



SHORT BOOK

KAŠTELA ACTION PLAN

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Interreg
Mediterranean



CO-EVOLVE

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THREATS AND ENABLING FACTORS (T&EF) TO/FOR SUSTAINABLE TOURISM

THREATS: CLIMATE CHANGE AND MORPHOLOGICAL STABILITY

In the coastal area of the City of Kaštela, main climate change hazards identified are the following: the rise in average air and sea temperature; the decline in total rainfall; the increase number of heat waves, their duration and intensity; the concentration of precipitation in short periods and increase number of extreme precipitation events; the accelerated sea level rise in future, from today amount of about 30 cm per 100 years to the predictions of 50-100 cm or over 1 meter till year 2100.



View of the City of Kastela (source: www.kastela.hr)

The City of Kaštela is located in Kaštela bay, low coastal area is urbanised and natural hilly area is stretching inland. Today, sea level rises up to 80 cm during storms. Extreme precipitation in short period causes extreme volumes of water in urbanised coastal zone because the drainage system is not developed and torrents are coming from hilly inland areas. When these two impacts coincide, all the rainwater from hilly and urban areas together with sea and underground waters are causing flooding of the lowest urbanised zone. In future, occurrences of such events will increase. Therefore, the vulnerability assessment started with mapping of the lowest coastal zones.

GIS analysis of vulnerability to coastal flooding has shown that 28 ha is in zone up to 1 m above sea level and already exposed to sea flooding (hereinafter Zone 1,

shown in red color on the picture), 35 ha is in zone from 1 to 2 m (hereinafter Zone 2, orange color), and 4 ha in zone from 2 to 3 m above sea level (hereinafter Zone 3, yellow color).



Coastal heights above sea level: Zone 1 (0-1m) in red color, Zone 2 (2-3) in orange, Zone 3 (2-3) in yellow, buildings footprints (light blue) and housing units (dots)

Zone 1, already exposed to sea flooding, is the area of historic centers and densely populated, also an important tourism resource with sea sidewalks, beaches and parks. GIS analysis has found that in Zone 1 there are 7,5 km of roads with utility lines, 12 ha of protected cultural heritage areas, 5 ha is under buildings, and there are 613 housing units.

THREATS: LITTORALIZATION AND URBANIZATION

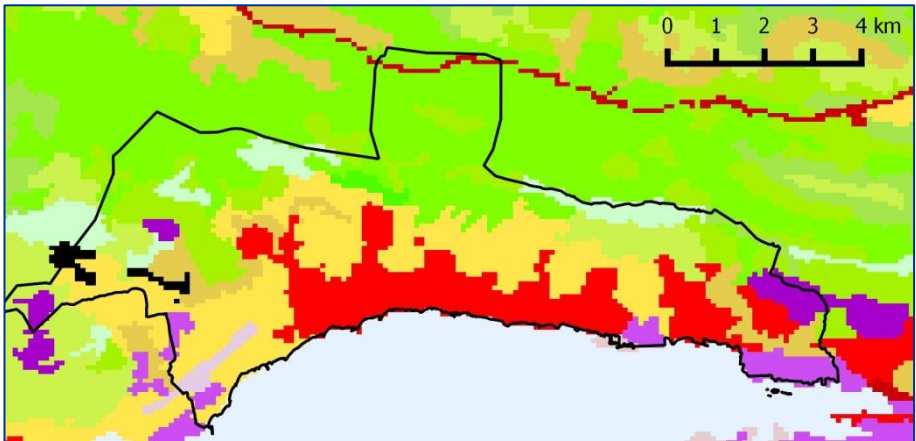
City of Kaštela is continuously facing the processes of littoralization and urbanization. Today, the population is estimated to 40.000 (2015) what is 5.000 more then 10 years ago. Together with the regional centre, the City of Split, and settlements in the vicinity, City of Kaštela is part of the largest urban agglomeration on the east coast of the Adriatic Sea having population of 320.000.

According to Corine Land Cover Croatia 2018, the following areas are represented in the area of the City of Kaštela:

- 27% artificial surfaces (urban, commercial, industry, transport, mine, etc, all shown in red and violet colours on the map below);
- 31% agricultural areas (yellow colours); and
- 42% forest and seminatural areas (green colours).

Looking at the spatial distribution, artificial areas are stretching along the coastline and occupying almost all the coastal zone. Coastline of 23 km is

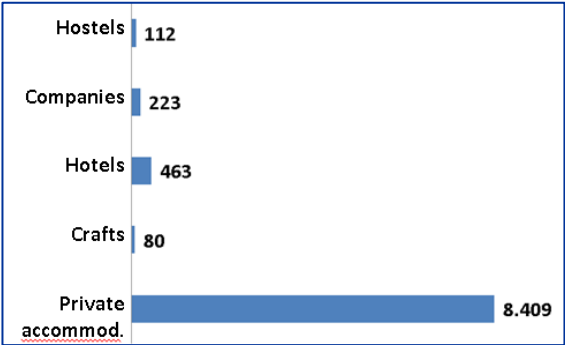
dominantly artificial (concrete or stone boulders) with remaining parts of the natural cost on the west side of Kaštela Bay.



Map of land cover according to the CORINE classification for the area of the City of Kaštela

THREATS: TOURISTIC FLUXES AND CARRYING CAPACITY

Uncontrolled and strategically undefined tourism development is reflected in the expansive growth of the number of arrivals, the pronounced seasonality of tourist traffic, and the overloading of all forms of infrastructure, especially traffic. According to the data of the Kaštela Tourist Board, in 2018, Kaštela made 101,506 arrivals (an increase of 19.98% compared to 2017) and 585,741 overnights (an increase of 18.22% compared to 2017).



Number of accommodation units by type in the City of Kaštela

The main identified problems are:

- the imbalance between capacity and volume of demand;
- excessive use and resource contamination (sea, air);
- unauthorized and / or uncontrolled activities of various stakeholders in tourism;
- expressed seasonality;
- too much orientation to private accommodation in the structure of accommodation offer.

THREATS: POLLUTION AND OTHER ANTHROPOGENIC PRESSURES AFFECTING ECOSYSTEMS

The main issues regarding the natural environment include: pollution (air, water, soil), closed gulf highly vulnerable to sea pollution, degradation of habitats and landscapes and endangering biodiversity.

Growth of population in recent past and today growth of tourists is putting high demands on all the infrastructure. Regarding water infrastructure, situation is the following:

- uneven water consumption (peak load in summer);
- incomplete and unfinished drainage systems (less than 25% of the city area);
- no wastewater treatment;
- undeveloped rainwater drainage system;
- flood threats;
- damage to coastal water infrastructure from sea flooding.

Waste disposal is facing the following problems:

- disposal at landfill Karepovac (having no proper waste management);
- low level of separation of waste;
- there is no complete waste management system in accordance with regulations (separation, recycling yard, etc ...);
- annual quantities of waste are constantly growing (peak in summer).

THREATS: CONFLICTS AMONG DIFFERENT USES ON LAND AND AT SEA AND LAND-SEA INTERACTION

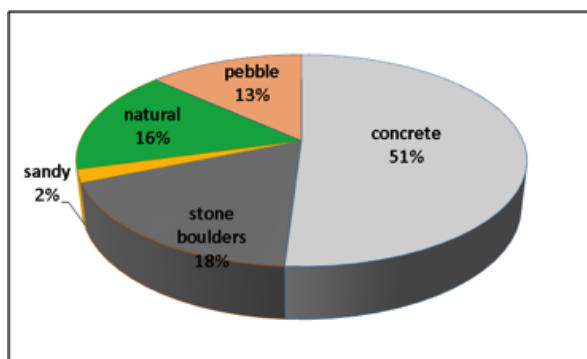
The main land use of coastal zone in the City of Kaštela is residential. Another activity, emerging inside the residential areas, is tourism. Maritime transport is sporadic, e.g. providing one-day trips to tourists. Fishing activities are recreational, mainly involving residents.

There is a complex interaction between residential use and tourism. Today, tourist growth has initiated the renovation of old and often abandon buildings in the historical centres and introducing tourist as temporally residents. This creates pressure on the public space: beaches, parks, parking places, local transport and traffic.

The remaining natural coastline is under pressure of urban and/or tourism development. All coastal ecosystems are under pressure of highly urbanised coast what could cause lost of important tourism resources: beaches, clean sea (eutrophication).

ENABLING FACTOR: COASTAL PROTECTION MEASURES

Today, coastline of 23 km is dominantly artificial (concrete or stone boulders) with remaining parts of the natural cost on the west side of Kaštela Bay. Pie chart shows percentage of the coastline types.



Percentage of coastline types (of total 23 km)

ENABLING FACTOR: ECOSYSTEMS PROTECTION

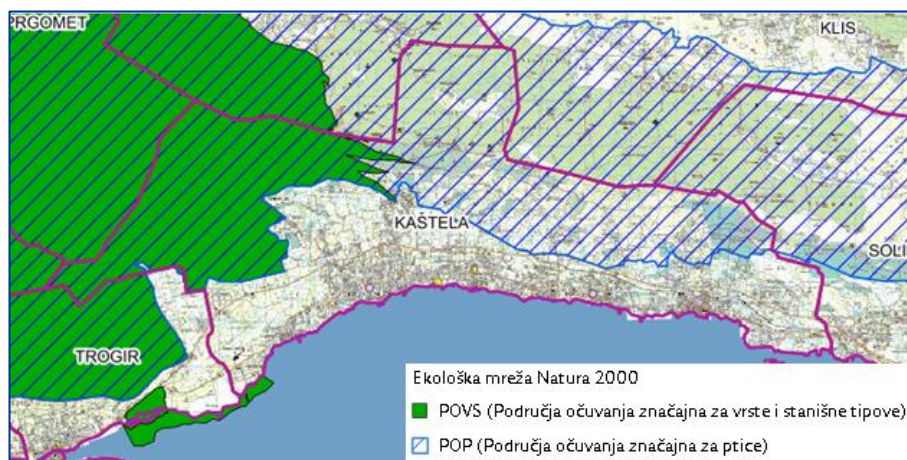
In the area of the City of Kastela there are 5 protected areas pursuant to the Nature Protection Act (OG 80/13), of which 3 are park architecture monuments and 2 nature monuments. Within and close to the administrative boundaries of the City of Kastela are several areas of the ecological network.

Ecological Network, POP - Conservation Areas Important to Birds

- POP HR1000027 Mosor, Kozjak and Trogir Zagora

Ecological Network, POVS - Conservation areas significant for species and habitats

- POVS HR2001363 The hinterland of Trogir
- POVS HR3000459 Pantan-Divulje



Map of the Natura 2000 Ecological Network area

ENABLING FACTOR: WATER SUPPLY AND DEPURATION

The area of Kastela has a high level of connection to the public water supply system, more than 87% of households. Wastewater drainage in these areas is solved with collection pits. The sewer network is gradually being built and the number of sewer connections is gradually increasing. Sewerage is low, less than 40%, and should be greater than 80%.

The large population inflow and intensive construction did not follow the construction of sewerage infrastructure, which in the recent past has led to large pollution of the coastal sea. Therefore, in 1996, a large infrastructure project, Eko

Kastela Bay, was launched, with the aim of building sewerage and water supply networks, purification plants and devices for disposal of purified water in the shore.

The present realization of the project has led to a significant improvement of the quality of the seawater along the coast of Kaštela, the value of beaches for bathing has returned and Kaštela again becomes an attractive tourist destination.

ENABLING FACTOR: TRANSPORT AND ACCESSIBILITY

Close vicinity to the Split international airport and Split ferry passenger port enables easy accessibility to this PA for the overseas tourists. Regular ferry lines serve with the other Adriatic countries like Italy (Ancona, Bari) and Greece. The historic city of Split and Trogir can be reached by public transport buses, although the frequency may be increased. In recent years, taxi transport became cheaper and easier and faster accessible by use of mobile application.

ACTION PLAN FOR SUSTAINABLE TOURISM

The Action Plan aims to promote sustainable forms of tourism-driven development with focus on coastal protection measures as a key factor for preserving coastal zone, increasingly endangered due to the effects of climate change, particularly rising sea levels and floods.

The expert team has undertaken the comprehensive diagnostic analysis including findings from the stakeholders. The four workshops are organized to gather additional information and set a future vision of development. On the one hand, knowing the present situation and problems, and on the other hand, defining the anticipated future state of the area, the priorities and measures have been defined that will bring the area from the present to the future state.

GOAL N° 1 Implementation of an integral approach to managing the coastal area of Kaštela in the context of climate change;

PRIORITY 1.1. Development of a management structure for the implementation of the integral approach to managing the coastal area of SDŽ

Measure 1.1.1. Establish a Coordination Board for Integrated Coastal and Marine Management of the SDI

Measure 1.1.2. Determine the boundaries of the maritime domain

Measure 1.1.3. Implement the monitoring system in the coastal area

PRIORITY 1.2. Strengthening resistance to climate change

Measure 1.2.1. Strengthen coastal and infrastructure resilience to climate change

Measure 1.2.2. Introduce innovative tools for managing the coastal area of Kaštela Bay and SDŽ in conditions of climate variability and change

Measure 1.2.3. Establish an Early Warning System for Coastal Area

Measure 1.2.4. Strengthen resistance and manage the risks of flood, drought and fire

Measure 1.2.5. Strengthen awareness of sustainable coastal development and the need to adapt to climate change

Measure 1.2.6. Strengthen the resilience of the coastal economy

GOAL N° 2 Preservation and improvement of the state of the natural and the built environment;

PRIORITY 2.1. Preservation and improvement of the state of the natural environment and landscape values

Measure 2.1.1. Protect the sea, water, air and soil from pollution

Measure 2.1.2. Preserve the landscape value of the coastal area

Measure 2.1.3. Preserve indigenous and traditional agricultural cultures

PRIORITY 2.2. Preservation and improvement of the state of the built environment

Measure 2.2.1. Improve transport infrastructure

Measure 2.2.2 Improve water infrastructure

Measure 2.2.3 Protect and restore architectural heritage

Measure 2.2.4 Improve the quality of the built environment

PRIORITY 2.3. Improving the quality of using the land

Measure 2.3.1. Reduce land take

Measure 2.3.2. Promote Sustainable Construction

Measure 2.3.3. Improve the quality of life in historical centers

GOAL N° 3 Development of sustainable tourism tailored to the specifics of coastal historic cities.

PRIORITY 3.1. Preservation of balance between the supporting capacity of the destination and the volume of demand

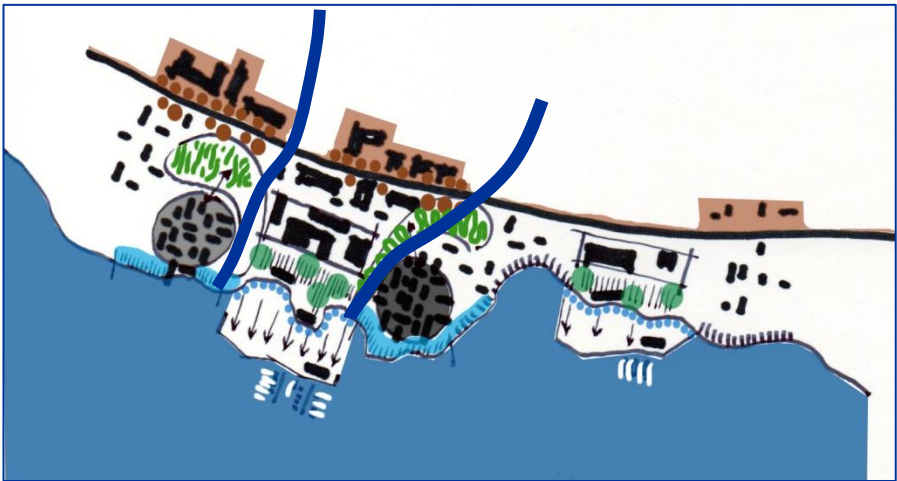
Measure 3.1.1. Develop appropriate documentation for the development of sustainable tourism

Measure 3.1.2. Encourage responsible action of all stakeholders in tourism

PRIORITY 3.2. Development of sustainable / year-round tourism based on high-value natural and cultural resources

Measure 3.2.1. Implement marketing approach to the development of cultural tourism

Measure 3.2.2. Improve physical and market accessibility of localities and attractions



The concept of the coastal area land use (the most valued area)

The concept for the land use planning of the coastal area should satisfy the following:

- resistance to flooding;
- conservation of the cultural landscape - the coastline and the historical nucleus (protection measures without coastal land fill, protective greenery);
- preservation of nature (limited and controlled land filling of the sea, revitalization of the streams);
- new areas for development (areas created by coastal land filling);
- principles of green infrastructure (greenery, streams);
- principles of green construction (areas of new urbanity).



WHO WE ARE

CO-EVOLVE is a three-year project that aims at analyzing and promoting the co-evolution of human activities and natural systems in touristic coastal areas, allowing for sustainable development of tourism activities based on the principles of Integrated Coastal Zone Management (ICZM)/Maritime Spatial Planning (MSP).

It couples a presently unavailable analysis at MED scale of threats and enabling factors for sustainable tourism with local studies of seven representative Pilot Areas, to demonstrate through pilot actions the feasibility and effectiveness of an ICZM/MSP-based planning process.

Finally, CO-EVOLVE contributes to the Strategic Theme 2 (Joint Action 2.1) of the Bologna Charter Joint Action Plan: <http://www.bolognacharter.eu/>.

CONTACT US



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