

## **Against the Sand and the Sea: Dune Intervention in Coastal Defense Strategies**

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In Portugal for a very long time, the dunes presented a problem. They were considered unproductive and dangerous. The sand blown by the wind was taken inland, invading agricultural fields, silting the mouths of rivers, and destroying some villages, forcing people to move away. In the nineteenth century, Portuguese authorities developed a strategy to fight against the dunes: they trapped them with pine trees, fulfilling the double purpose of preventing the destruction of arable land and increasing their economic value by converting them into forest areas. The Portuguese learned the dune arborisation techniques from the French—these methods were also used in Germany, Denmark, and Holland. Then this knowledge was exported to the former Portuguese colonies of Mozambique and Angola. The immobilization of the shifting sands with trees was also done in South Africa, Australia, New Zealand, and the United States of America.

What makes dune intervention especially interesting is its geographical and temporal scope and the questions that lay beneath it. First, sand mobility appears to have been a problem in many countries. Dune immobilization was a solution adopted in several parts of the world. This means that sand control techniques circulated through networks that crossed borders and spanned the globe. Second, dune intervention seems to have old roots in many northern European countries, but far from being an issue from the past, it's still relevant today. Since dunes have been considered one of the best natural forms of protection to mainland from seasonal high tides, storm surges, and hurricane-generated waves, scientists and authorities worldwide have promoted their rehabilitation. Dune recovery today is a response to the increasing risks of coastal zones occupation and their intense human use in the twentieth century. Reasons for dune intervention have changed, but the techniques applied to dune recovery are almost the same as the ones used in the eighteenth and nineteenth centuries. However, these historical works are poorly known. Important knowledge acquired by the practical experience of past centuries is being neglected. Historical experience may inform today's landscape strategies.

Based on within-case analyses and through transnational and comparative approaches, my project focuses on the study of the interactions between distant areas situated in diverse geographical and cultural contexts all over the world, analysing its effects at a local level, both in societies and landscapes. My main objectives are to: (1) find the roots of dune arborisation, the reasons for such works, and the way this knowledge passed from one place to another; (2) compare the methods used in the different regions; (3) analyse the public speech that justified such a strong expense in humans, time, and money, as dune arborisation implied expensive and hard work; and (4) compare people's attitudes towards dune immobilization in different countries.