from a shoreline. The population densities along the coast are 2.6 times higher than those in the interior. The issue has gotten worse because of the significant urbanization, population growth, and industrial projects surrounding this zone. Traveling has a big impact on coastal sprawl. Demands on coastal zones are always rising, which is causing serious environmental and socioeconomic issues along these delicate ecosystems. Despite increased awareness, there are still insufficient sustainable coastal management rules in place, and the proportion of protected coastal areas remains low despite a six-fold rise in recent decades.

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**Global Situation**

The countries having large coastal areas are facing common developmental challenges in agriculture, environment, and water. The plant diversity in such areas is exposed to diverse environmental stresses. Models of global climate predictions indicate that a further warming is expected for the coastal areas, lagoons and wetlands during this century.

Living beings are expected to experience increase in high temperature stresses. General agreement among the scientific community is that there is an urgent need to preserve the natural ecosystems, whose resources can contribute significantly to the food shortage in future. This is attracting more attention towards the research into responses of the living beings to such stressful conditions in particular along coastal zones, lagoons and wetlands throughout our globe. These typical ecosystems are expected to be home to nearly 75 percent of the world population in the coming decade.

We can use Turkey as an example, whose 8333 km of coastline stretches from the Georgian border in the north to the Syrian border in the south, fronting the Black Sea, Marmara Sea, Aegean Sea, and Mediterranean Sea. A sizable hinterland full of lakes, wetland, and lagoons supports the coastline.

The aquatic ecosystems provide several benefits and many natural services by supporting muddy coastal swamps, sand dunes, and fissured cliffs with a significant contribution in the overall productivity. Number of dunes on the coasts are key areas of vulnerability in particular

to the climate change now and in the future. Biogeo-graphically important exotic karst formations of corrosive origin predominate along the southern and southwestern coasts of Turkiye, being main centre of coastal endemism.

Changing Coastal Zone Ecology

The natural coastal ecosystems still left over from the coastal exploitation globally are well preserved. The causes of the lost and degraded ecosystems are sedimentation, pollution, freshwater withdrawal from ground and surface water sources, overfishing, and shoreline hardening. The degradation is accelerated by tourism, deforestation, industrial establishments, sand extraction, grazing and mining activities.

Currently no protection is seen for coastal dune vegetation. Urbanization is spreading along the coast and highway constructions and big hotels are replacing the dunes. Turkish coastal zone inhabits nearly 200 halophytic taxa (39 endemics), nearly 33 endemic and 11 non-endemic halophytes are in danger of extinction. So is the situation in other countries. The littoral halophyte taxa and psammophyte plant communities serve as reclusive areas for many resident birds and other animals, as well as a refuge for the migratory birds.

Halophytic forage crop production could be utilised in areas where groundwater salinity is significant. Because halophytes are found throughout every coast in the world, these taxa are particularly susceptible to various ecological, physical, and social disruptions. Such a plant cover has enormous promise for improving damaged lands and for human consumption.

Lakes, Lagoons, Wetlands

We find a richness of aquatic and marshy habitats in the world. Such area in Turkiye only is 1.2 percent of total area, approximately 10.000 km² and these are serving as habitats for 624 taxa spread over 82 associations and plant communities with 36 endemics (mostly halophytes) found only on saline-marshy habitats and 27 taxa recorded only from one locality.

Climate Change Impacts

By the end of this century, the IPPCC projects that the mean sea level may increase by as much as 88 cm, which will have a multitude of effects. Flooding can change the physical makeup of habitats and reduce their appropriateness and availability along beaches, estuaries, and river deltas. Their stress levels will rise dramatically as a result of global warming. As surface water absorbs heat from rising air temperature, sea surface temperatures will rise. Variation in temperature has a major impact on a species' ability to reproduce and survive. The oceans take in CO₂ from the atmosphere in addition to heat. A loss of native biodiversity will result from the high number of invasive species that are drawn to coastal and marine areas with naturally existing high CO₂ levels.

Quo-Vadimus

The preservation of coastal ecosystems is becoming more and more crucial for maintaining coastal livelihood by acting as buffer against the effects of climate change. These ecosystems must be shielded from the effects of global warming. Rather than society reacting to the climate catastrophe only after it was too late, it would be preferable if political vision and public

understanding lead to prompt and efficient actions to prevent the huge cost of global warming. Any delay will result in loss of adaptation. In order to comprehend the vulnerability of coastal zones, it is imperative to evaluate the effects of climate change. The way coastal habitats are now managed is not sustainable. Because integrated coastal zone management (ICZM) will take into account the social, economic, and biological resources of the coasts, its significance must grow. Adopting sustainable practices is necessary to lessen adverse effects, such as climate change.

Even though the global suggestions have had a favorable influence by supporting a "more holistic spatial planning," there have been few advancements and delays. The ongoing deterioration of the coastal environment continues to be a major issue. At the federal level and across the board, we need to adopt a regional strategy for the economy. Since land ownership issues are most prevalent along our beaches, a unique system should be established to address these issues on a worldwide scale.