

SUSTAINABLE TOURISM ACTION PLAN

Landscape park Strunjan

O.T2.1, D.T2.2.3

Version 1
10 2018

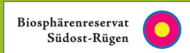




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1. Introduction

Sustainable tourism Action Plan is a 5-year strategy document, that is based on the existing situation of the protected area Landscape park Strunjan and identifies the specific goals to be achieved within 5 years in term of sustainable tourism and nature protection. The document lists the possible management and related monitoring tools to be put in place, and sets a time schedule and indicates the possible funding.

Action Plan for Landscape park Strunjan consists of description of the protected area and pilot area, 5-year strategy and management and monitoring tools to be implemented in the pilot action.

2. Description of the Protected Area - Landscape park Strunjan

The flysch coastal region of the Strunjan Peninsula features varied riches and natural values, as well as manmade ones created throughout the centuries. With an 80-meter-high flysch cliff above a natural shore in the north, the park sweeps across sunny cultivated slopes down to the valley of the Roja Stream in the south, where the sea lagoon and the functioning salt pans are situated. The views from its panoramic spots extend as far as the Gulf of Trieste and, on a clear day, the Julian Alps with Triglav, the highest Slovene peak.

Landscape Park Strunjan covers 428.6 hectares, comprising a 4 km long shore of the Gulf of Trieste. The area of the park extends over the Strunjan Peninsula from Simon Bay to the mouth of the Strunjan River, including a 200 m long sea belt and the inner part of Strunjan Bay (Figure 1).



Figure 1: Map of the Landscape park Strunjan



Within the park there are three areas protected at lower state levels: Strunjan Nature Reserve, Strunjan Stjuža Nature Reserve, and Pine Trees Avenue Natural Monument.

Landscape park Strunjan is composed of five main features - landscape territories: cultural landscape, marine lagoon, flysch cliffs, marine ecosystem and saltpans, through which the park is presented in this document.

2.1. Strunjan Peninsula - cultural landscape

The natural attributes of the Strunjan Peninsula, its Mediterranean climate and lee position in particular, have enabled the population of this area and the development of traditional economic activities in harmony with nature. Dispersed settlement, terrace farming, an inshore fishery and artisanal salt-making have moulded a cultural landscape characterised by a variety of living and cultural environments.

2.1.1. History and Development

The earliest evidence of the settlement of the Peninsula of Strunjan dates back to antiquity and has been discovered in the areas of St. Bassus and Cape Ronek: a Roman villa rustica (a countryside villa, often the hub of a large agricultural estate), piers of an ancient port, now submerged due to the gradual sea level rise throughout the centuries, and individual smaller architectural remains.

The area was first mentioned in archival sources in the 11th century. The place name Strugnano, was first entered into official documents in 1284, and is believed to originate from the Latin word Stronnum, meaning Stronno's. Eventually, from the medieval Italian toponym the Slovene derivative Strunjan developed.

Throughout history, the town evolved in close interrelation with neighbouring Piran. While the latter grew from a late antiquity settlement into a typical medieval centre, Strunjan remained, thanks to its climate perfect for salt-making and its fertile land ideal for the cultivation of field and garden crops, fruit, olive trees and vine, Piran's steadfast natural economic hinterland.

During the years of Trieste's greatest prosperity in the late 18th century and up until the end of WWII, agriculture was the key economic activity of this area. The farmers of Strunjan for the most part carried their products to the markets of Trieste by boat - mostly early yield from their gardens and orchards, which cropped heavily in the microclimate of the sunny plots and terraces. Later, they focussed more on olive oil, wine and persimmon production, and in more recent years on artichoke growing and mussel farming in the coastal area.

A turning point in the development of Strunjan and its surroundings was the designation of the area as a landscape park following ordinances passed by the Izola and Piran municipalities in 1990, and the subsequent placement of the park under state-level protection in 2004. Landscape Park Strunjan was founded with the objective of promoting sustainable development that would be in line with natural value protection, as well as preservation of biological and landscape diversity, while not hampering the prospects of development for the population of the area.



2.1.2. Cultural and Agricultural Landscapes

The Peninsula of Strunjan is a coastal area that has remained sheltered from intensive urbanisation and industrialisation. The peninsula and the Bay of Strunjan, which opens at the end of the Strunjan Valley and has been partly turned into salt pans, represent an integral landscape unit incorporating elements of both primeval and cultivated environment, a combination of natural features and testimonies of human activity.

Strunjan is the only town on the Slovene coast to have preserved the pattern of scattered settlement. Here, the typical Mediterranean clustered type of settlement never developed. The houses are scattered around terraced slopes, each reigning over its own stretch of land.

The most characteristic features of the agricultural landscape of the Koper littoral are cultural terraces, which prevent excessive soil erosion during heavy rainfalls and retain moisture deeper in the soil during summer draughts. Typical of Strunjan are vineyard-crop terraces, orchard-garden terraces and particularly pure garden terraces. The latter are most suitable for growing early vegetables (Figure 2).

The cultivated slopes, converted into terraces, are most often supported by dry-stone walls built without binding agents, which create living spaces for numerous animal species.



Figure 2: Agricultural landscape

2.1.3. Fishing

Fishermen operate in the inshore belt of the park a few months a year. With small boats and nets they catch minor quantities or large fish, allowing the fish population the opportunity to increase again during the rest of the year.

In the last decade, six commercial fishermen from the Strunjan boat harbour were allowed to fish in park waters. The dominant species in their catch were sole, cuttlefish, gilt-head bream, european flounder, common pandora, European seabass, red scorpionfish and black mullet.

Another source of income for the local people is shellfish farming. Two types of molluscs used to be grown in the area of the reserve and several other species, now protected, were harvested from the park's waters. The first shellfish farms in the Bay of Strunjan were set up for the cultivation of European flat oyster (*Ostrea edulis*). The other species of shellfish that was and still is farmed, is the Mediterranean mussel (*Mytilus galloprovincialis*).

The culture plots extend over a total of 11 hectares, and yield between 200 and 300 tons of molluscs a year.

2.2. Lagoon Stjuža

Stjuža (from the Italian *chiusa*, meaning 'closed') is the only Slovene marine lagoon. The shoal formed through deposition of sediments by the Roja Stream, and after the construction of a dam, which artificially closed the bay over 400 years ago, the newly created lagoon remained connected with the sea only through a flow-through channel. As there are no water currents or major waves in it, the flow of water depends solely on high and low tides. Due to its shallowness (the average depth is 0.5 m), the water in the lagoon is subjected to rapid warming and cooling.

Before the 1950s, the aquaculture run in the lagoon exploited the animals' spring migration into the warmer, shallow part of the sea, where food was abundant. Fish swam into the lagoon through the "fish gate" with no chance of return. With the water cooling down in autumn, the quantity of plant and animal organisms that the fish fed on became scarcer and the fish were ready to leave the lagoon, but were intercepted at the exit by fishermen. One ton of fish were caught by this method annually, mainly mullet, seabass, gilt-head bream and eel, but this just wasn't enough for the activity to survive at a time of modern fisheries and fish farms.

Today, the lagoon area is an important part of the Strunjan Stjuža Nature Reserve, falling within the Natura 2000 network, the primary objective of which is to preserve biodiversity by safeguarding the habitats of endangered plant and animal species that are relevant not only for Slovenia, but for the entire European Union (Figure 3).



Figure 3: Marine lagoon Stjuža



The underwater meadow at the bottom of the lagoon is a true treasure trove of crustaceans, molluscs, fish and other animals. The lagoon's shallowness, abundance of food, reed-beds and other halophilous vegetation attract aquatic birds throughout the year. Little egret (*Egretta garzetta*), Mediterranean gull (*Ichthyaetus melanocephalus*), Eurasian coot (*Fulica atra*) and other birds look here for food, shelter or a nesting site.

2.3. Flysch cliff

The most distinctive part of Landscape Park Strunjan are its cliffs, up to 80 metres high, which have been, together with their bosky edges and the 200-metre-wide sea belt underneath, declared a nature reserve. This is also the longest stretch of natural seashore in the entire 130 kilometre coastline between Grado, Italy, and Savudrija, Croatia, which circumscribes the Gulf of Trieste. The precipitous faces and the pebbly beach at the foot of the cliffs are entirely left to natural processes, which constantly mould the friable layers of rock, finely chiselling their features (Figure 4).



Figure 4: St. Cross Bay with flysch cliff

The Cliffs of Strunjan, like most of the Slovene littoral region and the entire area of Landscape Park Strunjan, are composed of Middle Eocene flysch rock. Flysch is a heterogeneous formation characterised by rhythmically repeated sequences of various types of rock, which accumulated 40 million years ago in deep marine waters. Underwater avalanches of mud and sand provoked by earthquakes, violent storms or tsunamis slid down steep slopes and deposited in the deep sea with upward fining of the material. The accumulated sediments compacted and cemented into hard strata of flysch rock. Due to subsequent tectonic uplifts the sea basin narrowed, the sea receded and the flysch rocks wrinkled, crumpled and rose to the surface. A peculiarity of the flysch facies in the Slovene coast, however, is that the sequences are occasionally intercalated with up to a few metres thick limestone layers, also termed megabeds due to their extent.



The appearance of the Cliffs of Strunjan is constantly changing. Its configuration was determined in its formative era by tectonic activity, which created picturesque faults, folds and fractures, most noticeable in Cape Strunjan in the west and Cape Kane in the east, while the changes that we are actually able to witness result from the processes of weathering and erosion. These produce gullies, rills and other landforms typical of cliffs.

The processes of erosion, which on the Cliffs of Strunjan occur quite rapidly, cause the surface to lower and the slopes to retreat inland. That is why we say that the cliffs are receding, about one centimetre a year on average. Due to the action of sea, rain, sun and wind the flysch rock cracks, crumbles and falls down.

The larger and mostly fairish rocks on the shore and in the shallows originate in the thicker limestone beds in the flysch; the grey or brown stones that cover the major part of Slovene shorefront and shallow seabed derive from sandstone strata, while marlstone is more susceptible to decay and together with the remains of sea organisms builds the silty substrate. The latter, combined with the shallowness of the sea and a relatively large number of small tributaries into the Gulf of Trieste, is a major factor influencing the turbidity of seawater in this area.

The giant blocks of limestone that can be seen on a walk on the beach are perfect for observing fossils. Among the most easily detectable are the calcareous shells of marine plankters (the so-called foraminifera), portions of broken off spines and tests of sea urchins and red algae remains.

2.3.1. Nature on the Cliffs

2.3.1.1. Sub-Mediterranean Deciduous Forest

The Mediterranean climate and soil formed on flysch bedrock favour the growth of a sub-Mediterranean deciduous forest, which is the prevalent association of plant species in Slovene Istria.

The steep northern and western faces and the upper edges of the cliffs in the Strunjan Nature Reserve are covered by a typical European hop-hornbeam and downy oak community, with the autumn moor grass (*Sesleria autumnalis*) as the most widespread undergrowth species. In the warmest locations, the understory also includes typical Mediterranean taxa, such as the evergreen rose (*Rosa sempervirens*), wild madder (*Rubia peregrina*), wild asparagus (*Asparagus acutifolius*), osyris (*Osyris alba*) and rough bindweed (*Smilax aspera*).

In the shadowy positions, the composition of the forest changes and the stand expands to include the somewhat more mesophile Turkey oak (*Quercus cerris*). The proximity of the settlements and the long-term human action manifest in the large number of non-native species in the area, such as bay laurel (*Laurus nobilis*), laurustinus (*Viburnum tinus*), Aleppo pine (*Pinus halepensis*), Turkish pine (*Pinus brutia*), European black pine (*Pinus nigra*), holm oak (*Quercus ilex*), Italian cypress (*Cupressus sempervirens*), and others.

The sub-Mediterranean wood species present on the cliffs are (listed by frequency): European hop-hornbeam (*Ostrya carpinifolia*), manna ash (*Fraxinus ornus*), downy oak (*Quercus pubescens*), hawthorn (*Crataegus monogyna*), a variant of scorpion senna (*Coronilla emerus subsp. emeroides*), Spanish broom (*Spartium junceum*), Oriental hornbeam (*Carpinus orientalis*), smoke bush (*Cotinus coggygia*), wild service tree (*Sorbus torminalis*), service tree (*Sorbus domestica*), Christ's thorn (*Paliurus spina-christi*), field elm (*Ulmus minor*), field maple (*Acer campestre*).



2.3.1.2. Mediterranean Vegetation

The living conditions in Slovene Istria are unfavourable for most genuine Mediterranean plant species, which is why we see these more frequently planted in parks and gardens, but still, due to the proximity of the sea and the warm climate some of them can flourish in the natural environment, too. The most particular among these are the strawberry tree (*Arbutus unedo*) and the common myrtle (*Myrtus communis*), whose northernmost autogenous habitat in the Adriatic is precisely in the Strunjan area.

Two other flowering plants native to the Mediterranean which flourish in Slovene Istria both wild and cultivated, are bay laurel (*Laurus nobilis*) and laurustinus (*Viburnum tinus*).

2.3.1.3. Fauna

The forests, shrub lands and meadows, along with the agricultural and cultural landscapes, which extend over the 65 hectares of the cliffs in the form of various habitat types, are also home to numerous animal species. At present, the best studied class of animals inhabiting Landscape Park Strunjan is that of insects and within them the orders of moths and butterflies, mantises, grasshoppers and katydids.

A peculiarity from the latter group is the recently observed *Andreiniimon nuptialis*, only recorded three times previously in Slovenia. Based on the data in scientific literature this insect species is widespread in the southern Balkans and central Italy. *A. nuptialis* is a member of katydids, also known as bush crickets, which represent one of the rare insect groups where the general means of communication is sound. The males especially are well-known for their loud shrills during the mating period.

The numerous moth and butterfly varieties inhabiting the cliffs' area also include three alien invasive species unintentionally introduced to Slovenia in recent years as a result of globalisation: box tree moth (*Cydalima perspectalis*), geranium bronze (*Cacyreus marshalli*) and tomato leafminer (*Tuta absoluta*).

2.4. Marine ecosystem

Landscape Park Strunjan is the biggest area of state-level protection in Slovenia that includes the sea: it comprises a 200-metre belt of coastal sea (also protected within the Strunjan Nature Reserve) and the entire Bay of Strunjan as far as Pacug.

The varied types of sea bottom and the living conditions characterising the individual marine zones compose a collage of habitats with vibrant animal and plant worlds. Along with the area surrounding the natural monument of Cape Madona at the far end of the Peninsula of Piran, the marine portion of the Strunjan Nature Reserve is the site of the greatest biodiversity in the Slovene sea (Figure 5).

2.4.1. Littoral Zones

In the zone of the coastline regularly splashed by the droplets of seawater the living conditions are extreme due to the high salinity and exposure to wide temperature variations. The rock samphire (*Crithmum maritimum*) is a true halophyte, which grows in the soils of the supralittoral zone characterised by a high concentration of salt. The small periwinkle (*Melarphe neritoides*) is a species of sea snail that defines the spray zone borderline.



Figure 5: Sea bottom in Strunjan Nature Reserve

The rhythm of life in the eulittoral, or intertidal, zone is dictated by the tides. The sea organisms living here pass the periods of low tide outside the water, unsheltered from the hot sun, dehydration, wind and rain. The acorn barnacle (*Chthamalus depressus*) has a calcareous shell which protects it from scorching heat and dehydration during low tide. *Fucus virsoides* is a common brown alga of rocky seacoasts. It is characterised by holdfasts for clinging to rocks and mucilage-covered leaves that resist desiccation during periods of low tide. *F. virsoides* is an endemic species, found exclusively in the Adriatic Sea. The Mediterranean shag (*Phalacrocorax aristotelis desmarestii*) is a subspecies of the family of cormorants. From late spring until autumn, over 1,500 specimens - i.e., 11 % of the global population of this subspecies - sojourn in the area of the Slovene sea. In Slovenia, the Mediterranean shag is a protected bird species.

The more favourable living conditions of the sublittoral zone, which is permanently covered by seawater, make for a greater variety of life forms. The animals and plants that reside here are fully aquatic organisms, unable to survive out of water for even short periods of time.

2.4.2. Sea Bottom

Almost all types of the seafloor characteristic of the Slovene coast are featured within the area of the park, with the exception of the limestone bottom, which is only present to a small extent off Izola. The rocky sea bottom is home to organisms that require a firm base for their growth. The hard substrate is mostly covered by algae and sponges, while larger stones and rocks serve as hiding places for big fish and crabs. The soft sandy and silty bottoms in the shallower areas still receive the necessary light for the growth of vast underwater meadows, providing shelter to numerous animal species, while at somewhat greater depths, where light intensity falls, life mostly moves into the seafloor, leaving the floor with a false appearance of bareness.



2.4.2.1. The rocky bottom

The characteristic underwater landscape of well-lit rocky substrate is covered by green and brown algae, with the mermaid's wine glass and the peacock's tail among their finest representatives. The seaweed from the *Cystoseira* genus can form genuine underwater forests, which provide unique habitats for numerous marine organisms, particularly nudibranchs, sponges and echinoderms, as well as blennies, gobies, sea breams and porgies among fish species. Due to their numerous cavities, tunnels and nooks the huge blocks of rock, a peculiarity of Landscape Park Strunjan, are excellent hiding places for large fish, including brown meagre (*Sciaena umbra*), brown wrasse (*Labrus merula*) and European conger (*Conger conger*), and decapod crustaceans, such as the sponge crab (*Pseudodromia latens*) and the lesser spider crab (*Maja crispata*). A particularly fascinating inhabitant of the rocky bottom is the Mediterranean stony coral (*Cladocora caespitosa*), the only polyp occurring in the Mediterranean Sea to form reef structures. It is a well-known fact that climate change has a greater impact on those sea species that are already under stress from anchoring, pollution and ocean acidification, and are thus increasingly rare.

The date shell (*Lithophaga lithophaga*) is a mollusc that cannot be farmed. Date shell gatherers cause enormous damage to the marine environment, as they resort to extremely destructive methods to pick these molluscs, including explosives. Such actions endanger not only the date shell, but also numerous populations of sea organisms which use rock crevices as shelter, food and breeding sites.

The brown alga *Cystoseira barbata* forms underwater swards of up to 50 cm tall bushes, home to inshore fish. The *Cystoseira* genus habitat is a natural environment characterised by a diverse species composition. Though it is still well-represented and preserved in the waters of Strunjan Nature Reserve, it has already been identified as one of the endangered habitat types in the broader Mediterranean area.

2.4.2.2. Sea meadows

The flowering plants of Landscape Park Strunjan - the slender seagrass (*Cymodocea nodosa*), the dwarf eelgrass (*Zostera noltii*) and common eelgrass (*Zostera marina*) - cover the shallow sandy bottom in expanses of underwater meadows. They can only be found at up to 8 metres of depth, as in deeper areas the amount of sunlight penetrating the water is insufficient to allow photosynthesis. The seaweed is also home to seahorses (long-snouted seahorse (*Hippocampus guttulatus*) and short-snouted seahorse (*Hippocampus hippocampus*)), fries, tube-dwelling worms, such as European fan worm (*Sabella spallanzanii*), cuttlefish, octopuses, violet sea urchins, sea cucumbers and warty venuses, as well as the largest Mediterranean mollusc, the noble pen shell (*Pinna nobilis*).

2.4.2.3. Silty bottom

The most common type of seabed in the Slovene sea is silt. In this seemingly modest area you can observe numerous animals crawling over, digging into or attaching to the sediment covered bottom, such as brittle stars, the tunicates, starfish, sea urchins and sea anemones. The presence of life is also indicated by holes in the muddy soil, dwellings of small crabs and molluscs. The level of threat for the organisms in the silty substrate is high, as such bottoms allow fishing with various fishing gear.

2.5. Saltpans

The Strunjan saltpans are the northernmost and smallest saltpans in the Mediterranean, where salt has been produced according to traditional methods for over 700 years.

Marine saltpans can be found along the coasts of the entire Mediterranean basin, from the Atlantic Ocean to the Black Sea. There are some 150 saltpans of various categories in eighteen Mediterranean countries nowadays, with ninety of them still producing salt and sixty-four inactive or abandoned. Only three saltpans in the Mediterranean have the status of protected areas: those in Cyprus, Slovenia and Italy.

The Strunjan saltpans were built on the flood plain of the Roja stream. The alluvial deposits at the mouth of the Roja raised the stream bed and created the conditions necessary for the formation of salt fields. They represent a unique landscape element between the sea and the land, the air and the ground. Their primary role was originally economic, but has since been replaced by the cultural and ecological. Today, the saltpans are a preserver of cultural heritage and traditional methods of salt harvesting and, most of all, a nature protection area, as they provide an exceptional living environment for fascinating plant and animal species that have succeeded in adapting to extreme salinity.

These are the reasons why the Strunjan saltpans are protected as a natural and cultural monument situated within Landscape Park Strunjan.

In the saltpans, marine salt is obtained through natural crystallisation in the process of solar and wind evaporation. For that to occur, the seawater, or brine, has to complete the entire course of the saltpans, guided through salt ponds in which it becomes progressively denser (Figure 6).



Figure 6: Salt harvesting in Strunjan salt pans



2.5.1. Nature in the Saltpans

The area of the Strunjan saltpans and lagoon has been included in Natura 2000, the European network of areas of environmental importance, as the local activity of salt-making is a major factor in the biodiversity of this exceptionally important type of ecosystem: the salt wetland.

The sub-Mediterranean climate, the high salinity of the water in the shallow ponds and the traditional salt-making methods create specific ecological conditions in which only the best-adapted organisms can survive.

To preserve this valuable biotope, the Regulation on the Landscape Park Strunjan prescribes the maintenance and renovation necessary to ensure a constant water regime in the saltpans and thereby the diversity of plant and animal habitats characteristic of saltwater, brackish and freshwater coastal wetlands.

The Stjuža lagoon and the Strunjan saltpans are an important living environment for birds. Following is a list of the aquatic bird community in the saltpan area with most common species: reed bunting (*Emberiza schoeniclus*), common greenshank (*Tringa nebularia*), black-winged stilt (*Himantopus himantopus*), little egret (*Egretta garzetta*), great egret (*Ardea alba*), grey heron (*Ardea cinerea*), Mediterranean gull (*Ichthyaeetus melanocephalus*), yellow-legged gulls (*Larus michahellis*), black-headed gulls (*Chroicocephalus ridibundus*), mallard (*Anas platyrhynchos*) and common kingfisher (*Alcedo atthis*).

Birds are not the only residents of the saltpans. The shallows are home to a host of smaller animals, such as polychaetes, shrimp and crabs, molluscs, larvae of certain flies and other creatures tempting the palates of the local feathered population such as lagoon cockle (*Cerastoderma glaucum*), Mediterranean mud shrimp (*Upogebia littoralis*), brine fly (*Ephydra riparia*), *Notomastus latericeus* and South European toothcarp (*Aphanius fasciatus*).

Halophytes are plants adapted to living in an environment characterised by considerably higher concentrations of minerals compared to ordinary types of soil. Saline soils can be encountered both on the continent as well as on the seashore. In Strunjan salinas can be found: shrubby swampfire (*Sarcocornia fruticosa*), common glasswort (*Salicornia europaea*), golden samphire (*Inula crithmoides*), sea lavender (*Limonium angustifolium*), bluish wormwood (*Artemisia caerulescens*), sea aster (*Aster tripolium*), rock samphire (*Crithmum maritimum*), opposite-leaved saltwort (*Salsola soda*) and spear-leaved orache (*Atriplex prostrata*). The salt-tolerant marine phanerogams in Landscape Park Strunjan include the annual seablite (*Suaeda maritima*), which grows in almost all types of plant communities. Unlike the majority of halophytes in Slovenia, it has not made the IUCN Red List of Threatened Species, on which we can find almost all previously presented plants, as well as the lesser sea spurrey (*Spergularia marina*), the *Puccinellia palustris* grass species and the curved sickle grass (*Parapholis incurva*).

2.6. Belvederre terraces

Along the eastern border of Landscape Park Strunjan lie the Belvederre terraces. The area represents one of the entry points to the park. Its potential can be used as a buffer area between the urbanized, tourist area of Izola and the protected nature area. Belvederre terraces are CEETO pilot area, where management and monitoring tools will be tested in frame of CEETO project.

In this area begins the Strunjan Nature Reserve, which includes a flysch cliff with a sub Mediterranean deciduous forest, a natural coastline and a 200 m sea belt. The park supports a high diversity of plant and animal species and habitat types, exceptionally for the Slovenian Sea as well as the entire Gulf of Trieste.

In addition to nature, the cultural landscape with typical agrarian elements that extend far back into the history and tradition of the area has also been preserved. Through a long history, the area of the Strunjan and Belvederre served for the purpose of producing crops, fruit and vegetables.

The area is hilly with quite a slope. It is arranged in the form of terraces, which are mostly private plots with olive groves. The area is rather uneven and individual parcels users are more or less maintained and restricted by various fences. The terraces extend to the sea shore, where the small area for bathing is arranged, with a pier, parking space and a bar, which is surrounded with cliffs from both sides (Figure 7).



Figure 7: Belvedere terraces - pilot area

High intensity of tourists during summer season is a significant source of pressure on natural resources. The highest concentration of tourists is reached in the summer months, i.e. in June, July, August and September. The coastal area is considered as an important element of summer tourism and not as part of the landscape with its natural values.

The increasing tendency towards spending more leisure time in and around protected area also means larger numbers of visitors in ecologically sensitive areas, with the associated intensification in land use and pressure on such areas. It was also investigated inappropriate tourist behaviour. Tourists do not comply with rules of the protected area (accessing the beach through the different point, outside walking trails; parking outside parking area without knowing that they are in protected area). Furthermore, other important issues which protected area is facing are hotels located in the area. Construction of new hotel and recreation facilities leads to increased number of tourists. These activities can cause severe disturbance and erosion of the local ecosystem, even destruction on the long term.



3. Strategy

The common strategy to foster the development of sustainable tourism in the pilot has been developed during a participatory process held on 10th July 2018 at the Municipality of Izola. The methodology used to manage the meeting was derived from the European Awareness Scenario Workshop, also known by the acronym EASW, an approach that allows an open discussion in order to identify solutions that are concrete and easy to implement.

The meeting has been opened with a brief presentation of CEETO project and of the pilot action to be implemented in the area and the participants have been involved in the collection of suggestions and additions to this proposal.

After that, the participants have been asked to tell their vision of the future of the pilot area, expressing a forecast both on desired positive aspects (what I hope that will happen ...) and on possible negative changes (what I fear that will happen ...). A synthesis of the visions allowed, therefore, to identify the common transversal aspects in order to define a common vision of development of the sustainable tourism in the pilot area.

The second part of the workshop has been focused on the proposal of ideas, i.e. the formulation of operative proposals on the actions necessary to be undertaken to realize the common vision defined previously. The participants have been asked to elaborate some initial ideas concerning the chosen themes in order to build a sort of Bank of Ideas, the first step for an effective Participative Action Plan.

The results of the Future Search activity have been summarized - using the World Clouds where the words that are formatted with a larger character are those most frequently quoted by the participants - presenting a first draft of the Strategy to develop the sustainable tourism.

3.1. Participated Activity - FUTURE SEARCH

The first question of the simulation was about the heritage you would not want to lose for a possible future enjoyment, the one you would like to preserve to communicate the beauty of the “Park of the Sea”. The most mentioned landscape categories and the motivations of the choice were the following:

- Marine Ecosystem (5) - Biodiversity, source of food, recreation, keep the balance between human and nature, tourism development and other types of exploitation (energy);
- Salt-pans (3) - Connections between human and the sea, tradition, culture, landscape, touristic monument;
- Cliff (3) - Naturally shaped, gives a character to the area, uniqueness, connection with the marine ecosystem;
- Cultural landscape (3) - Typical example of Istrian landscape, which is the result of the merge between land and marine habitats;
- Marine lagoon (2) - One of the rare and pristine parts of the sea.

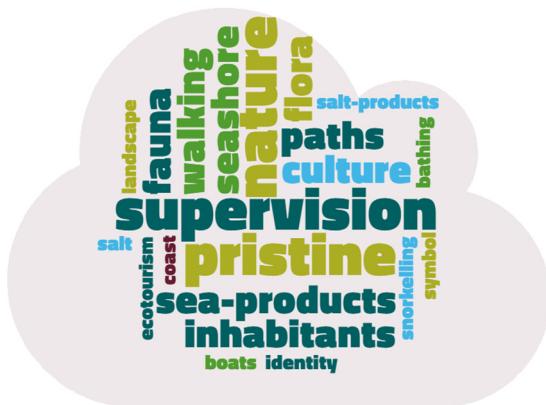
The Pilot Area of “Belvedere Terraces”, that is located on the border of the Protected Area, shows a very high pressure during the summer period. This area is seen just for its touristic use, not considering its natural value and the impact tourism is causing. The main problem is the behaviour of visitors which is not always adequate (accessing the beach through different points, which are not arranged paths, parking the cars in the natural environment and not knowing they are entering the



park). This behavioural problem is common also in the whole area of the Natural Park where, in high season, tourists park and walk/bike in the natural environment and not in the areas intended for parking (parking spots) and walking (arranged paths), thus endangering the flora and fauna.

The results of the second question of the simulation (what tourist practice would you like to save and improve and what would you like to forget and start over?) confirm these statements, in fact the participants have identified the pristine nature as the main attraction to be preserved, not alone but together with its connection with local traditions and other human activities (sea and salt products, discovering ecotourist activities, particular landscape, ...). Among the negative aspects, the lack in maritime and organized transport is followed by the need to regulate accesses and activities (anchoring, ...) and to raise the awareness of locals (co-operation) and tourists (mass behaviour). The keywords are therefore: accessibility, awareness and co-operation.

Positive Aspects



Negative Aspects





3.2. Local Strategy (draft)

The strategy of Strunjan Protected area is to combine protection of nature with the sustainable use and management and to ensure wellbeing of the local community, visitors and the integrity of the society. Sustainable tourism takes into consideration three dimensions, the ecological, economic and socio-cultural. Hence, sustainable tourism is cooperation in order to promote economic, social and environmental wellbeing. In line with the principles of nature protection and sustainable tourism, environmental resources should be used in respect to the natural environment and the uniqueness of local communities.

Tourism in protected areas must be coordinated with the objectives of the protection. The strategy of sustainable tourism in Strunjan Landscape Park is defined through five landscape territories that compose the Landscape Park Strunjan: Marine ecosystem, Cliff wall, Marine lagoon, Salt pans, Cultural landscape.

To manage environmental impacts and constantly improve environmental management were defined 5-years goals based on the analysis from the planning process. These goals are:

1. SUPPORT THE PRESERVATION OF VALUABLE FEATURES AT THE SITES AND PROMOTE THEIR PROTECTION

- A) **Cultural Landscape:** to preserve and promote the cultural heritage, with particular attention to local products, production process of salt and fish and local cultural events;
- B) **Marine ecosystem:** to promote sustainable recreational activities to discover the territory and encourage the works related to fishing;
- C) **Cliff:** to exploit the already existing walking paths (maintenance, characterization and promotion) and maintain a regular clean-up program of coast and sea;
- D) **Marine Lagoon:** to preserve importance of this territory as large provider of ecosystem services;
- E) **Salt Pans:** to maintain the knowledge of salt production and the strong connection of this activity with the development of the territory.

2. MINIMISING ENVIRONMENTAL IMPACT

- F) Encouraging visitors to act in an environmental friendly manner;
- G) Prevention of harmful impact proactively;
- H) Promotion of using existing routes and service structures;
- I) Environmental education;

3. STRENGTH LOCAL ASPECT

- J) Local knowledge;



- K) Quality guidance;
- L) Increasing appreciation of the site;
- M) Cooperation with local people and other stakeholders to take part in the management and development of the site.

4. PROMOTE GROWTH AND LOCAL ECONOMY

- N) Offering visitors high-quality services based on the attraction of the Strunjan Landscape park and its surroundings;
- O) Cooperation with producers of local products;
- P) Encouraging visitors to stay longer in the area.

4. Management and monitoring tools

Based on the 5-year goals identified in previous chapter, were identified management and monitoring tools for achieving the goals of sustainable tourism in the protected area. Monitoring results are used for assessing whether set objectives are reached, and necessary corrective measures are then carried out.

This plan describes the current situation in the protected area and defines general 5-year goals, monitoring activities, evaluation and joint actions implemented during the project. Those actions are:

- Regulation of the Belvedere terraces
- Alternative ways of visiting the park - establishing transportation with electric bus

4.1. Regulation of the Belvedere terraces

Title of the action	REGULATION OF THE BELVEDERE TERRACES
Proposer(s)	Landscape Park Strunjan
Partner	Municipality of Izola
Specific Objective	Study on landscaping and spatial planning solutions to increase sustainability of touristic flows in the area under the Belvedere in the Municipality of Izola
Brief Description	<p>The regulation of the Belvedere terraces is CEETO pilot action. The objective of this action is to cooperate with all local stakeholders and to obtain a conceptual solution (project documentation) for the regulation of the area under the Belvedere in the Municipality of Izola.</p> <p>Within the regulation our goals are to establish an entry point to the Protected Area, with an authentic green infrastructure, supported by educational and interpretative contents. This entry point could also help to raise the awareness of visitors about the</p>



	<p>Park, to control the movement of the visitors and to offer them several sustainable activities outside the Park and relieve some of the pressure on the Protected Area.</p> <p>In addition, we are planning a monitoring activity about the effectiveness of education/informing the tourists about our Park in the area of Belvedere Terraces. The monitoring and raising awareness action would be 2 in 1:</p> <p>a questionnaire on whether or not tourists know they are in the vicinity of the Park and about the satisfaction on the arrangement of the area;</p> <p>a leaflet on Landscape Park Strunjan and protection regimes.</p> <p>Tourist would deliver the questionnaires to the bar at the beach and could take the leaflet with them.</p> <p>Lastly, we are planning to produce an educational animation video of the protection regimes in the Park, which could also help in raise the awareness of the visitors about the importance of this Protected Area.</p>
Implementation Period Timeline	<p>August-October 2018 - Monitoring activity, distribution of questionnaires</p> <p>November-December 2018 - Working Table with the Municipality of Izola to define the first draft of the management plan</p> <p>April 2019 - Approval of the management plan</p> <p>May 2019 - Promotion of video regarding the regulation of the Park</p> <p>August-October 2019 - Monitoring activity, distribution of questionnaires</p>
Expected Results	Approval of a new management plan for the Belvedere Terraces.

4.2. Alternative ways of visiting the park - establishing transportation with electric bus

Title of the action	ALTERNATIVE WAYS OF VISITING THE PARK
Proposer(s)	Landscape Park Strunjan
Partner	-
Specific Objective	Offer of an electric minibus, which could be used to transport the tourists to the different points of the Park and regulate the visit flows.
Brief Description	<p>Realization of a feasibility study of a sustainable visit of the Park with alternative modes of transport and supporting activities;</p> <p>Realization of a business plan for the electric minibus that will contain a study on most</p>



Implementation Period Timeline	<p>suitable routes and stops;</p> <p>Production of an app and/or leaflets with bus routes and stops to inform and encourage tourist to use the minibus instead of cars and to mark the stops with “green” signals that doesn’t visually pollute the Nature Park.</p> <p>By 2019 - Realization of the studies</p> <p>By 2020 - Purchase of the minibus</p> <p>By 2021 - Offer of transport by minibus to tourists</p>
Expected Results	Reduce the parking in the natural environment and reduce walking/biking outside arranged paths and in that way protect the flora and fauna of the park.

4.3. Bank of Ideas

The simulation during the last part of the meeting has led the participants to identify themselves as the Natural Park, trying to define the main strategic axes to pursue in order to develop a tourism that respects nature and - at the same time - brings benefits to the five different landscape territories.

The following table collect suggestion about possible actions to foster the sustainable tourism. These ideas will eventually be developed in concrete actions that could complement the pilot action undertaken by the Natural Park.

Cultural Landscape	Local Products: promotion of the plantation of indigenous species; organization of local market where to sell traditional products and propose cultural events; promotion of collaboration between local shops and producers; organization and promotion of traditional local events.
	Conservation: proposal of a workshop on restoration of stone walls, hedges and crop/harvesting; study of a methodology that can raise the awareness of the of the cultural landscape.
	Cultural Events: co-organization of local events with the local community; development of a common planning without overlapping of events and a promotion campaign.
	Waste Collection: reorganization of waste collection.
Marine Eco-system	Sustainable Activities: development of a new regulation about accesses and permitted activities (moorings, sub, kayak, diving, snorkelling, ...); study of a methodology that can raise the awareness of locals and tourists.
	Fishing: development of tourist offers in collaboration with fisherman, i.e. by using traditional boats.
	Mariculture: promotion of the utilization of traditional sea products in local culinary; creation of a common selling point and / or use local



	<p>product as some sort of souvenirs; development of some itineraries dedicated.</p> <p>Cleanliness: development of a clean-up program during the whole year.</p>
Cliff	<p>Cleanliness: development of a clean-up program during the whole year, also in collaboration with tourists and local community; installation of some garbage collectors; study of a methodology that can raise the awareness of the visitors.</p> <p>Walking: development of a maintenance program of the network of walking path during the whole year, also taking into account the route marking; publication of a walking / biking map of the Natural Park, also identifying some thematic educational itineraries; study of a methodology that can prevent the walking off; building of small infrastructures dedicated to rest along the paths.</p> <p>Shapes: improvement of the control / prevention activities; development of a new regulation about accesses to the Cliff and permitted activities.</p>
	<p>Eco-services: promotion of studies and monitoring schemes in order to better comprehend the value of the services provided by the Lagoon and keep watch of the impacts; development of a new regulation about accesses to the Lagoon and permitted activities.</p> <p>Birdwatching: build specific infrastructures / observatories alongside the development of sustainable itineraries; promotion of dedicated founding projects, i.e. “Adopt a bird”.</p> <p>Uniqueness: promotion of this particular territory and organization of workshops for children.</p>
	<p>Knowledge: organization of guided tours in order to better explain the connection between local community and the development of the territory; development of “Salt” or “Fish” holidays / experiences to involve the visitors in real life activities; arranging of workshops and open-days with locals and tourists about tradition, cultural activities and conservation of cultural heritage; establishment of a local museum in order to collect local knowledge and traditions.</p> <p>Products: promotion of a renovation of the productive infrastructures in order to reach a better efficiency; development of innovative products and of a local brand that characterizes the products; offer practical demonstration to the tourist; investment in promotion and marketing activities.</p> <p>Landscape: improvement of quantity and quality of the controls; promotion the network of walking paths.</p>
Marine Lagoon	
Salt Pans	