

DOMITIAN COAST. REHABILITATION' OUTLOOKS OF THE NORTHERN COAST OF CAMPANIA

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Abstract – Object of the paper is the Domitian Coast, an area belonging to the North-West of Campania Region, characterized by a series of contrasting factors. The fertility of the soil and the considerable length of an easily accessible and available coastline are threatened by an indiscriminate exploitation of the ground for anthropogenic uses.

The uncontrolled expansion of urbanized areas and the reckless use of soil have transformed a potentially rich land into an example of a kind of management that is completely indifferent to the territorial risks. This state of affairs puts the brakes on any kind of developmental action.

Policies tending to the redevelopment of urban centres and to the regeneration of natural and agricultural sites are focusing on this area. In fact, there is no lack of territorial planning and programming tools, despite the poor results. Therefore, it is not possible at the moment to forecast or, in any case, to hypothesise a future improvement of the situation.

The first part of the paper analyses the Domitian territory and the issues characterizing this particular area on the basis of three categories of elements. Starting from the problems encountered, the second part indicates the possible intervention policies set up to redevelop this territory.

Introduction

The Domitian coastal strip in the Campania Region extends for about 52 kilometres from the estuary of the Garigliano, at the border of the Lazio Region, to the Municipality of Bacoli, in the Phlegrean Fields.

The territory is part of the Province of Caserta and of the Metropolitan City of Naples and it is divided, from North to South, between the Municipalities of Sessa Aurunca, Cellole, Mondragone, Castel Volturno, Giugliano in Campania, Pozzuoli, and Bacoli, with a resident population of over 300 000 inhabitants.

The area has a flat surface, with extended sandy shores that, until a few decades ago, had a rich Mediterranean-type greenery behind them. Some segments of this greenery are still in existence and, together with other environmental uniqueness, are preserved under different types of environmental protection.

Large part of the coastal strip shows a severe urbanization process, often caused by illegal settlements; this disordered development caused considerable damages to pre-existing habitats and the same protected areas are subject to strong anthropic pressure being surrounded by urbanized areas pressing along their borders.

In the 1960s this urbanization process was favoured by the tourist discovery of the Domitian Coast and by the localisation of a series of centres characterized by a strong

landscape impact (an example for all, Villaggio Coppola Pinetamare), and by a very low attention to the territorial specificities and to their preservation. Starting the 1980s, the dream of the Domitian tourism reached a crisis, due to the impossibility of defending an image of the territory that was no longer winning, due to its association with the deterioration of the land and the pollution of the sea, to say nothing of the criminal phenomena.

The Domitian coastal strip requires a comprehensive and systematic rehabilitation process; it would concern the entire coastal strip and would modulate the actions in a differentiated way between the areas in relation to their level of deterioration. This type of process of territorial and environmental rehabilitation, however, seems to be remarkably difficult to carry out due to some negative factors, such as the strong anthropic pressure, the uncontrolled use of the territorial resources, the apathy towards the continuous and uncontrolled harmful spills, and the connivance of large sectors of civil society and local administrations with the organized crime, aiming to keep their control of the territory.

A system of territorial plans is present on the area. Starting from the Regional Territorial Plan [1], up to the territorial plans of the Province of Caserta [2, 3] and of the Metropolitan City of Naples [4], the characteristics of the present problems have been analysed in depth. These plans also contain many indications for changing the evolutionary trends of the area.

To deal with the lack of decisiveness of these planning tools, perhaps, the Campania Region is setting an overall masterplan for the area (Masterplan Litorale Domitio-Flegreo [5]) based on a set of specific interventions placed in a systematic plan aimed at establishing a common thread or an assessable impact on the whole area.

The attention of the Campania Region, dating back to the beginning of the Nineties with the mentioned Regional Territorial Plan, and the need to start a process of physical and functional reorganization of the area, make it necessary to develop a stronger and innovative system of intervention and monitoring of results based on new uses of the territorial resources and on the creation of a renewed territorial quality.

Materials and methods

The length of the Domitian Coast is about 52 km. It is a totally sandy coast. Behind it there is a flat territory, the north side of the Campanian lowland, called *Campania Felix* by Plinius the Old.

The territory belongs to the Campania Region, to the Provinces of Caserta and Naples and to seven Municipalities. Between the 2011 Census and the last survey in 2019, the resident population of the seven Municipalities grew from 295 650 to 314 728 inhabitants.

Anthropogenic pressure on the coast is very strong due to a series of factors that have accumulated over time and have almost never found a solution. Among these causes we can mention the fast and indiscriminate expansion of the urbanized land, the abandonment or improper use of agricultural land - sometimes used for the illicit trafficking of waste -, the lack of treatment of urban, agricultural and industrial discharges, the proximity to the Neapolitan metropolitan system with the strong pressures caused by a population of over three million [6].

The analysis of the data on the use of land highlights an interesting element. Going from North to South, therefore getting closer to the metropolitan area of Naples, land consumption increases significantly. Table 2 shows that the percentage of consumed soil varies from the 7.50 % of Sessa Aurunca to the 38.77 % of Bacoli [7].

Table 1 - Population change of the Municipalities (2011-2019).

| Municipalities | Population 1-1-2019 | Population 2011 Census |
|-----------------------|---------------------|------------------------|
| Sessa Aurunca | 21 154 | 22 216 |
| Cellole | 7 994 | 7 684 |
| Mondragone | 29 071 | 27 070 |
| Castel Volturno | 25 923 | 22 882 |
| Giugliano in Campania | 123 490 | 108 793 |
| Pozzuoli | 123 851 | 80 357 |
| Bacoli | 26 245 | 26 648 |
| Total | 314 728 | 295 650 |



Figure 1 - Position of the Domitian coast in the territory of the Campania Region.

Table 2 - Soil consumption, 2018.

| Municipalities | Municipal territory (ha) | Soil consumed (ha) | Soil consumed (%) |
|-----------------------|--------------------------|--------------------|-------------------|
| Sessa Aurunca | 16 218 | 1 211.57 | 7.50 |
| Cellole | 3 679 | 466.12 | 12.71 |
| Mondragone | 5 572 | 672.90 | 12.12 |
| Castel Volturno | 7 395 | 1 304.40 | 17.70 |
| Giugliano in Campania | 9 462 | 2 397.21 | 25.43 |
| Pozzuoli | 4 344 | 1 446.82 | 33.44 |
| Bacoli | 1 347 | 520.16 | 38.77 |

These data show that the critical areas of the Domitian Coast become increasingly dense going from North to South, demonstrating the high direct relation between human concentration of activities and territorial problems.



Figure 2 – Methodological analysis flow chart.



Figure 3 - Critical areas along the Domitian Coast.

To analyse the state of the coastal strip, the paper followed a qualitative method which can be systematized in the following phases (see Figure 2): 1) identification of the critical areas on the coastal strip, 15 in number; 2) association of the critical areas to one of three different categories (urban centres; rivers, wetlands and protected or natural areas; archaeological sites); 3) identification of the critical factors of the categories; 4) identification of actions and tools for solving critical issues (development and rehabilitation).

The 15 areas (see Figure 3) belong to a territory that is very limited in extension but very complex because of its morphological conditions, environmental situations and impacts of human activities. Areas must then be classified in three categories. The first are the natural areas, including protected sites, areas covered by Mediterranean maquis, and wetlands characterized by the presence of rivers and lakes. A second category is represented by the settlement systems which extend both along the coast and inland and are characterized, for the most part, by the lack of an organic urban development plan. The third category is that of archaeological sites, representing one of the main points of potential touristic interest of the area. These three categories of critical areas present distinct positive and negative characteristics.

The natural areas that are still present are what remains of a much wider environmental system that has endured an intense process of fragmentation over the past 50 years. Both natural areas and water systems suffer from this fragmentation, which is caused by the anthropic pressure present along the borders of what can be considered real islands of nature [8]. None of them, in fact, can count on a territorial belt, which would act as a buffer zone able to reduce the anthropogenic pressure. Furthermore, fragmentation has a negative impact on the establishment of ecological corridors.

Among the critical issues related to this category are the widespread practice of illegal discharging into water bodies and the high anthropic pressure, especially in the summer, on a very wide and very fragile coastal dune belt [9].



Figure 3 - State reserve of Foce Volturno. Oasi dei Variconi, Castel Volturno. Source: Google Maps. Geographical coordinates: 41.0210081,13 9343687,30. (Retrieved: 8/6/2020).

With regard to settlements, the lack of urban plans has already been mentioned. In addition, we should highlight the lack of control over individual transformations which has fostered a speedy expansion of urbanised areas and a structure based on low-density and high-soil-covered spaces [10]. It can be said that urban development has been directly outsourced to the entrepreneurial or criminal entities that have carried it out, often with the complicity of administrations and citizens. The proximity to the metropolitan area of Naples and the settlement pressure resulting from the formation of the axis from Naples to Caserta [6] has emphasized and systematised the phenomenon.

It is also clear that this type of urban development has affected not only the quality of the building system (see below) but also that of the system of public services and equipment, the deficit of which is still very relevant. Finally, we cannot fail to point out that this type of development has also accelerated the ageing process of buildings; most of these were built with poor quality products and unskilled labour, and have undergone a rapid process of degradation that has fostered the wider social and economic degradation present in the area.

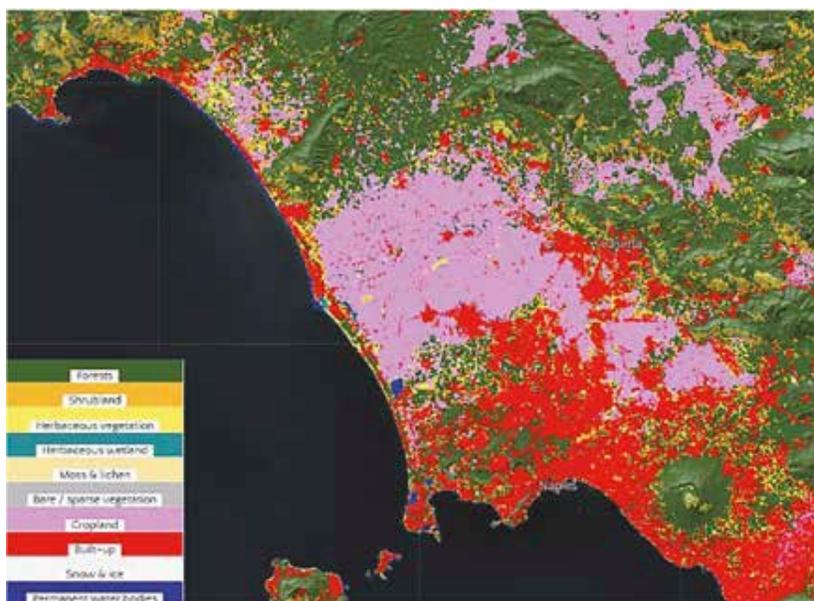


Figure 4 - Global Land Cover. Single Class Forest. 2015. Source: <https://lcviewer.vito.be/> (Retrieved: 8/6/2020).

The third category represents a potential development factor of the area, as well as one of the main weaknesses of the policies pursued so far. The archaeological area of Cuma, in particular, falls within a larger area of archaeological sites - that of the Phlegraean Fields - which, if it were organized as a cohesive system, would represent an amazing territorial attraction. The lack of this coordinated system has decreased their attractiveness, since each single site is isolated from the territory and from the mobility systems [11].



Figure 5 - *Ecoparco del Mediterraneo*, Castel Volturno. One of the access road [A] and a glossy image of the tourist facility [B]. Source: [A] Google Maps. Geographical coordinates: 40.998873, 13.9774333. (Retrieved: 8/6/2020). [B] <https://eventinapoli.com/cosa-fare/fuoriporta/100-l-ecoparco-del-mediterraneo-un-oasi-di-benessere-e-turismo-sostenibile>. (Retrieved: 8/6/2020).

The importance of this category also lies in the fact that the Domitian territory is an intermediate sector between two areas, to the North and to the South, both strongly characterized by Greek-Roman archaeological remains, evidencing a long-standing settlement history.

The enhancement of archaeological areas is directly tied to the tourist vocation of the Domitian belt. In the 1960s, this vocation led to the construction of tourist settlements which became an example of the territorial transformations during the Italian economic boom. The two most important touristic settlements, Baia Domitia and Villaggio Coppola Pinetamare, were built during this time.

These settlements were born when the area had not yet been subject to subsequent upheavals and still showed intact potential. The dream was to develop the area as an high quality national and international tourist attraction, but the constant attack on the coastal strip, due to the wild urbanization and the construction of other settlements, which were mostly illegal, led to the area becoming almost exclusively attractive to local daily tourism.

Some recent high-quality initiatives tend to detach themselves from this situation, but they inevitably suffer from the localization within such a difficult territorial matrix. Some examples are the Volturno Golf Club, a sports complex with golf courses and accommodation facilities, or the *Ecoparco del Mediterraneo* (Mediterranean Ecopark), described as a tourist structure with high environmental sustainability built on some of the artificial lakes present in the lowland areas, which were formed over time due to the excavation of limestone material intended to support the Domitian building boom.

Some points of reflection

On the Tyrrhenian coast between Garigliano River and Monte di Procida, new settlements have seen rapid development in the last fifty years, previously impeded by the need to complete land reclamation and to build modern communications. With the construction of the Domitian State Road, which was further widened in recent years, the coast has been gradually urbanized, mostly featuring tourist facilities and services. Castel Volturno and Mondragone have experienced a turbulent and unorganized development along the coast line.

The quality of these settlements is very limited. Perhaps, the centre which best fits in the landscape is Baia Domizia, a tourist settlement that has been constructed according to advanced criteria of landscaping and architecture (as boasted by designers and investors), in order to attract Italian and foreign tourists seeking medium to high-class level holiday facilities [10].

Outside the residential centres, there also many holiday homes, isolated hotels and camping grounds along the coast. Today about 30 % of bathers from Campania choose this stretch of coast for their summer stay. Foreign tourism is also steadily rising.

It is urgent, however, that measures should be taken towards the planning of further development, to prevent the disorderly expansion of urban centres from spoiling the attractiveness of this stretch of coastline. At the same time, it is essential to put in place a radical action for the rehabilitation of the existing settlements, with the aim of increasing their structural and architectonic quality and strengthening the social and economic structure of the population.

It is also necessary to deal with some of the environmental problems. An aspect that is positioned halfway between environmental and social problems is the unsolved garbage issue. A series of studies [12] investigated the indiscriminate abandonment of all kinds of waste in an area of Campania which is infamously called "Terra dei Fuochi". The delimitation of this territory is uncertain and indefinite, but it does include the Domitian Coast. The scientific studies show that surveys, including remote sensing and photointerpretation, together with ground analyses, are effective and efficient tools for monitoring the area. The use of unloading sites for the storage of highly dangerous waste, illegally used as landfills by subjects allegedly attributable to the criminal organizations that have invested in the waste business, have a serious impact on the image of the territory, as well as more serious repercussions on the health of the inhabitants [13].

This issue is directly related to the situation with illegal discharges in the sea which, in past years, have often made the Domitian Coast not suitable for swimming.

Another important environmental problem is the coastal erosion. The coastal system is a complex natural structure, based on delicate a physical, chemical and biological equilibrium, strongly affected by anthropic interventions. The Domitian Coast is characterized by a low and sandy coast and it is mainly influenced by the dynamics of the rivers Garigliano and Volturno. At present, this system is severely compromised, due to the intense exploitation of the territory that has profoundly changed the morphological structure of the natural landscape.

The main aspect underlining the instability of the coastal system is the retreat of the shoreline following the increase of erosive phenomena due to the anthropic pressure exerted in the last fifty years. The coast was, in fact, subject to a strong destabilization with the disruption of the dune system caused by the construction of seaside resorts, residential villages and marinas, as well as due to the anthropization of the coast for other purposes. Another significant cause for this deterioration is the continuous removal of sand and gravel from riverbeds and the development of activities in the upper part of river basins, all of which impoverish the natural flow of solid material from rivers into the sea [3].

The characteristics of the Domitian Coast define a case of territory to be fully redeveloped. From the physical aspects to the environmental components, from the economic situation to the social elements of the area, the Domitian territory represents a paradigmatic case of study, where a singular unregulated development process has been experienced, resulting in the commitment of some of the most nationwide discussed settlements operations of the last decades.

The concentration of negative factors, compared to the amount of unfulfilled potential, is perhaps the most interesting starting point from which to deepen credible hypotheses of intervention. Without a careful analysis of past circumstances, it is extremely hard to define credible territorial redevelopment policies. Moreover, without careful reconnaissance of existing and potential resources, we could risk finding ourselves basing intervention policies, even onerous ones, on nothing.

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