

# Ecosystem-based adaptation to cope with sea-level rise and extreme climatic events

Uruguay Kiyú, San José, on Uruguayan coast of the Rio de la Plata river estuary

**Ecosystem-based adaptation (EbA) strategies were implemented near Kiyú on the Uruguayan coast to mitigate the effects of sea-level rise, storm surges, strong winds and sand dune erosion.**

In a coastal area of Uruguay, regeneration of sand dunes and revegetation with native plants was carried out to aid in the recovery of the coastal ecosystem. To make conditions more favorable to the native sand dune grasses and shrubs, large planted Eucalyptus trees were cut down, a strategy which has been shown be beneficial to the maintenance of sand bluffs. A low-tech, low-cost sand captor fence made out of tree branches was also installed to protect the bluff and support the recovery of the dune system. The regrowth of native vegetation reportedly helped reduce erosion and increase natural drainage, building resilience to flooding in storms. According to a study, the initiative was implemented in a participatory way, involving the local community and institutional stakeholders, and prioritized the capacity building of municipal and local government actors in EbA and Integrated Coastal Management (ICM). A Vulnerability Reduction Assessment (VRA), an important tool used by the United Nations Development Program (UNDP) for their community-based adaptation programmes, was conducted post-implementation and revealed that participants perceived themselves to have lower vulnerability and higher adaptive capacity after the implementation of the program. The study reported an increase in the resilience of the social-ecological system, encompassing both the ecosystem and human components. A systematic monitoring and evaluation strategy was also put into place as part of the program.

## Case effectiveness on

### Climate change

**Mitigation:** Not reported

**Adaptation:** Positive

Successful recovery of the sand dunes was reported through the study, as well as higher resilience of the ecosystem to storms.

### Ecosystem health

**Ecological effect:** Not reported

Native vegetation was replanted instead of exotic trees, reportedly helping to regenerate the sand dune ecosystem closer to its natural state. A nursery of native plants was also established to support the sustainable continuous



Photo © Jeremy Bishop

Conducted at landscape scale

### Intervention type

Restoration

### Ecosystem type

Coastal

### Climate change impacts addressed

Coastal erosion

Coastal inundation

Storm surge

### Instigators

Community/self driven

State/district/local government agency

Local NGO or CBO (eg. indigenous)

National government/agency

### Societal challenges

Climate change adaptation

Disaster risk reduction

### Literature info

Peer reviewed

Case methodology reported

### External case resources

Read resource 1

revegetation of the dune system.

## Socioeconomics

Local stakeholders, including community members and local governments, as well as subnational governments, were reportedly actively involved in the implementation of this EbA strategy. The initiative engaged in capacity building and a socio-institutional learning process, where the EbA approach was mainstreamed into government activities and budget and adaptive governance was encouraged. The vulnerability reduction assessment provided a space for participation, feedback and future adaptation planning.