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SUSTAINABILITY IN THE COASTAL URBAN ENVIRONMENT
Thematic Profiles of Resources
and their Users

edited by
Ahmed Z. Khan
Le Xuan Quynh
Frank Canters
Eric Corijn



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CHAPTER 2.

An Overview of Territorial Resources and Their Users in the Rome and Chieti-Pescara Areas

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University of Rome, Italy**

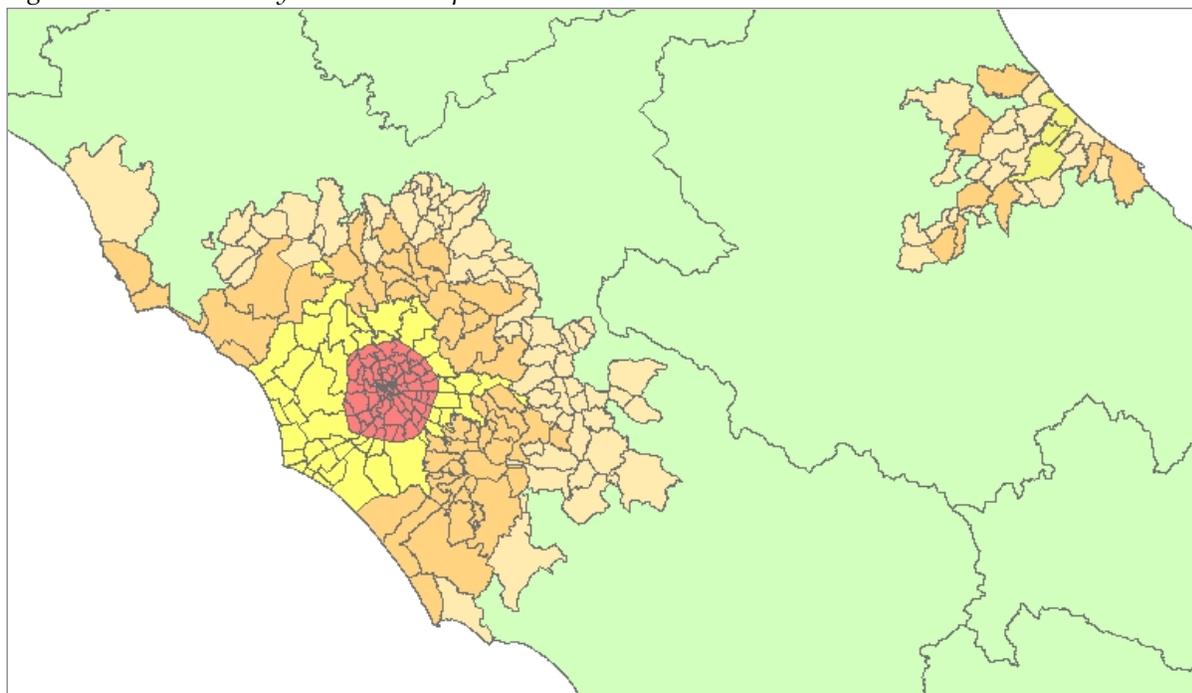
1. Introduction

In this chapter two territories - the Rome metropolitan area and the Chieti-Pescara urban area – will be described and analyzed. Located in the central part of the Italian peninsula, the first one is situated along the Tyrrhenian Sea, whereas the second one faces the Balkans, along the Adriatic Sea. The first one is a large size area including the capital city, while the second is a mid-sized one. They can be considered as connected in a longitudinal way, since their position is symmetrical as regards to the Apennines; they are linked by an important infrastructure (the A24/A25 highway) and the population is gradually expanding towards inlands. The Apennines that are located between the two areas represent a contact point rather than a divide.

The chapter intends to provide a general framework of the areas that could be used in further analyses. The main purpose is offering to readers a wide set of data and information that could be further interpreted and developed. That is why the chapter will be mainly descriptive and will include several maps and tables.

Our analysis aims at highlighting the main spatial and socio-economic characteristics of the two areas where several conflicts, linked to the different objectives of economic development and environmental protection, are taking place. After presenting the data and methodologies used in the study, main territorial resources in the two areas are described in the first part. In the second part, main users of those resources are analysed. In conclusions, we try to assess main contrasts arising by the conflicting interests of different users of the same resources.

Figure 2.1. *Central Italy: Rome Metropolitan Area and Chieti-Pescara Urban Area.**



2. Materials And Methods

The coastal areas examined in this chapter have been defined based on administrative units. Since data are at the moment available only at municipal level, the definition has been constrained by this fact. The coastal zones, indeed, are overweighed with respect to the reality.

Land use analysis is based on the CORINE land cover and referred to the period of 2000-2006.

In the analysis concerning the demographic dynamics (residents, households, migration), data provided by the ISTAT (National Institute of Statistics) population database have been used.

In the analysis concerning the sectors of economic activities, data concerning the number of local units and the number of jobs in the enterprises have been taken into account for the period of the nineties. Those data come from the Tagliacarne Institute "Geostarter" database. The Tagliacarne Institute is a research institute of national relevance strictly connected with the system of the Chambers of Commerce. This institute produces every year an updated database

* Source: own elaboration based on Del Zotto et al., 2010.

containing all the relevant information about enterprises. Our data are analyzed for the period of 1991-1996 (jobs and local units), for the period of 1995-1999 (jobs) and 1995-2000 (local units). The reason for these two different periods presenting overlaps is that those data, even though contained in the same database, have different sources: data referred to the period 1991-1996 have their source in the ISTAT Census of the Industry and of the Services; data referred to the periods 1995-1999 and 1995-2000 have their source in the registers of the Chambers of Commerce (Infocamere). Those data are, therefore, not comparable, but their joint analysis offers the possibility to understand the process for the entire decade.

In the analysis concerning the sectors of economic activities, local units of enterprises have been taken into account for the period after 2001. Those data come from the Tagliacarne Institute database (Geowebstarter).

The use of the Tagliacarne Institute data has two important implications in the analysis: (i) in the agriculture sector only the enterprises developing the so-called “manufacturing agricultural activities” (*attività agricole manifatturiere*, i.e. those activities connected to agriculture, such as processes of transformation of grapes, olives, milk) are taken into account. It means that the main agricultural activities (farming and breeding) are excluded from our data. This is because for the time period we are analyzing (last decade) those are the only available data. At the moment the Agriculture Census 2010 data are being processed. Thus new data are expected to be available in the near future. Nonetheless, the data currently available are able to provide a clear image of the reality; (ii) in every sector only the activities developed by enterprises are taken into account; this implies that all the activities developed by institutions are excluded from our analysis. Since the majority of public services in Italy is provided by public authorities, it means that the service sector’s data are underestimated. Data concerning the number of local units for public schools, public hospitals, public transportation, public postal service, are not included in our analysis.

In the definition of the tourist sector, the number of local units of hotels and restaurants has been taken into account. Tourist overnights are reliable data in the case of the Rome metropolitan area, whereas they have proven to be imprecise in the Chieti-Pescara urban area. They have only been used in the former case.

Cultural and historical heritages have in Italy, above all in the municipality of Rome, an immense value. Because of its extent we have chosen to consider only the heritages owning some international recognition (for instance from UNESCO).

3. Overview of Territorial Resources in the Case Studies

3.1 Rome metropolitan area

3.1.1 Geographical and historical overview

Rome, located in the centre of the Italian peninsula, is the capital of the country and of the Lazio region. Its economy has been traditionally based on the service sector with an outstanding role played by the tourist sector; in recent years, there has been a growth in advanced activities of the service sector, in particular Research and Development by public and private companies. The Rome municipality is at the core of a large metropolitan area. The Municipality of Rome has assumed the role of a "Metropolitan City", which would include exercising the functions of a metropolitan authority on a larger territory than at present.

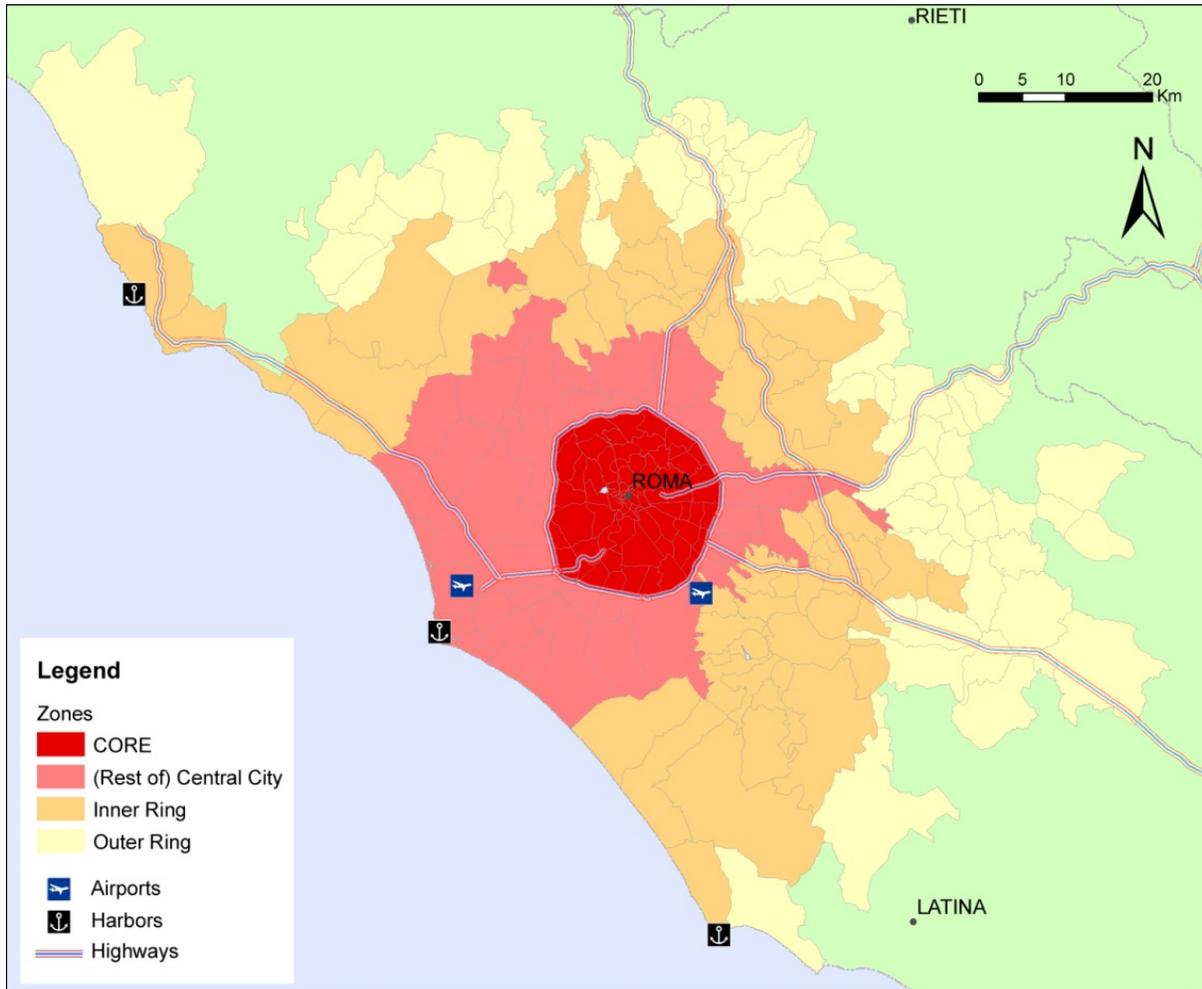
The Metropolitan Areas (MA) in Italy are defined by Law 142/1990. After having provided a strict list of municipal centres of the MA, the law transfers to the regional governments the power of defining the territories, which included those of the 12 MAs, without defining strict criteria of inclusion/exclusion in/from the MA. Instead, it only requires that the municipalities included in the MA have a strong interaction with the main city in relation to economic activities, the essential services for social life, cultural links, and territorial characteristics. In this research, the definition provided by IRSPEL (1991, p. 17), the Regional Institute of Research for the Territorial and Economic Planning in the Latium region, was adopted for the Rome MA* (Montanari and Staniscia, 2012).

In order to reach the objectives of our analysis the Rome MA has been divided into three zones, defined as "central city" (core and rest of the central city), "inner suburban ring", "outer suburban ring". The central city covers a surface of 1498 km². Its territory is very densely populated but, however, especially in its external part, presents some urban protected areas, which enter as "wedges" in the core of the city. The central city is characterised by a circular road system (the ring-road), which is intersected by some perpendicular roads, as the highway

* The following variables were taken into account: Economic activities: daily average flow of people for work reasons from/to Rome. Social services: daily average flow of people for study reasons from/to Rome; daily flow of people attending courses in high schools from/to Rome; yearly flow of people hospitalized in the Roman hospitals. Cultural links: number of second houses occupied by the residents in the municipality of Rome; changes in the residence from/to Rome in the period 1976/1981; changes in the residence from/to Rome in the period 1987/1988. Territorial characteristics: accessibility level to Rome, measured by the transportation costs.

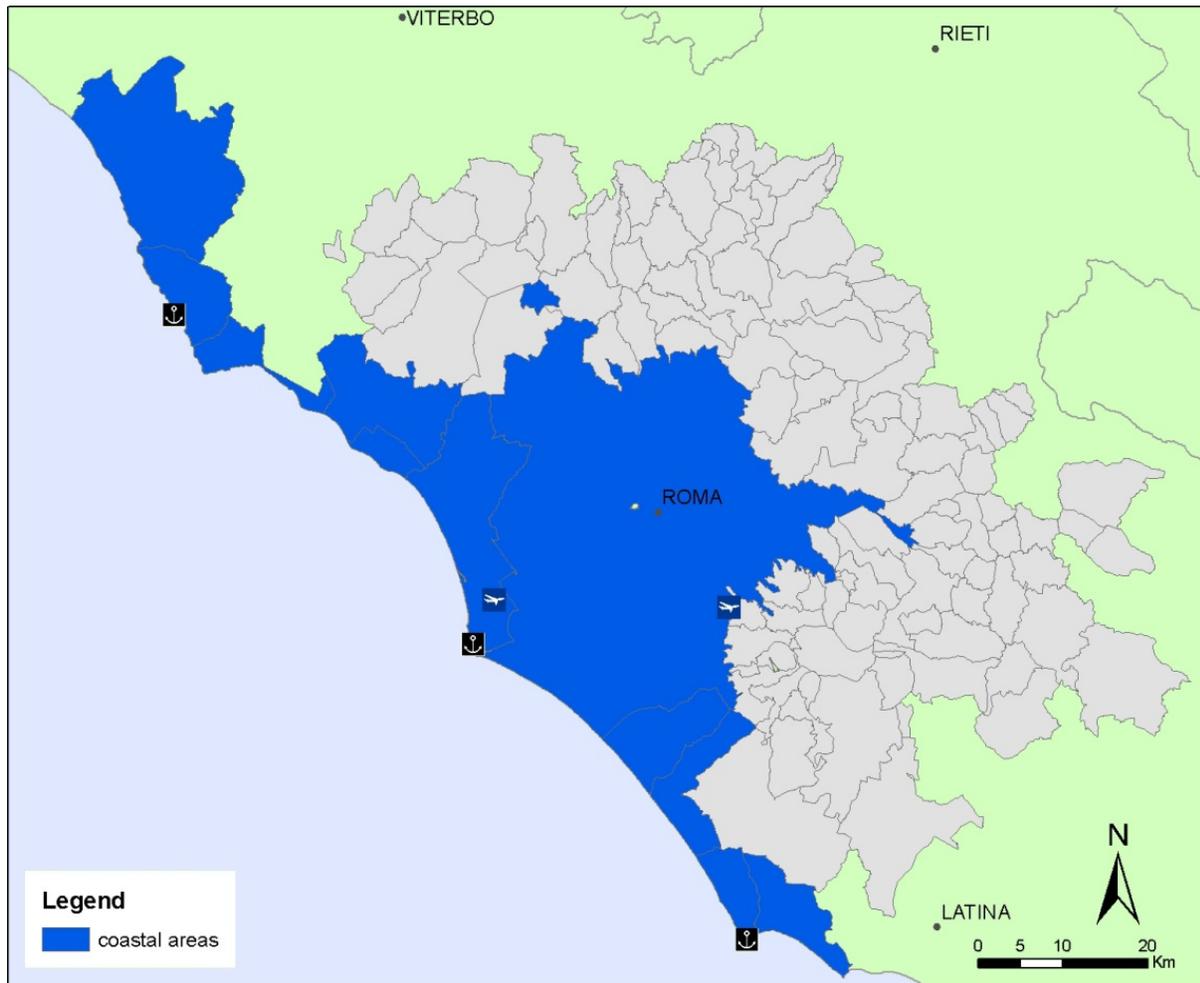
A1 connecting the northwest to the southwest parts of Italy, the A12 connecting the Tyrrhenian cities, the A24/A25 connecting the central-western part of Italy to the central-eastern part. The inner suburban ring covers a surface of 2125 km² and the outer suburban ring covers a surface of 2169 km². All the three areas have experienced an increase of population in the last decade.

Figure 2.2. Rome Metropolitan area, sub-divisions and infrastructures.*



* Source: own elaboration.

Figure 2.3. Rome MA, coastal zone.*



3.1.2 Bio-physical resources

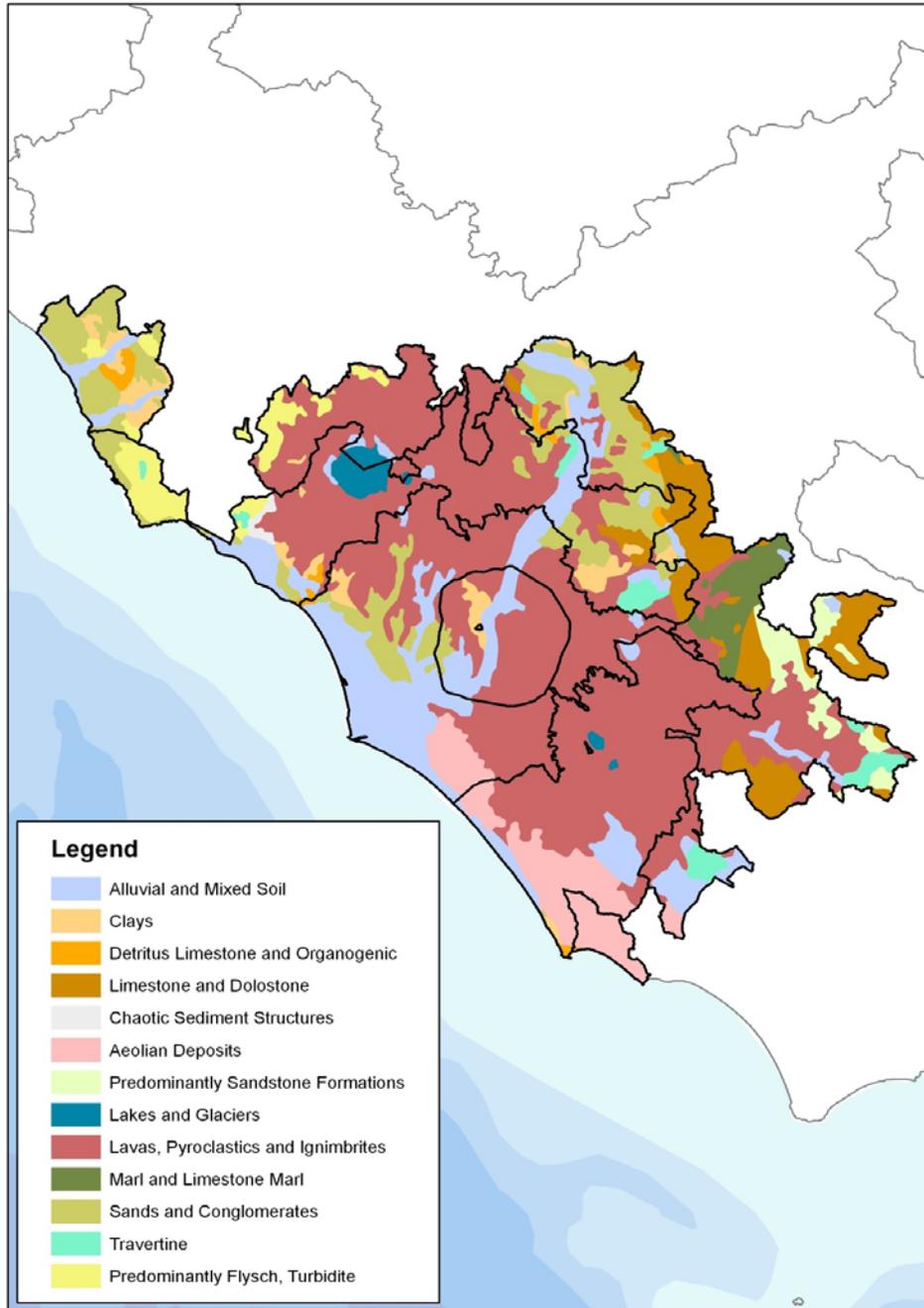
3.1.2.1 Area and typology

The metropolitan area of Rome is mostly hilly with plains next to the seaside. The most internal municipalities located in the outer ring are close to the Apennine mountains, crossing Italy from the north to the south. The area is geologically young, characterized by alluvial plains along the coast, volcanic hills running parallel to the coast, lavas and pyroclastic rocks in the central part, limestone structures in the hilly and mountainous part. The coastal area's length is 150 km and runs from Marina di Tarquinia to Torre Astura. The central part is dominated by the Tiber delta that represents the main sedimentary outputs and determinates the sedimentary state of the area. Beaches are sandy and slightly curved, sometimes rectilinear and bordered by dunes. The northern part (Tarquinia-Santa Marinella) and the southern part

* Source: own elaboration.

(Tor Caldara-Torre Astura) present traits of cliffs and rocky coasts. Highly urbanized areas alternate with low urbanized or non-urbanized areas. The latter depends on the presence of protected areas. Coastal erosion is a relevant problem mostly caused by the decreasing amount of sediments carried by the rivers (Lupia Palmieri *et al.*, 2010).

Figure 2.4. Rome MA, geology.*

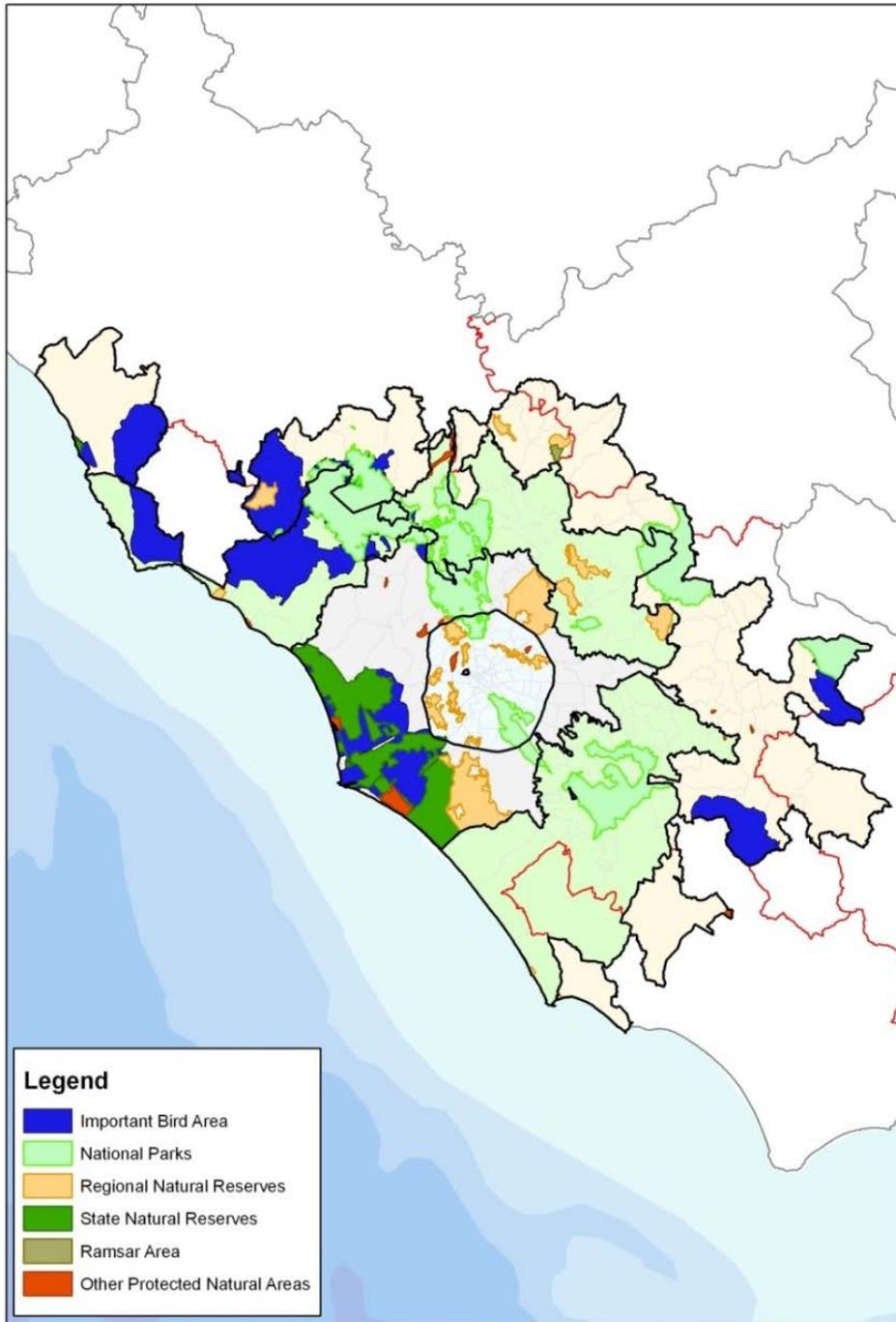


* Source: own elaboration based on Del Zotto *et al.*, 2010.

3.1.2.2 Coastal and marine ecosystems

The Rome metropolitan area is characterized by a very rich and diversified ecosystem that, due to its fragility, is in some cases protected. Protected areas can be found in the most important natural reserves of Litorale Romano (15,900 ha) and Castel Porziano (5,900 ha); other protected areas are the Saline di Tarquinia, Macchiatonda, Palude di Torre Flavia, Tor Caldara, Villa Borghese di Nettuno (totally 550 ha). In addition a shoal located between Ostia and Torvajonica, 4 to 8 miles off the coast, is a natural reserve of 1200 ha. Along the coast, in the protected areas where the human action is absent, there are several dunes with their own specific vegetation, mainly shrubs growing in the Mediterranean basin (maquis shrubland). Plains close to the coast present many swamps and pools, surrounded by Hydrophile woods. Several species of mammals, birds, amphibians, fishes, reptiles and insects populate the coastal environment. The core of Rome is surrounded by the so called Agro Romano, a rural area cultivated for centuries. The dominant landscape is characterized by olive and almond trees as well as prairies. The pre-mountain part of the metropolitan area presents a very rich ecosystem with vegetation types ranging from species typical of the Mediterranean basin to those typical of central Europe and sub-alpine areas. Along the two main rivers (Tiber and Aniene) woods and cane ponds can be found. In the surroundings of the lakes (Bracciano, Albano, Martignano and Nemi), thanks to the special soil of volcanic origin, the vegetation ranges from maquis shrubland, riparial vegetation, woods of oaks, chestnuts and beeches. Woods are populated by many species of flowering oil plants (Del Zotto *et al.*, 2010).

Figure 2.5. Rome MA, protected areas.*



* Source: own elaboration based on Del Zotto *et al.*, 2010.

3.1.2.3 Soil and land-uses

The Rome metropolitan area covers a surface of 5,793 km². The agricultural zones, in terms of land use, represented 68% of the total surface in the year 2006. In the same year the areas exclusively dedicated to industrial firms and commercial spaces represented around 2% of the total, while 9% of the surface was a built-up area in the urban environment. Natural and open spaces totally accounted for 20% of the surface; the rest was covered by roads, railways, ports and airports. What could strike the reader is the large size of the agricultural land. Rome, in fact, even if it may look like a paradox, is the largest rural municipality in Italy. It is, also, the largest municipality in Europe: its inhabited surface area amounts to a little less than that of Greater London and is almost double that of the Parisian territory within the *Petite Couronne*. There is also a peculiar spatial distribution of buildings within the municipality: large empty spaces alternate with large built-up spaces; light and shade effects create spatial discontinuity. This feature led to Rome being described as a city-archipelago (Marcelloni, 2003, p. 31). The vacant, non-built-up areas cover 73 percent of the territory; in Amsterdam and Paris these zones account for just 23 percent of the total. These voids in Rome are often farmland or areas that have a high environmental, historic or cultural value. There are a few spaces in areas no longer used by factories, insofar as Rome has ever been an industrial city. Indeed, traditionally industry was located along a few road axes along which small and medium-sized enterprises grew up, but certainly not large-scale industry. The developed city, therefore, consists of residential-style buildings with some buildings dedicated to commerce and services activities. A characteristic of the Municipality of Rome is the large number of green spaces, archaeological sites, parks and natural reserves. This environmental system is constituted by the preservation of 82,000 hectares, 64 percent of the entire municipal territory (Montanari, Staniscia, Di Zio, 2007).

Between the year 2000 and 2006, the Rome metropolitan area has experienced a loss in the agricultural land and in the open spaces, an increase of the industrial, commercial areas and built-up areas. In the coastal area the trend is the same with a particularly high value in the loss of open spaces (-7.34%) and in the increased of the mixed industrial/commercial areas (+13.88%).

Table 2.1. Rome MA, land use, year 2000, own elaboration on CORINE, 2000.*

	Core	Inner Ring	Outer Ring	Coastal Zone
Total Area (sqm)	1498346078	2125811666	2169287794	2331375754
Agriculture Total Area (Sqm)	970319754	1543920739	1474863136	1599440735
Industrial Total Area (Sqm)	18041477	9974239	1807738	19445748
Mixed Industrial \ Commercial Total Area (Sqm)	35409600	36614114	15272301	54503473
Natural Habitat Total Area (Sqm)	110383757	302843689	577849416	217519903
Open Space Total Area (Sqm)	32179792	58483731	46918566	36641743
Built up area in urban environment with mixed used (Sqm)	306789910	166319363	51406359	374329149
Road Network Total Length (Km)	1860,64637	183252,5109	78861,91805	2446
Railways Total Length (Km)	348,632815	307,0523403	177,2207345	448
Harbors areas (Sqm)	814864	559991	212926	1587781
Airports areas (Sqm)	18224532	4938142	0	22327512

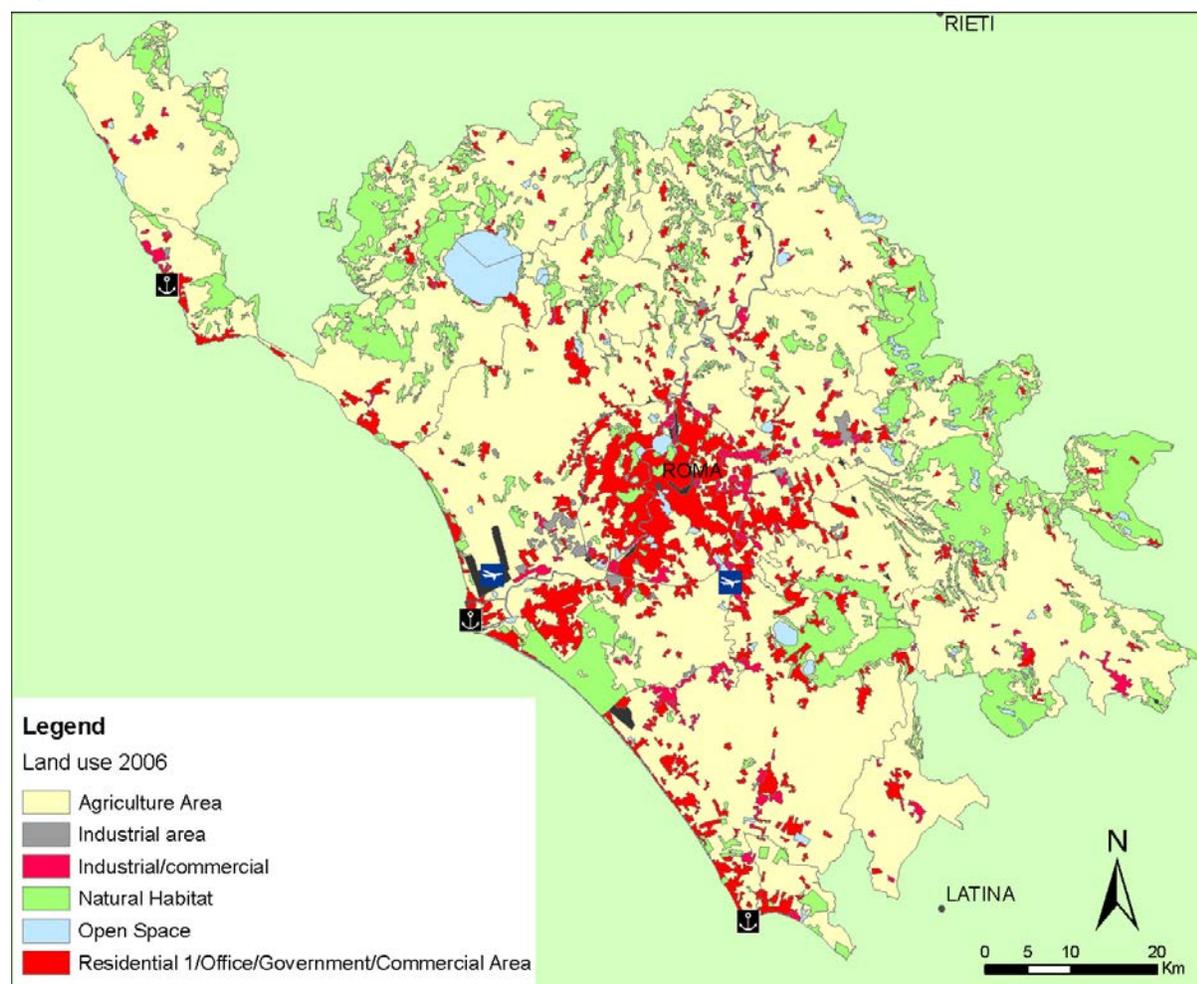
Table 2.2. Rome MA, land use, year 2006, own elaboration on CORINE, 2006.**

	Core	Inner Ring	Outer Ring	Coastal Zone
Total Area (sqm)	1498346078	2125811666	2169287794	2331375754
Agriculture Total Area (Sqm)	952783364	1535862109	1472204463	1578717897
Industrial Total Area (Sqm)	20310138	8980752	2390744	21106402
Mixed Industrial \ Commercial Total Area (Sqm)	41652655	39006620	16448696	62067703
Natural Habitat Total Area (Sqm)	113213117	302124788	577743711	220418584
Open Space Total Area (Sqm)	29247091	60489396	46918566	33953810
Built up area in urban environment with mixed used (Sqm)	315351464	171529290	52411336	385049895
Road Network Total Length (Km)	1860,64637	183252,5109	78861,91805	2446
Railways Total Length (Km)	348,632815	307,0523403	177,2207345	448
Harbors areas (Sqm)	814864	559991	212926	1587781
Airports areas (Sqm)	18224532	4938142	0	22327512

* Source: own elaboration based on CORINE, 2000.

** Source: own elaboration based on CORINE, 2006.

Figure 2.6. Rome MA, land use.*



3.1.2.4 Freshwater and access to water

The main rivers in the Rome metropolitan area are: Tevere (Tiber, the most important), Aniene, Arrone, Astura, Mignone, Sacco. The Tiber runs for 405 km, from the Apennines to the Tyrrhenian Sea. The presence of two dams for the production of electricity is noted along the river. Their presence provokes a dangerous decrease of sediments and solid materials transported to the sea, which is one of the main causes of coastal erosion; 67 streams and 4 canals are counted in the area.

Parallel to the coast, 20-30 km inland, a line of volcanic hills runs; it is characterized by the presence of four volcanic lakes: Bracciano, Albano, Martignano and Nemi. Bracciano is the

* Source: own elaboration based on CORINE, 2006.

largest one with a surface of 5,764 ha, a maximum depth of 160 mt and a perimeter of 31 km. The lake is an important reservoir of drinkable water for the city of Rome.

The region offers several springs, under-lake springs and deep water tables. The most important groups of springs are in the outer ring (the upper valley of the Aniene River and the Monti Lucretili area, in the inner ring (the Bracciano lake area, Genzano and Pomezia) and in the core (Cecchignola, Grottarossa and Castel Giubileo) (Del Zotto *et al.*, 2010).

3.1.3 Cultural and social resources

3.1.3.1 Important cultural features

Rome is one of the richest zones of cultural heritage in the world. Listing all its valuable monuments, ruins, pieces of arts will be endless. The historic centre of Rome, the properties of the Holy See in Rome, San Paolo fuori le Mura (which is also Vatican's extraterritorial property) are listed among the UNESCO world heritage sites, as well as the Etruscan necropolises of Cerveteri and Tarquinia. Ostia Antica (the ancient Ostia city) is listed by UNESCO among the most important one hundred archaeological sites in the world. Focusing our attention on the coastal area, we can find ruins of villas, aqueducts, theatres, *thermae* (hot springs) and roads of different periods of the Roman age. Many museums, fortified towers and castles complete the framework. In order to give an idea of the importance of the cultural resources in Rome, it could be mentioned that the Vatican Museums - located in the centre of Rome, falling within the jurisdiction of the Vatican City - had nearly four and a half million visitors in 2008, over 3% more than the previous year. They represent the sixth most visited museum in the world, having moved up one rank since the previous year. The archaeological circuit "The Colosseum, Palatine Hill and the Roman Forum", alone drew nearly 5 million visitors (Montanari and Staniscia, 2012).

3.1.3.2 Important demographic and social features

In the year 2009 the resident population was equal to a total of 4,259,027 inhabitants, distributed among the central city (core and rest of the central city) (2,790,857 inhabitants; 65.5% of the total), the inner ring (1,110,106 inhabitants; 26.1% of the total), the outer ring (358,064 inhabitants; 8.4% of the total). This situation is the result of a non-linear development along the last two decades.

In the period of 1991-2001, the municipality of Rome, within the central city, experienced a decrease of population, the highest in the whole metropolitan area; the city of

Rome, alone, lost 315,000 inhabitants in 10 years. In the period of 1992-2000, the municipality of Rome experienced a negative migratory rate (on average -2.5 per thousand per year). The municipality of Fiumicino, where the major Rome airport is located and which was part of the municipality of Rome until 1991, indeed, experienced a considerable high positive migratory rate (on average +20.4 per thousand per year). The average yearly migratory rate of the whole central city in the analyzed period was -2.06 per thousand. The inner ring experienced a generalised increase of population, particularly high in the most southern municipalities. Few exceptions are represented by some eastern municipalities, which registered a net loss of residents. In summary, the area registered an increase of more than 64,000 units in the considered period. The inner ring experienced a generalised positive migratory rate, particularly high (> 25 per thousand per year) in a few municipalities surrounding the municipality of Rome. The total average yearly migratory rate was +15.5 per thousand. The outer ring registered a weak increase of population in the northern and southern parts and a loss of population in its eastern part. It registered a total increase of more than 16,000 residents in the considered period. The outer ring experienced a weak positive migratory rate in the majority of the municipalities, with some positive exceptions of high migratory rate in the northern part. The average yearly migratory rate was +8.7 per thousand (Montanari and Staniscia, 2003).

In the period 2003-2009 the Rome metropolitan area registered an increase of population of 10.5%; this increase is not equally distributed: it is higher in the inner ring (+17.71%), followed by the outer ring (+12.75%) and the central city (+7.65%). The coastal area registered a relevant increase equal to +9.20%. The process is mainly due to a positive migratory rate, also influenced by the real estate price.

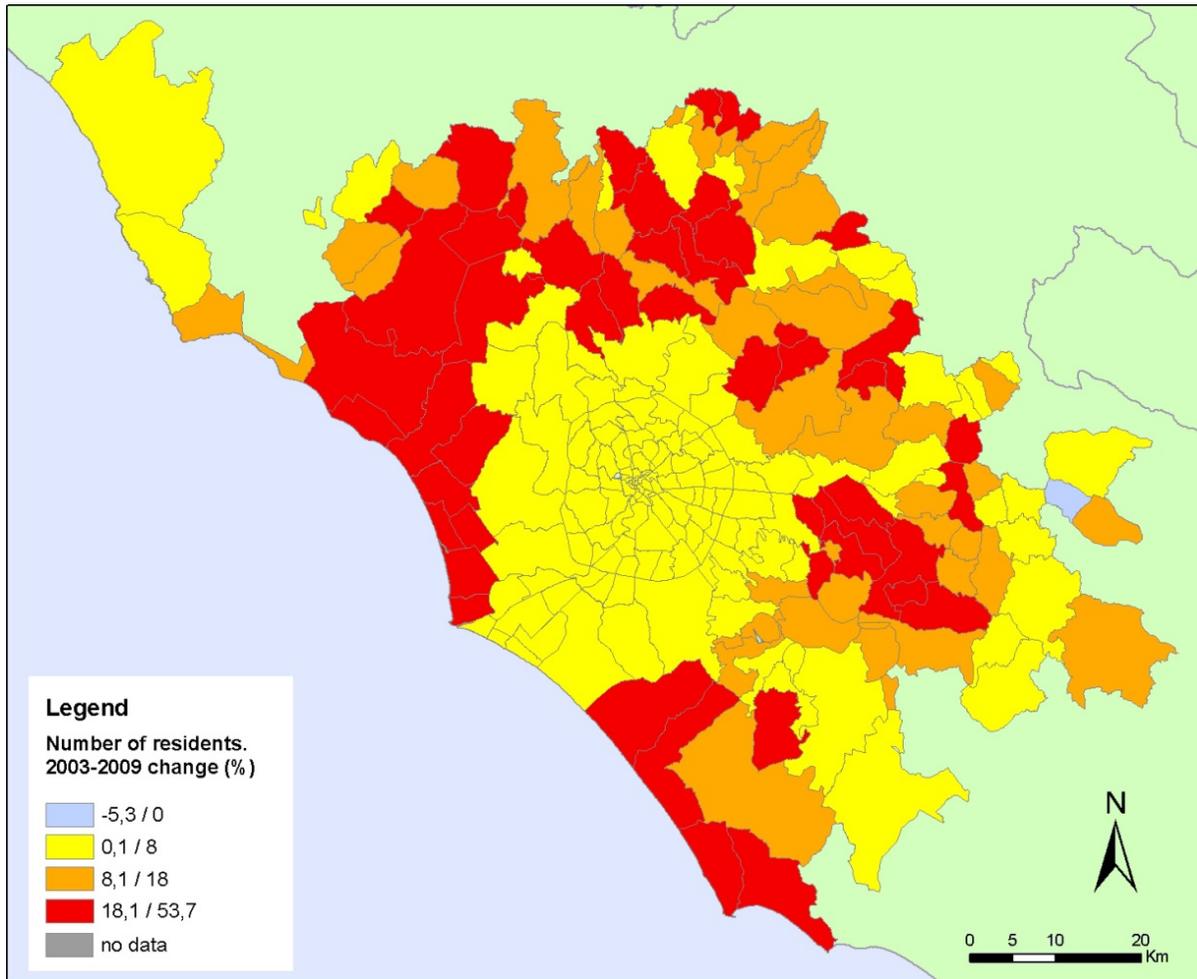
The migratory rate was always positive in the period 2002-2009 in the inner and outer rings. It was negative, only in the central city, only for the years 2002 and 2005. The highest migratory rate was registered in the central city, in the year 2006: +60.6 per thousand. In the coastal area, the migratory rate was always positive, oscillating between a minimum of 1.26 per thousand (2002) and a maximum of 56.56 per thousand (2006).

In the period of 2003-2009 an increase (+11%) in the number of households is reported in the Rome metropolitan area. This increase is particularly high in the inner ring (+20.3%), followed by the outer ring (+15.4%) and the central city (+7%). The coastal area registered an increase of 8.7%. The average number of components of the households was 2.44 in the year 2003, 2.43 in the year 2009, in the metropolitan area. It is interesting to notice that, even if it

could be irrelevant, a slight increase in the average size of households is registered in the central city and in the coastal area.

The increase of residents along the coastal area is connected to the real estate market dynamics. On the seaside, indeed, the prices of houses and apartments have always been lower if compared to the prices in the suburban areas of the core. The coastal area, thus, resulted in to be attractive for new young couples with children and for singles who preferred low cost of housing, better quality of the environment, and the proximity to workplaces.

Figure 2.7. Rome MA, population change.*



* Source: own elaboration.

3.1.3.3 Important economic features

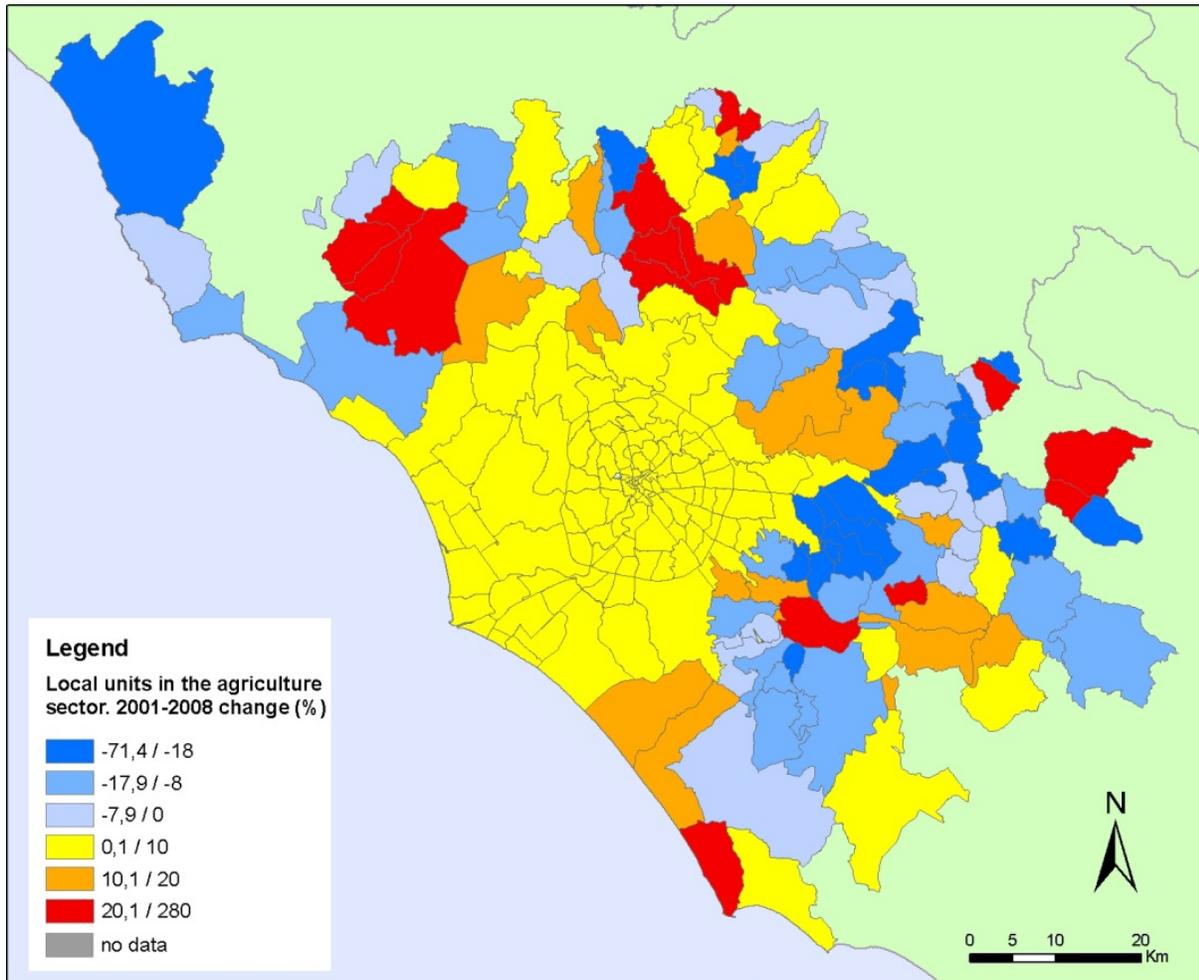
In the year 2009 Rome metropolitan area had 1,641,279 employees, 70.1% in the core, 22.8% in the inner ring, 7.1% in the outer ring; 81% of employees were in the tertiary sector, a percentage that reached 84.5% in the core. In the year 2008 Rome metropolitan area had 465,695 local units of enterprises, 71.9% in the core, 20.8% in the inner ring, 7.3% in the outer ring; 71.9% of the local units were in the tertiary sector, a percentage that reached 76.9% in the core. This situation is the result of the simultaneous action of different forces along the last twenty years.

During the first half of the nineties, all the sectors registered a general increase in the number of local units, in all the sub-areas, with the exception of the “leisure” sector (which registered a decrease in the inner ring and in the outer ring) and of the “commerce” sector (which registered a decrease in the outer ring). The general increase was particularly significant for the “offices” sector in the central city. The general trend was towards a concentration of local units in the central city, along an ideal path of development which, starting from the periphery (the outer ring), increasing to the centre (the central city itself). In the period 1991-1996, in fact, the number of local units in the sectors taken into account registered a very low increase in the outer ring (+ 311 units), a better increase in the inner ring (+ 5,385 units) and a much better performance in the central city (+ 44,670 units). During the second half of the nineties, the trend to the growth of economic activities was confirmed and even enhanced, particularly in the “commerce”, in the “leisure” and in the “offices” sectors. The same trend of a concentration in the central city of the local units was shown, even though the differences in the rate of growth were smaller in comparison to the ones, which had characterised the former period. In the period 1995-2000, in fact, the number of local units increased in all the sub-areas, even though with different intensities: + 3,161 units in the outer ring, + 16,425 units in the inner ring, + 114,146 units in the central city. The situation changes dramatically if we take into account the number of jobs. If we analyse, in fact, the first half of the nineties, we notice a general decrease in the number of jobs in all the sub-areas in the “manufacturing”, “commerce”, “leisure” sectors and a decrease (only in the Central city) in the “transport and communication services” sector. The only consistent increases in the number of jobs can be found in the “offices” sector, especially in the central city. This displays a very clear tendency to concentrate the number of jobs in the central city. In the other sectors, which register a decrease, the peripheral areas (inner ring and outer ring) present a better performance, although in a negative

situation, if compared to the central city. Looking at the total number of jobs of the considered sectors, in the period 1991-1996, the outer ring registers a loss of 4,821 places of work, the inner ring a loss of 12,424 places of work, the central city registers a loss of 37,560 places of work. When the number of jobs, then, is considered, the situation is the opposite to the one which emerges when the local units are considered: the central city, in fact, is the sub-area registering the worse performance. The situation partially changes in the second half of the nineties. In this period, in fact, a negative trend in the change of the number of jobs can, still, be registered for the “manufacturing” and the “commerce” sectors in all the sub-areas, but a positive trend can be registered for the “leisure”, the “public services” and the “offices” sectors (except for the outer ring in the first two sectors), in particular in the central city. This latter is, in fact, the most dynamic area for the services, in general, during this period. The inner ring, indeed, even in a negative trend, can be considered as the less weak for what concerns the “manufacturing” and the “commerce” sectors. Looking at the total number of jobs in the mentioned sectors in the period of 1995-1999, we notice a reduction of jobs in the outer ring (- 4,463), a creation of jobs in the inner ring (+ 3,349) and, dramatically more, in the central city (+21,884). It is possible to remark a tendency about the substitution of jobs, with a reduction in the traditional sectors (manufacturing and commerce) and a creation in the less traditional sectors. This trend can be found in all the sub-areas and it is more relevant in the central city (Montanari and Staniscia, 2003).

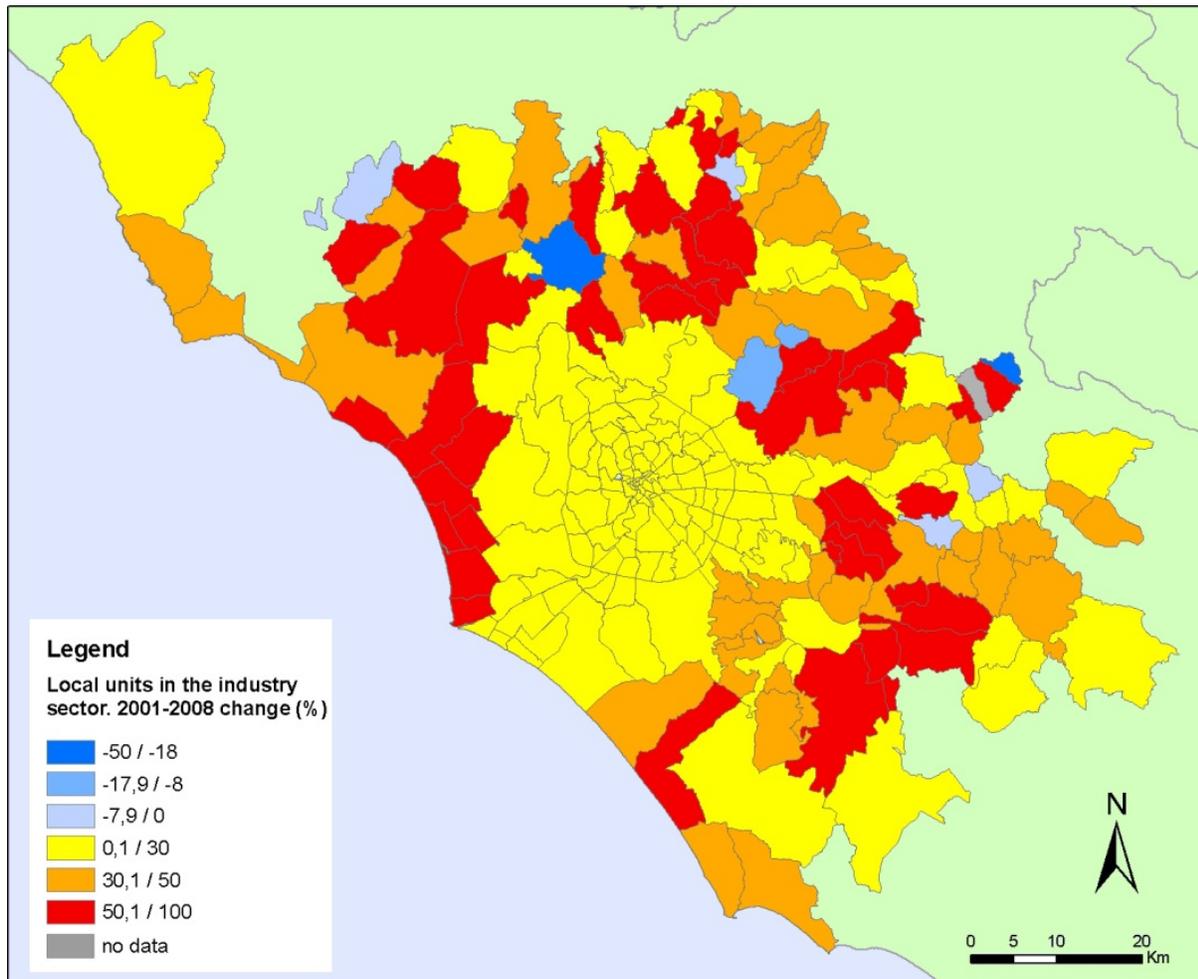
In the period of 2001-2008 the agriculture sector registers a general decrease in the number of local units in the Rome metropolitan area; this final value is the result of different trends. In the central city, indeed, an increase of 3.4% is reported, while in the inner ring the value is -4.2% and in the outer ring -8%. The coastal area records a slight decrease of 0.6%. In the industrial sector the dynamism is totally different: a total increase of 20% is reported in the number of local units at metropolitan level. The increase is particularly significant in the inner ring (40.1%) and in the outer ring (34%) and less important in the central city (12.3%). The Rome coastal zone registers an increase of 15%. In the service sector the Rome metropolitan area registers a remarkable increase in the number of local units: +32.4% between 2001 and 2008. The inner ring is very dynamic (+39%), followed by the central city (31%) and the outer ring (29,6%). The coastal area in the same period reports an increase of 31.9%. The described trend of the local units of the enterprises confirms and is confirmed (by) the trend in the land use.

Figure 2.8. Rome MA, dynamics in the agriculture sector.*



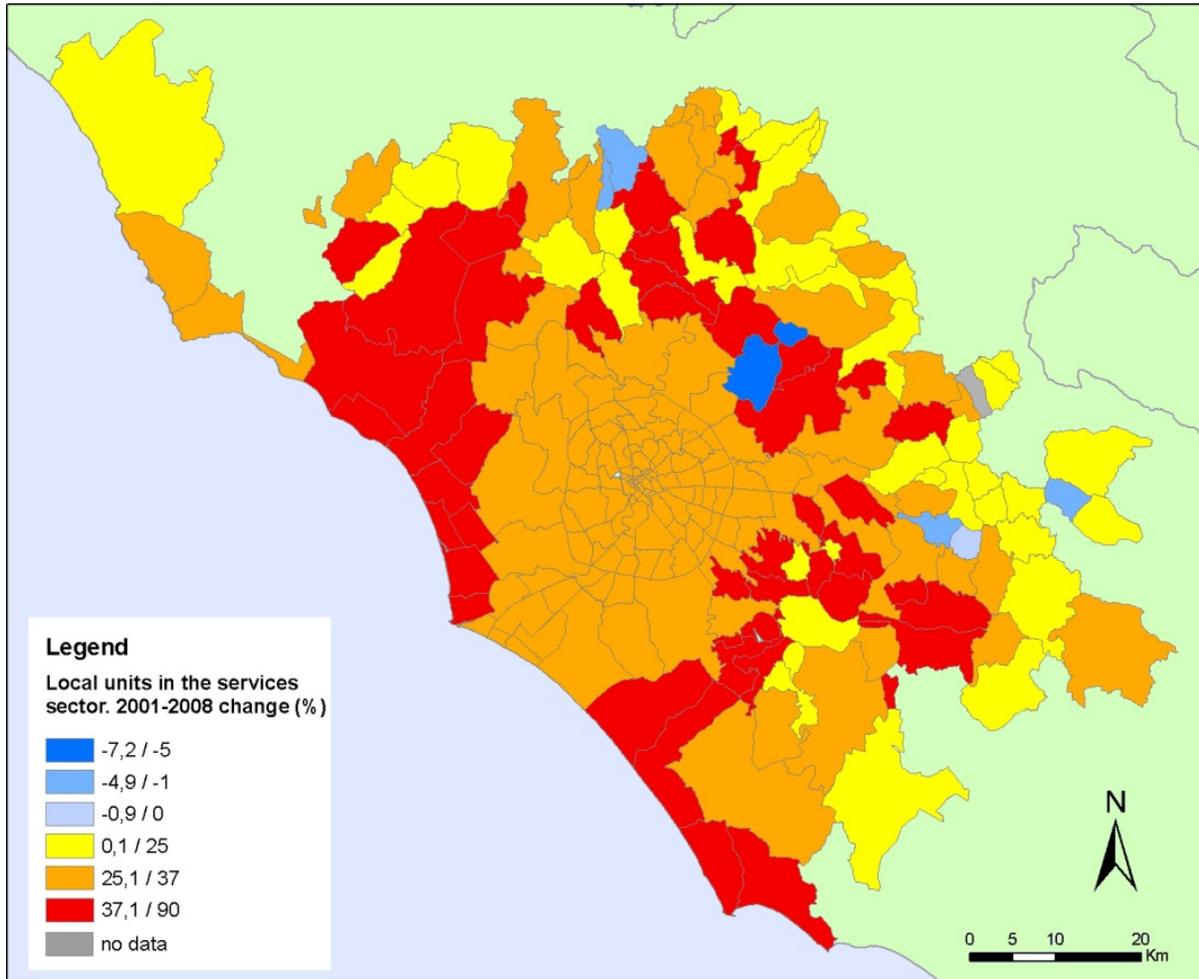
* Source: own elaboration.

Figure 2.9. Rome MA, dynamics in the industrial sector.*



* Source: own elaboration.

Figure 2.10. Rome MA, dynamics in the services sector.*



* Source: own elaboration.

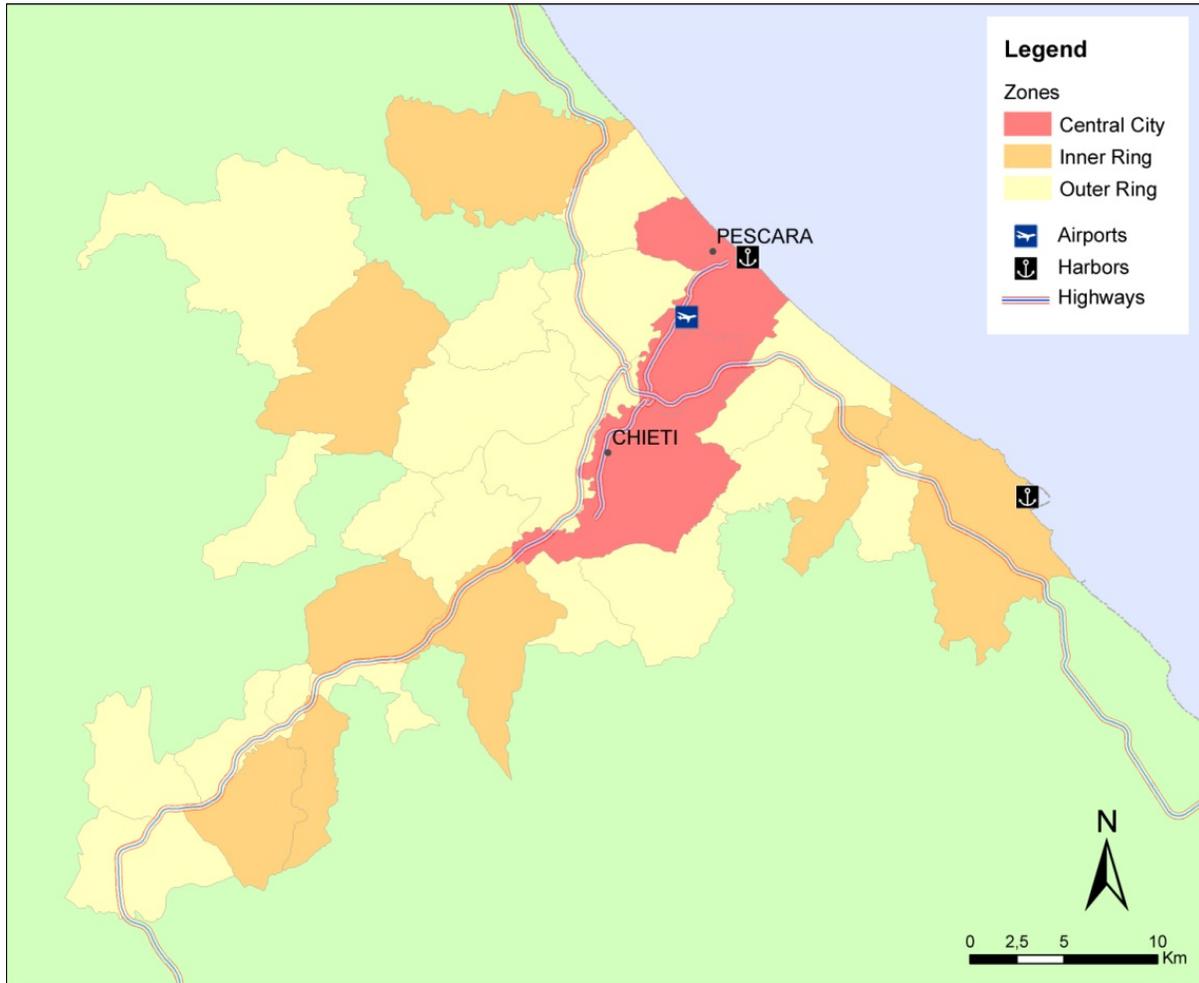
3.2 Chieti-Pescara urban area

3.2.1 Geographical and historical overview

The Law 142/1990 mentioned above did not include the cities of Chieti and Pescara. Our research, thus, had to adopt a “*functional*” approach, based on socio-economic parameters. Given the aim of our study being to study human activities – both residential and economic – on the coastal area, the choice was an Urban Area, which included the most active municipalities, both from an economic point of view and in terms of residential dynamics. Municipalities belonging to the same productive system, in a network logic were selected. Chieti-Pescara urban area has been divided, for our purposes, into three parts: “core-central city”, “inner suburban ring”, “outer suburban ring”. The rings have been defined following a network logic, without necessarily respecting the criterion of spatial contiguity (Montanari and Staniscia, 2012).

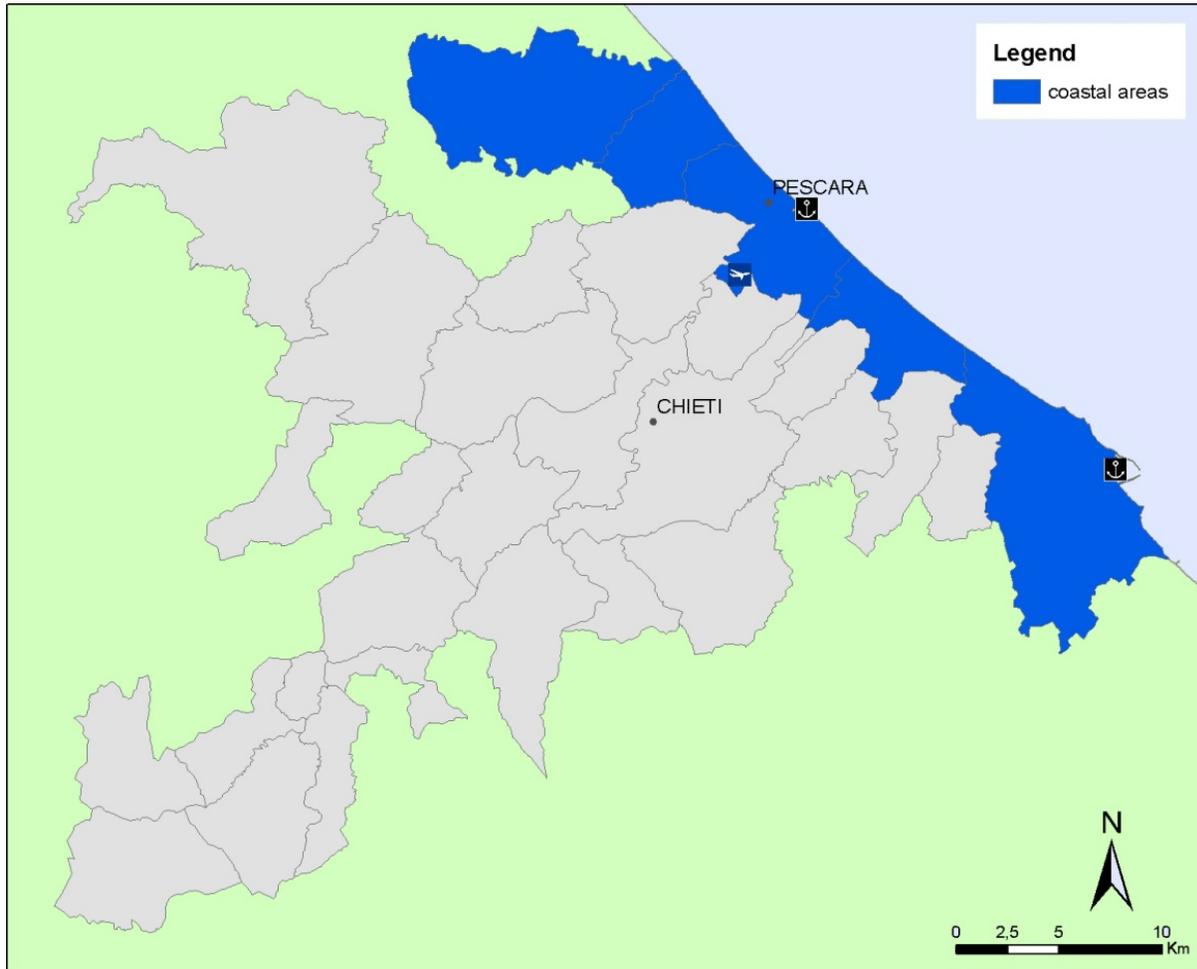
The central city covers a surface of 111 km², the inner ring covers a surface of 332 km² and the outer ring covers a surface of 532 km². This area is limited by the sea, at the east, and by the National Park of Majella, to the west. The central city is constituted by the main cities - Chieti and Pescara - the first one having an ancient origin on the hill, the second one having a recent origin along the plain and the coast. The Pescara City can be considered as the spontaneous “branch” of the city of Chieti, following the technological innovations that characterised the XXth century. In recent years, a new settlement along the Pescara River was created. It is constituted by houses, business parks, shopping centres and industries, without points of discontinuity. The Chieti-Pescara urban area is characterised by a linear system of infrastructures, with many points of intersection, which creates a kind of network of roads. In particular, what has to be underlined is the presence of two perpendicular highways: the A24/A25 connecting the central-western part of Italy to the central-eastern part, and the A14 connecting the northeast part of Italy to the southeast part. To those highways, a local freeway (*asse attrezzato*) must be added, which connects the city of Chieti with the city of Pescara, intersecting both the A24/25 and the A14 highways (Montanari and Staniscia, 2003).

Figure 2.11. Chieti-Pescara Urban Area, sub-divisions and infrastructures.*



* Source: own elaboration.

Figure 2.12. Chieti-Pescara UA, coastal zone.*



3.2.2 Bio-physical resources

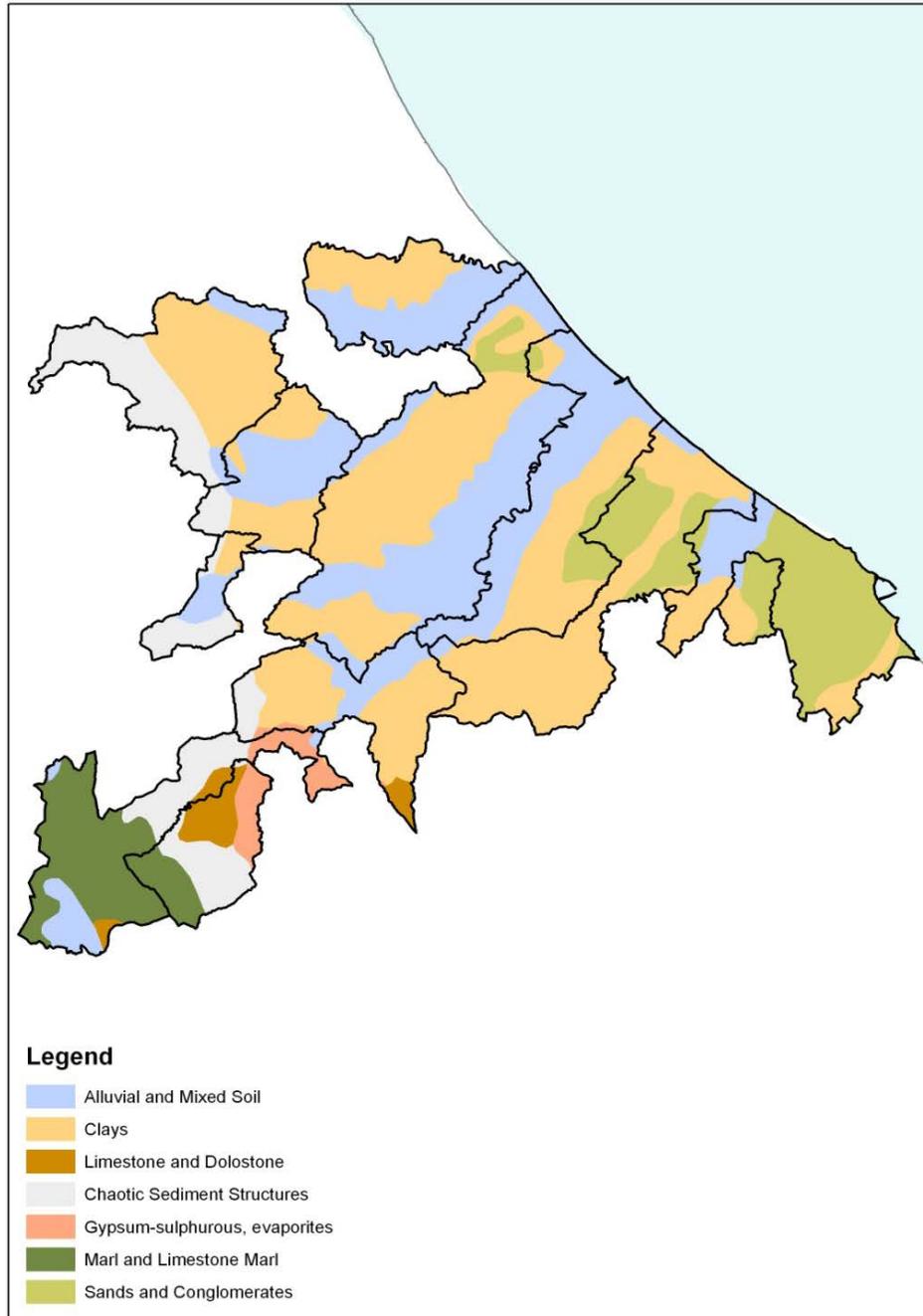
3.2.2.1 Area and typology

The area can be considered as divided in three main physical regions running parallel to the seaside: the coast, the hills, the pre-mountainous areas. The coastal area runs for 35 km from Città Sant'Angelo to Ortona and is mainly characterized by sands and conglomerates (in the southern area) and by alluvial and mixed soil in the rest of the territory. The hilly part is dominated by clays, while the pre-mountainous part by marl and limestone structures. The coastal area is mostly sandy except for the southernmost part (between Torre Mucchia and the Ortona harbour) characterized by cliffs. The width of the beaches is on average 100 m but in the southern part it reaches 10-15 m. The dynamics of sediments is determined mainly by the waves

* Source: own elaboration.

since the tidal movements are negligible. The coast is totally urbanized except for some rural areas in the southern sector. Erosive processes are important, but long tracts of the coast are protected (even if not always successfully) by coastal engineering structures (Lupia Palmieri *et al.*, 2010).

Figure 2.13. Chieti-Pescara UA, geology.*

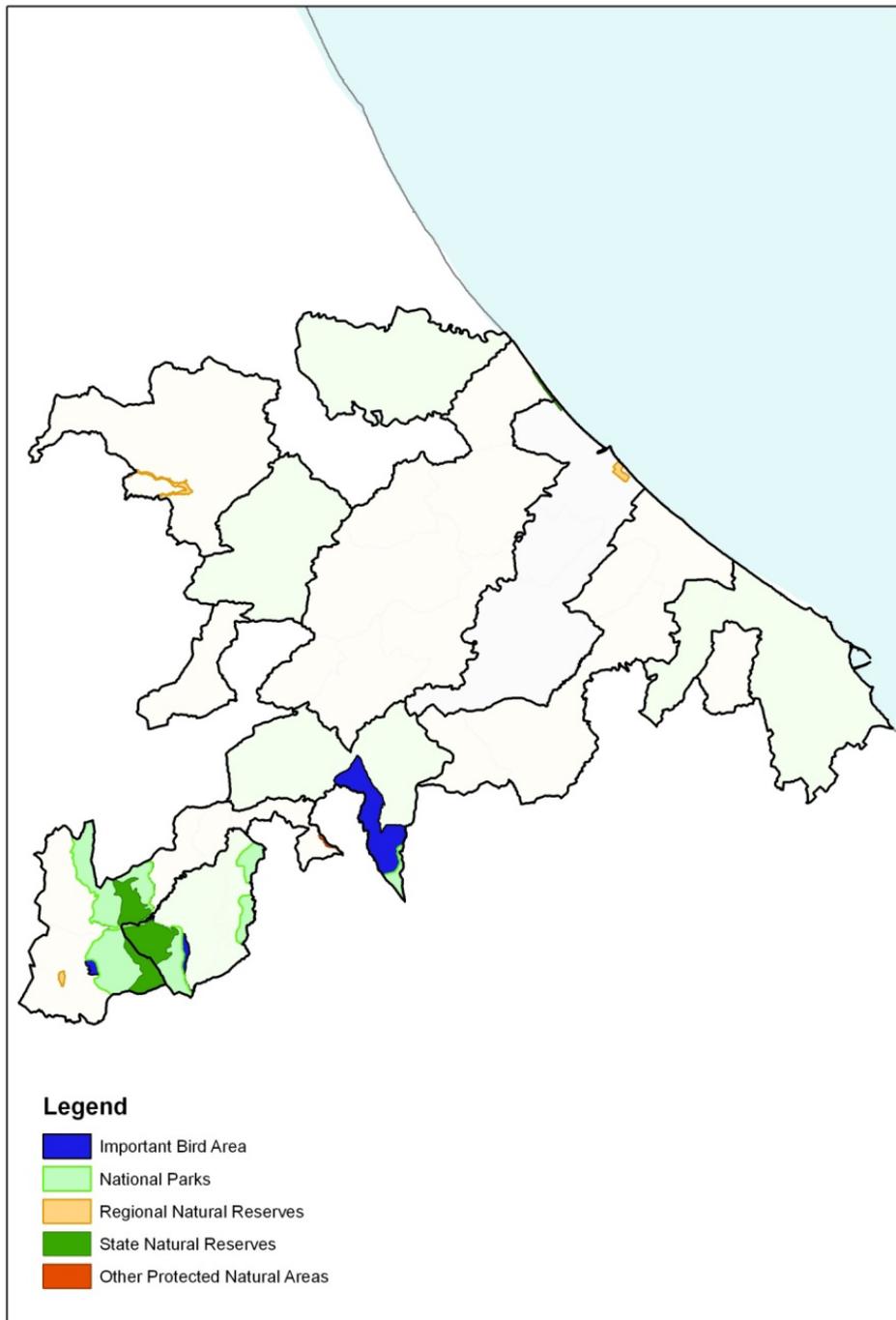


* Source: own elaboration based on Del Zotto *et al.*, 2010.

3.2.2.2 Coastal and marine ecosystems

The main ecosystems of this region can be considered: the coast, the wetlands and the pre-mountain part (pre-Appennini). The coastal area is very urbanized and the little space of green areas is represented by two pine-trees woods (pinete) hosting several species of birds. The spring of the Pescara River is surrounded by cane thickets, riparial woods, maquis shrublands hosting several amphibians and mammals. The surroundings of the Penne Lake (see par. iv) are also a varied ecosystem with riparial vegetation and hydrophilic plants and, further from the banks, a mixture of maquis shrubland and agricultural areas dedicated to growing cereals and olives. The pre-Appennini area presents an high altitude and the vegetation and fauna typical of a mountain region. The presence of protected areas guarantees and allows the existence of important animal species like bears, wolves and deers, even if in very small numbers (Del Zotto *et al.*, 2010). In the year 2001 a Coastal National Park has been introduced in the national system, the Parco della Costa Teatina. More than ten years have passed and the Park has not been implemented yet since no agreement concerning its boundaries has been reached so far.

Figure 2.14. Chieti-Pescara UA, protected areas.*



* Source: own elaboration based on Del Zotto *et al.*, 2010.

3.2.2.3 Soil and land-uses

The Chieti-Pescara urban area covers a surface of 974 km². In the year 2006, 78% of the area was represented by agricultural lands, 2% was destined to industrial and commercial use, 6% was built-up area, 13% natural habitats and open spaces, the rest was destined to roads, railways, ports, airports. Between 2000 and 2006, agricultural land and natural habitats experienced a small contraction (respectively -0.20% and -0.26%), while the industrial land experienced a large shrinking (-20%). The built-up areas and the mixed industrial/commercial areas increased their relative weight in the region. The coastal area followed the same trend presenting a higher reduction of the industrial area (-24.23%) and a lower increase of the built-up area (+2.13%).

Table 2.3. Chieti-Pescara UA, land use, year 2000.*

	Core	Inner Ring	Outer Ring	Coastal Zone
Total Area (sqm)	110620207	331790476	531744678	211577242
Agriculture Total Area (Sqm)	71263667	269022005	426459446	158776540
Industrial Total Area (Sqm)	587910	874883	1134532	1035752
Mixed Industrial \ Commercial Total Area (Sqm)	9071228	4140593	3557210	5606896
Natural Habitat Total Area (Sqm)	1980404	46094327	75014488	11220364
Open Space Total Area (Sqm)	835369	850595	2557416	1140230
Built up area in urban environment with mixed used (Sqm)	24576678	10247989	22996050	31686758
Road Network Total Length (Km)	342068,475	365654,427	155166,4205	371
Railways Total Length (Km)	29,1762153	35,68317224	35,05505342	48
Harbors areas (Sqm)	129303	311082	0	440385
Airports areas (Sqm)	1786534	0	0	1344232

Table 2.4. Chieti-Pescara UA, land use, year 2006.**

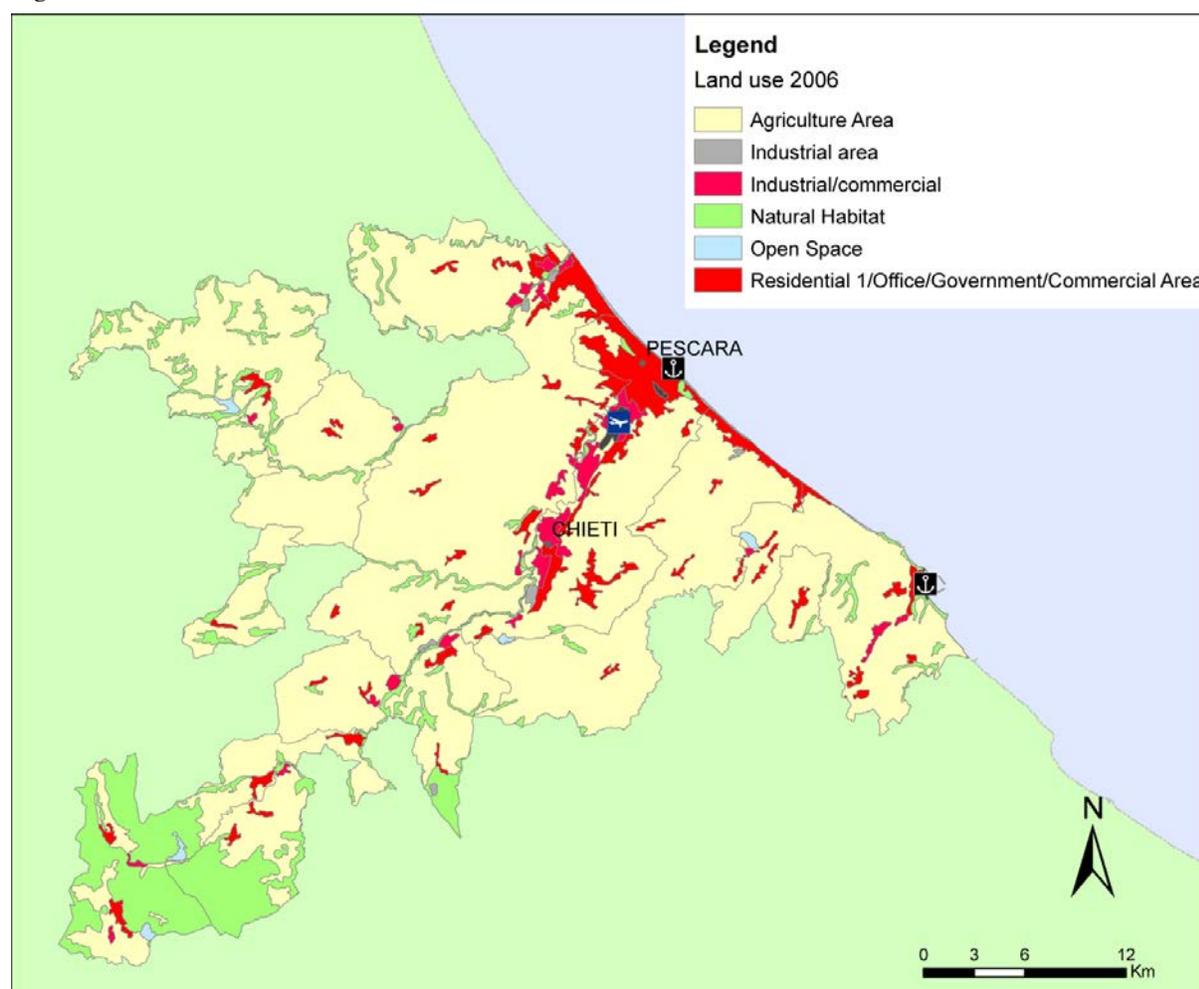
	Core	Inner Ring	Outer Ring	Coastal Zone*
Total Area (sqm)	110620207	331790476	531744678	211577242
Agriculture Total Area (Sqm)	70798270	268114744	425816874	158431935

* Source: own elaboration based on CORINE, 2000.

** Source: own elaboration based on CORINE, 2006.

Industrial Total Area (Sqm)	681690	268692	1126041	784825
Mixed Industrial \ Commercial Total Area (Sqm)	9163157	5029408	3560405	5776575
Natural Habitat Total Area (Sqm)	1980404	46094327	74765239	10971115
Open Space Total Area (Sqm)	835369	850595	2557416	1140230
Built up area in urban environment with mixed used (Sqm)	24856365	10872626	23893166	32361860
Road Network Total Length (Km)	342068,475	365654,427	155166,4205	371
Railways Total Length (Km)	29,1762153	35,68317224	35,05505342	48
Harbors areas (Sqm)	129303	311082	0	440385
Airports areas (Sqm)	1786534	0	0	1344232

Figure 2.15. Chieti-Pescara UA, land use.*



* Source: own elaboration based on CORINE, 2006.

3.2.2.4 Freshwater and access to water

The Pescara River runs through the Chieti-Pescara urban area, originating from Monti della Laga, running for 145 km to the Adriatic Sea. Areas around the mouth of the river are at risk of flooding during peak discharge season. The river's water is used for the production of electricity. The Aterno River flows for 45 km originating from Maiella Mountain and flowing into the Adriatic Sea in Francavilla al Mare. Other rivers of the area are: Foro, Fino, Tavo, Saline, Piomba. The Aterno and Foro waters are used for agriculture purposes. The Fino and Tavo waters are diverted for industrial usage, gravels are removed; they are severely polluted because of industrial draining and sewages.

The Penne Lake is part of a natural reserve; it represents a well protected area for several species and an interesting ecotourist destination (Del Zotto *et al.*, 2010).

3.2.3 Cultural and social resources

3.2.3.1 Important cultural features

The Chieti-Pescara urban area is not as rich as the Rome metropolitan area in terms of cultural resources. The inner and the outer rings host some valuable medieval churches and ruins of the Roman age while the coastal area is characterized by modern and contemporary cities.

3.2.3.2 Important demographic and social features

The resident population in the year 2009 was equal to a total of 424,283 inhabitants, distributed among the central city (189,403 inhabitants; 44.6% of the total), the inner ring (65,033 inhabitants; 15.33% of the total), the outer ring (169,847 inhabitants; 40.07% of the total). In the period of 1991-2001, the central city registered a loss of population due to a decrease in the two main cities (Pescara and Chieti). The net loss was more than -11,000 inhabitants. The coastal municipality experienced a negative migratory rate (-4.6 per thousand per year), the highest negative peak in the whole metropolitan area. The internal municipalities, indeed, experienced a positive rate. The total average yearly migratory rate was -1.8 per thousands. The inner ring

registered a weak increase of population due to a strong increase in the coastal northern municipality. The final result was an increase of more than 800 units. The coastal municipalities experienced a high positive migratory rate, which reached its peak in the northern coastal municipality (+15.2 per thousand per year). The other municipalities registered a weak positive migratory rate, with the only exception of the most internal municipality. The total average yearly migratory rate was +6.5 per thousand. The outer ring registered a relevant increase of population, particularly high in the two coastal municipalities and in the ones surrounding the central city. The total increase was of more than 11,000 inhabitants (more or less equivalent to the loss of the central city). The outer ring registered a generalised positive migratory rate with the only exception of the most internal municipalities. The coastal municipalities and the ones surrounding the central city registered the highest positive peaks. The total average yearly migratory rate was +9.1 per thousand (Montanari and Staniscia, 2003).

In the period 2003-2009, the Chieti-Pescara urban area registered an increase of population of nearly 6%; this increase was not equally distributed: it was higher in the outer ring (+9.1%), followed by the inner ring (+7%) and the central city (+2.9%). The coastal area registered a remarkable increase equal to +5.8%. The process was mainly due to a high positive migratory rate partially influenced by the dynamics of the real estate market.

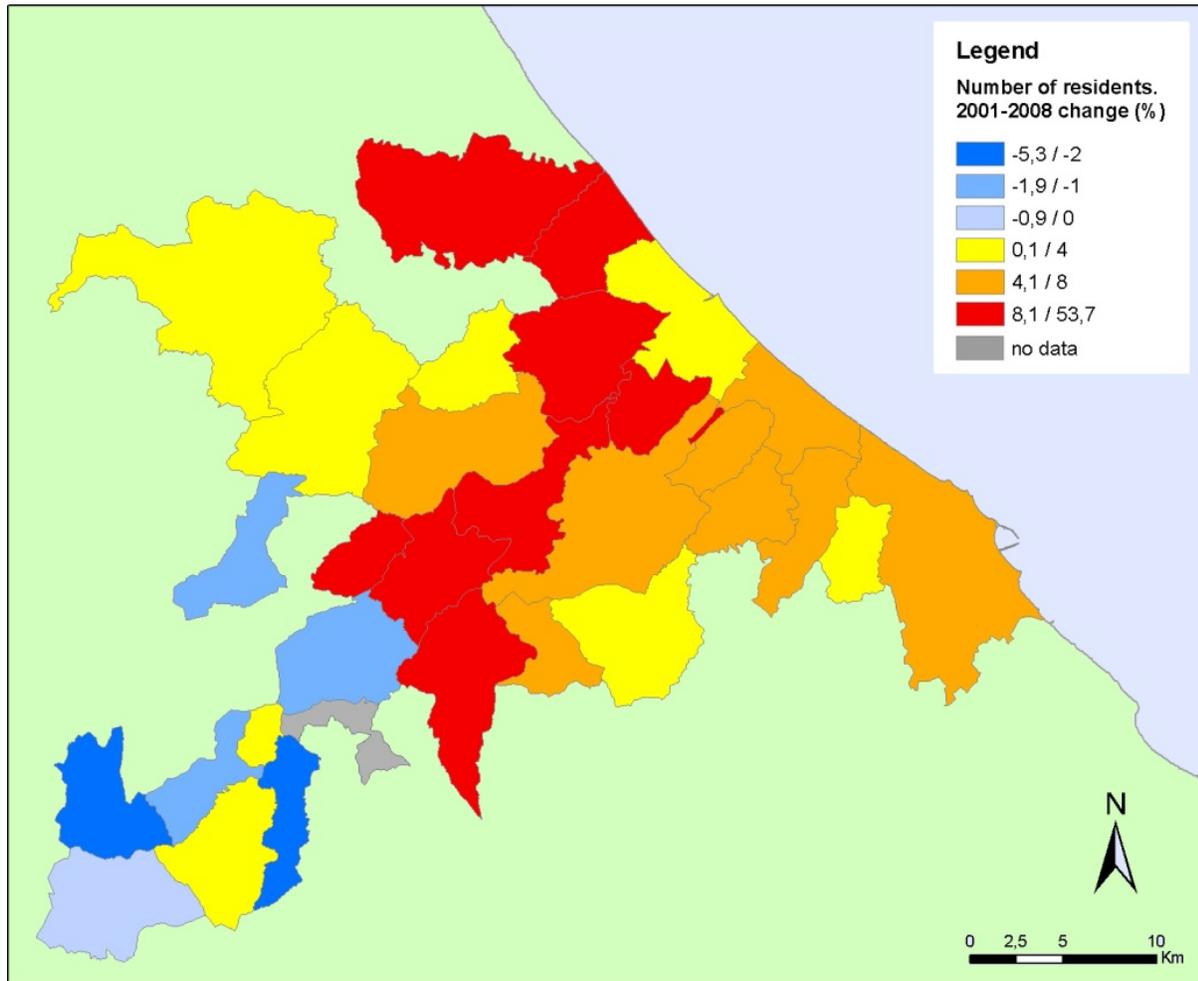
The average annual migratory rate in the period 2002-2009 was always positive, the only exception being the central city in the year 2005 (-0.29 per thousand). The highest migratory rate calculated for the entire period was recorded in the outer ring (+13 per thousand), while the lowest was registered in the central city (+8.9 per thousand). The coastal area experienced a high migratory rate (+12.36 per thousand in the period), with peaks of 33 per thousand (2002).

The households in the Chieti-Pescara urban area recorded an increase in the period 2003-2009 (+15.9%). This increase is distributed as follows: +16% in the central city, +11.9% in the inner ring, +17.2% in the outer ring. Along the coastal area the increase is particularly significant: +20%. The average size of the households decreased in the 2003-2009 interval: from 2.71 components per household to 2.48.

The population dynamics in the coastal municipalities can be largely explained considering the dynamics of the real estate market. Housing prices in this area, indeed, have always been very low if compared to other Italian urban areas. The amenity of the seaside

joined with this fact has attracted population along the coast since the seventies. This process has experienced a slowdown after the year 2001 due to the introduction of Euro; since then, in fact, houses' prices doubled.

Figure 2.16. Chieti-Pescara UA, population change.*



3.2.3.3 Important economic features

In the year 2009 Chieti-Pescara urban area had 157,400 employees, 45.3% in the core, 14.9% in the inner ring, 39.8 % in the outer ring; 69.6% of employees were in the tertiary sector, a percentage that reached 76.7% in the core. In the year 2008 Chieti-Pescara urban area had 51,793 local units of enterprises, 46.7% in the core, 16 % in the inner ring, 37.3% in the outer

* Source: own elaboration

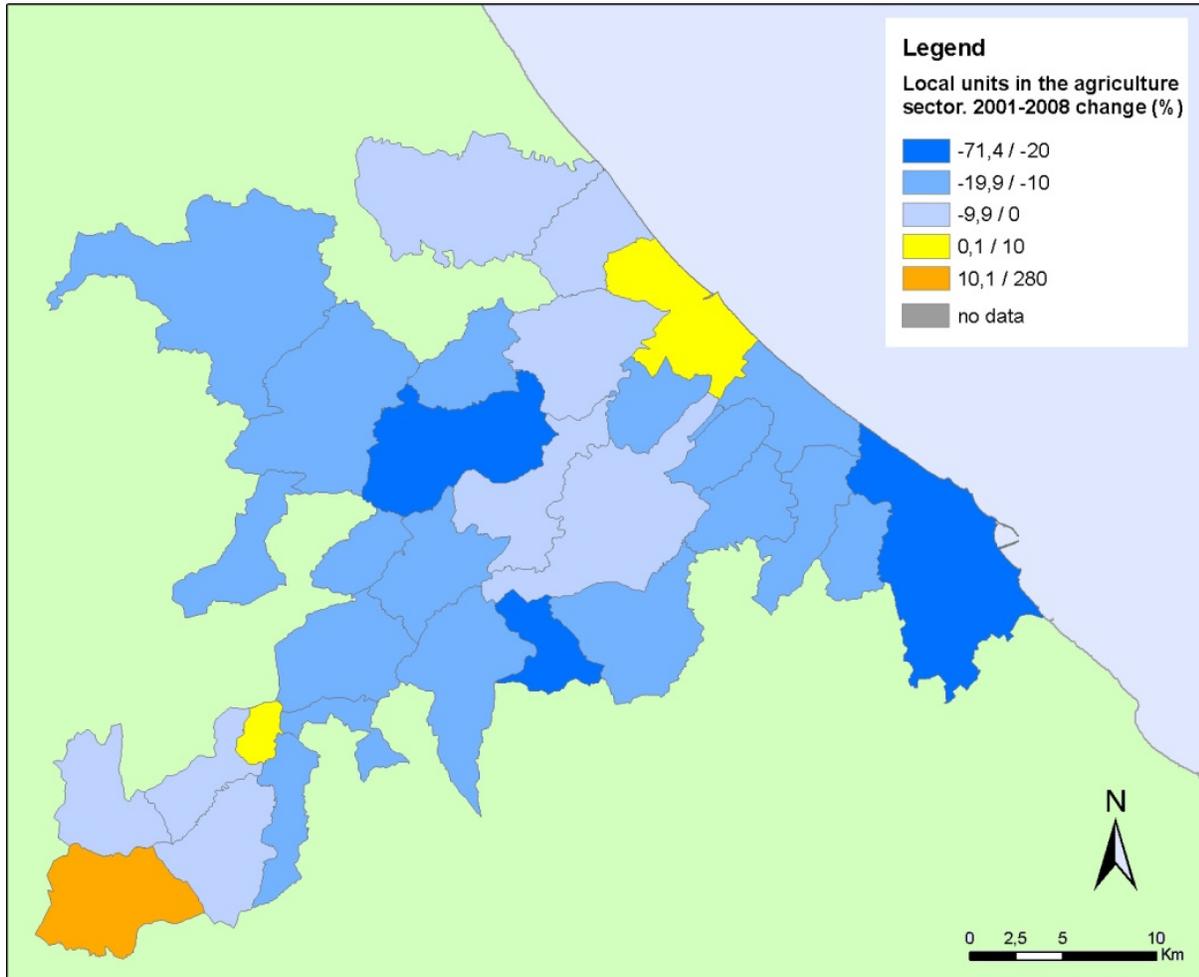
ring; 61.4% of the local units were in the tertiary sector, a percentage that reached 73% in the core. This situation is the result of the simultaneous action of different forces along the last twenty years.

During the first half of the nineties all the sectors, except for the “leisure”, registered an increase in the number of local units in all the sub-areas, with the exception of the “commerce”, which registered a decrease in the inner ring. The most relevant increases can be noticed in the “commerce” and in the “offices” sectors in the central city of the area. The central city, in fact, was the most successful sub-area in the creation of local units; the inner ring, indeed, was the most repulsive area: the number of local units created in the central city, in the considered sectors, in the period 1991-1996, is 2,150; the number of local units created in the inner ring is, in the same period, only 6. What can be noticed is a better performance of the outer ring if compared to the inner ring; in the outer ring, in fact, the number of local units increases more: + 955. During the second half of the nineties the situation is almost unvaried, in relative terms, but it changes in absolute sense. The central city continues to be the most attractive area for all the sectors, especially for the “commerce” and for the “offices”. The outer ring continues to show a better performance in comparison with the inner ring. The creation of local units in the mentioned sectors is particularly remarkable in the outer ring (+ 1611 local units in the period 1995-2000) and, even more, in the central city (+ 2602). The situation drastically changes if the number of jobs is taken into account. The first, an important aspect to be underlined is that the “manufacturing” and the “leisure” sectors register a decrease in the number of jobs in all the sub-areas in the period of 1991-1996. The decrease is higher in the central city. In this area, in addition, a decrease in the number of jobs in the “commerce” and “transport and communication services” sectors has to be noticed. Except for the “offices” sector, a general trend of a better performance moving from the central city to the outer ring can be noticed along this first period. Looking at the values, in fact, it can be noticed that in the central city a reduction, in the mentioned sectors, of 3,931 jobs takes place; in the inner ring the reduction is of 402 jobs whereas the outer ring registers a creation of 709 jobs. The change varies remarkably from the central city to the outer ring, this latter registering a better performance. The situation changes again when the second half of the nineties is analyzed. During this period, in fact, to the decrease in the number of jobs in the “manufacturing” and in the “leisure” sectors, a

decrease in the “commerce” and in the “offices” sectors must be added, in all the sub-areas. It means that the only successful sector is the “public services” one. Even considering the decreases, the less weak area is the inner ring, which registers less substantial losses of jobs. The central city, in fact, registers, in the period 1995-1999, a loss of 5,418 jobs, the inner ring registers a loss of only 635 jobs, the outer ring registers a loss of 4,971 jobs. What can be argued from those data is that there is, in the Chieti-Pescara urban area, a general trend of the creation of local units, especially in the central city and a general trend of the reduction of jobs, especially in the central city, too. It is, therefore, possible to remark a trend to create in the central city local units characterised by a smaller average dimension and less job-intensive (Montanari and Staniscia, 2003).

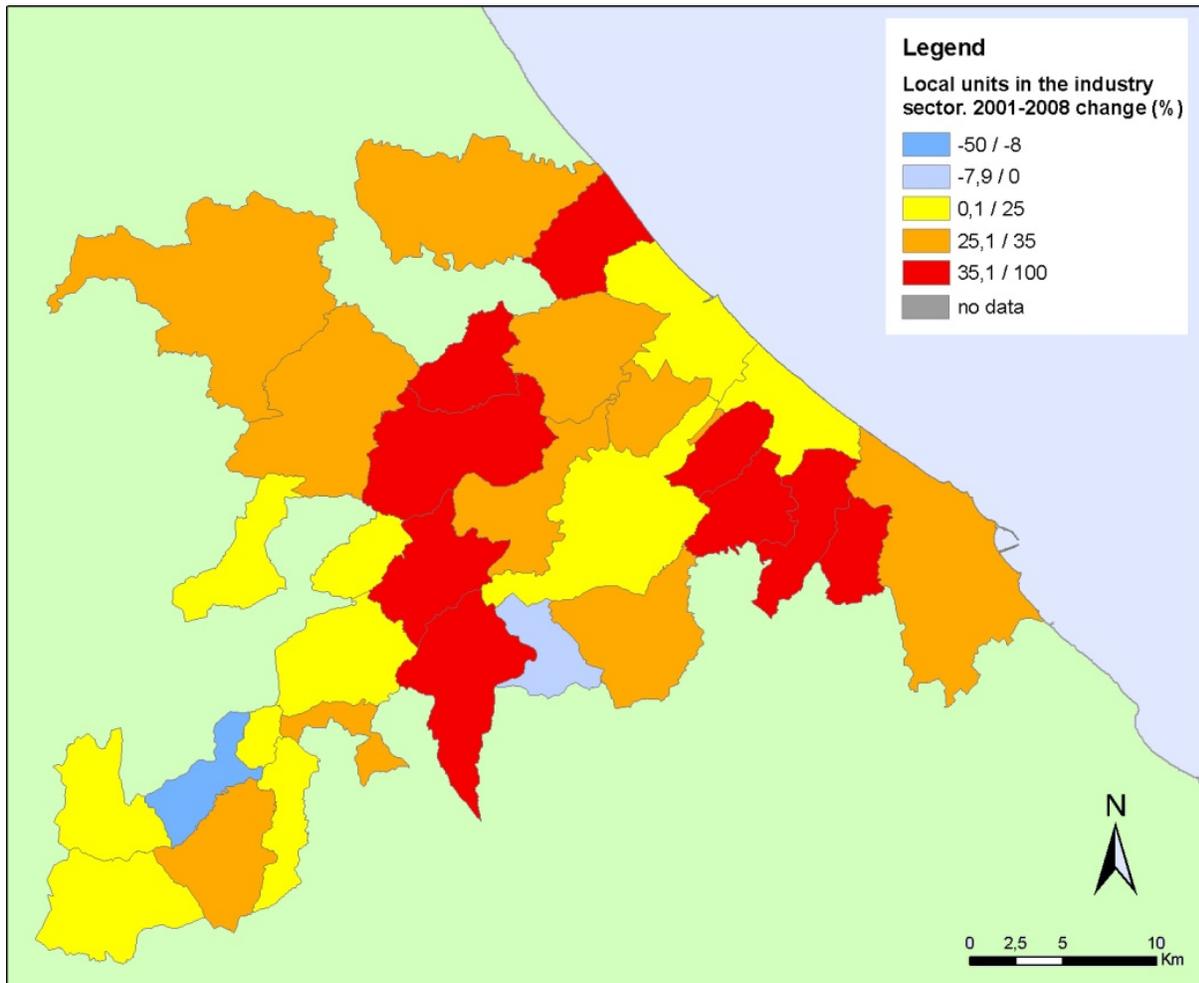
In the period of 2001-2008 the number of local units in the agriculture sector registered a general decrease in the Chieti-Pescara urban area (-13.5%); this final value is the result of negative trends in all the sub-areas. The decrease in the number of local units was particularly severe in the inner ring (-17.4%) and in the outer ring (-12.7%) and was not negligible in the central city (-4.5%). The coastal area lost local units: -13.8%. In the industrial sector the dynamism was totally different: a total increase of 23.8% in the number of local units was reported at metropolitan level. The increase was particularly significant in the outer ring (31%) and in the inner ring (28%) and slightly lower in the central city (16%). The Chieti-Pescara coastal zone registered an increase of 20.3%. In the service sector the Chieti-Pescara urban area registered a remarkable increase in the number of local units (19.5%) between 2001 and 2008. The inner ring was the most dynamic area (+26.5%), followed by the outer ring (+23.4%) and the central city (+16%). The coastal area in the same period reported an increase of 16.2%. The described trend of the local units of the enterprises is only partially confirmed (by) and coherent (with) the trend in the land use.

Figure 2.17. Chieti-Pescara UA, dynamics in the agriculture sector.*



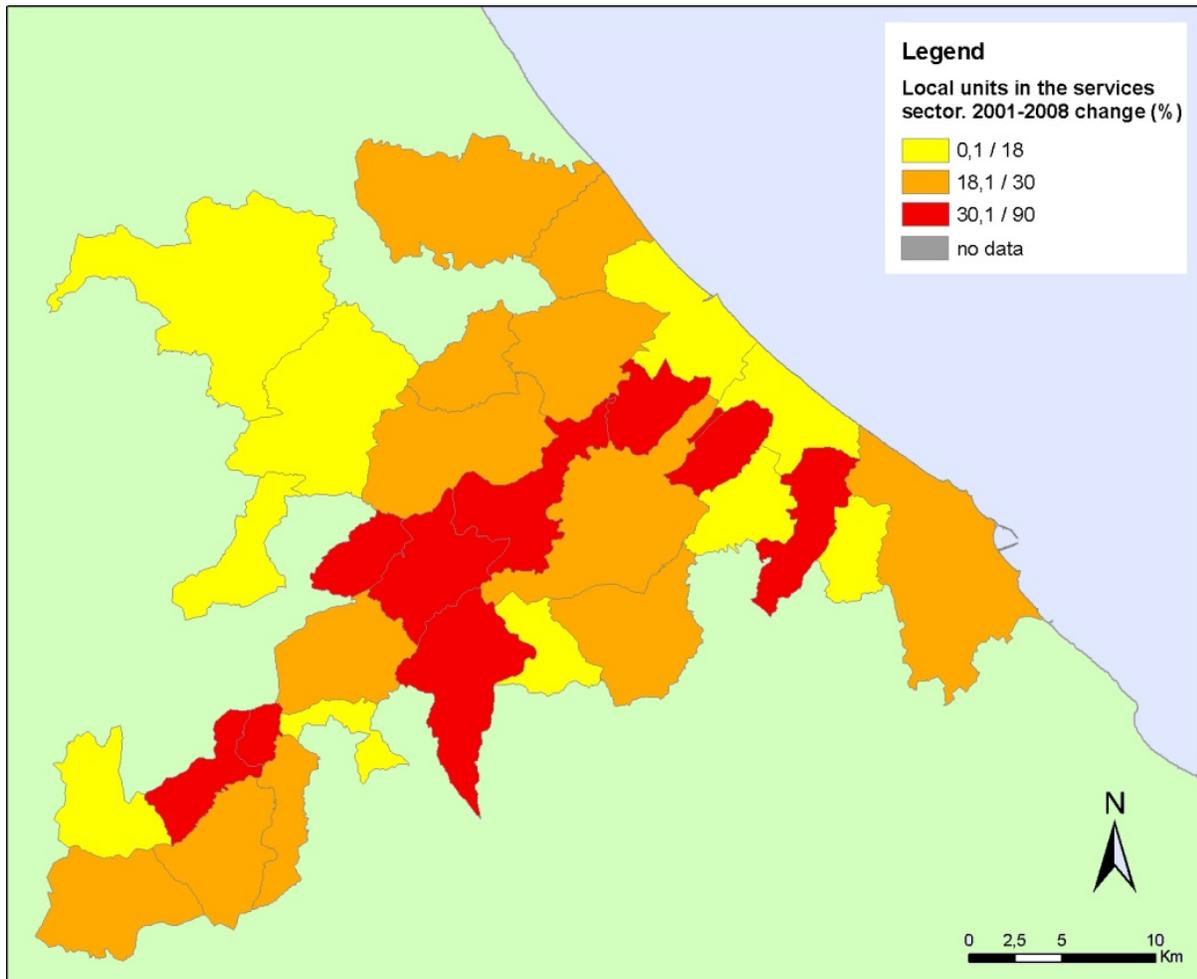
* Source: own elaboration.

Figure 2.18. Chieti-Pescara UA, dynamics in the industry sector.*



* Source: own elaboration

Figure 2.19. Chieti- Pescara UA, dynamics in the services sector.*



4. Overview of Users in the Case Studies

Residents and enterprises described in the former paragraphs are daily users of the available resources. In the following pages we concentrate our attention on additional users, particularly important in coastal areas.

4.1 Tourists

The number of hotel and restaurants in the Rome metropolitan area experienced a very high increase in the period 2001-2008. If we look at the central city, we notice that the number of

* Source: own elaboration

local units in the tourist sector increased by 62%. This increase is oversized with respect to the increase of tourists in the same period. The number of overnight stays, in fact, registered an increase of 8.7%. In the inner ring the situation was inverse: 44% was the increase in the number of local units, while 78% was the increase in the number of overnight stays. In the outer ring the growth of local units was equal to 37% while overnight stay grew by 44%. The Rome coastal area was largely affected by this process of growth: the increase in the number of local units almost reached 60%, while the number of overnight stay increased 11.4%.

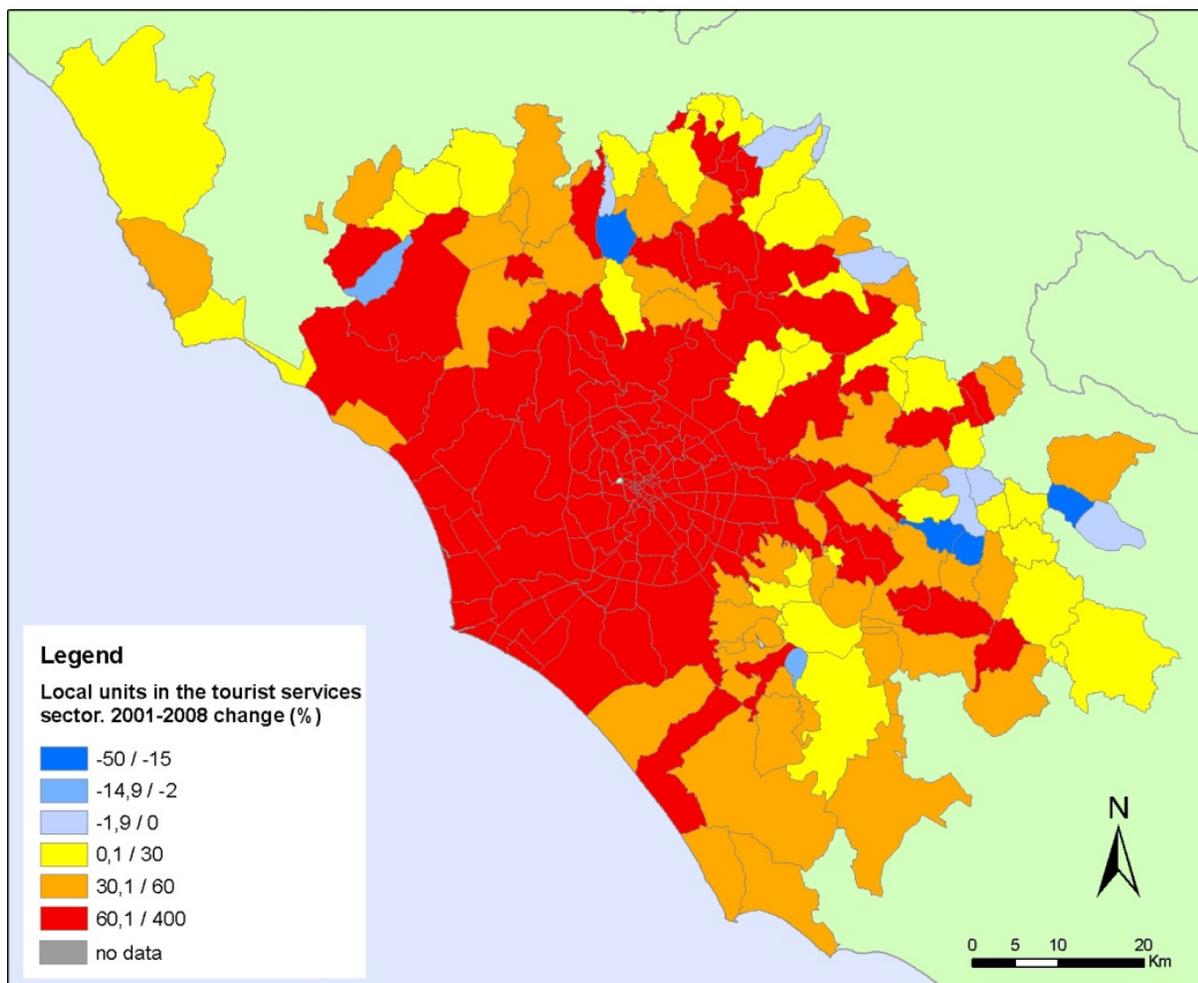
The number of tourists in the metropolitan area of Rome has registered, in the last ten years, an increase higher than 10%. The number of tourists visiting the core every day exceeds 60,000, with an average annual total in the last year that exceeds 20,000,000. If we look at tourist accommodation, we can observe an increase in the number of beds in hotels. This trend, obviously, has not yet incorporated the effects of the crisis that we will probably observe in the next years (Montanari and Staniscia, 2012).

In the Chieti-Pescara urban area, in the period 2001-2008, the number of local units in the tourist sector (hotels and restaurants) registered a general increase; it was equal to 33.3% in the central city, 24.5% in the inner ring, 35% in the outer ring. The growth was remarkable along the coastal area: +30%.

The Chieti-Pescara urban area is characterized by a substantial and constant number of tourists in the last ten years and by very fluctuating supply in terms of accommodation. The average number of tourists on any one day of the year was around 3,300 in the year 2001 and reached around 3,500 in the year 2008. The increase was more marked in the core than in other areas; in the coastal zone it was below average. The number of overnight stays was above 1,100,000 in the year 2007. The number of beds followed a non-linear development path in the coastal area: a significant decrease at the beginning of the decade, an increase up to the mid decade and a new negative wave up to the end of the period. Those fluctuations are mainly due to the structural problems of the sector in the area. The traditional beach tourism (sea, sun, sand) that had characterized the region during the past decades is in crisis, a crisis that intervened relatively lately. The tourist operators are still looking for an alternative tourism development model and the public authorities are not able to support this process. This is why the processes of restructuring are continuously going on and they have not led, so far, to any stable solution (Montanari and Staniscia, 2012).

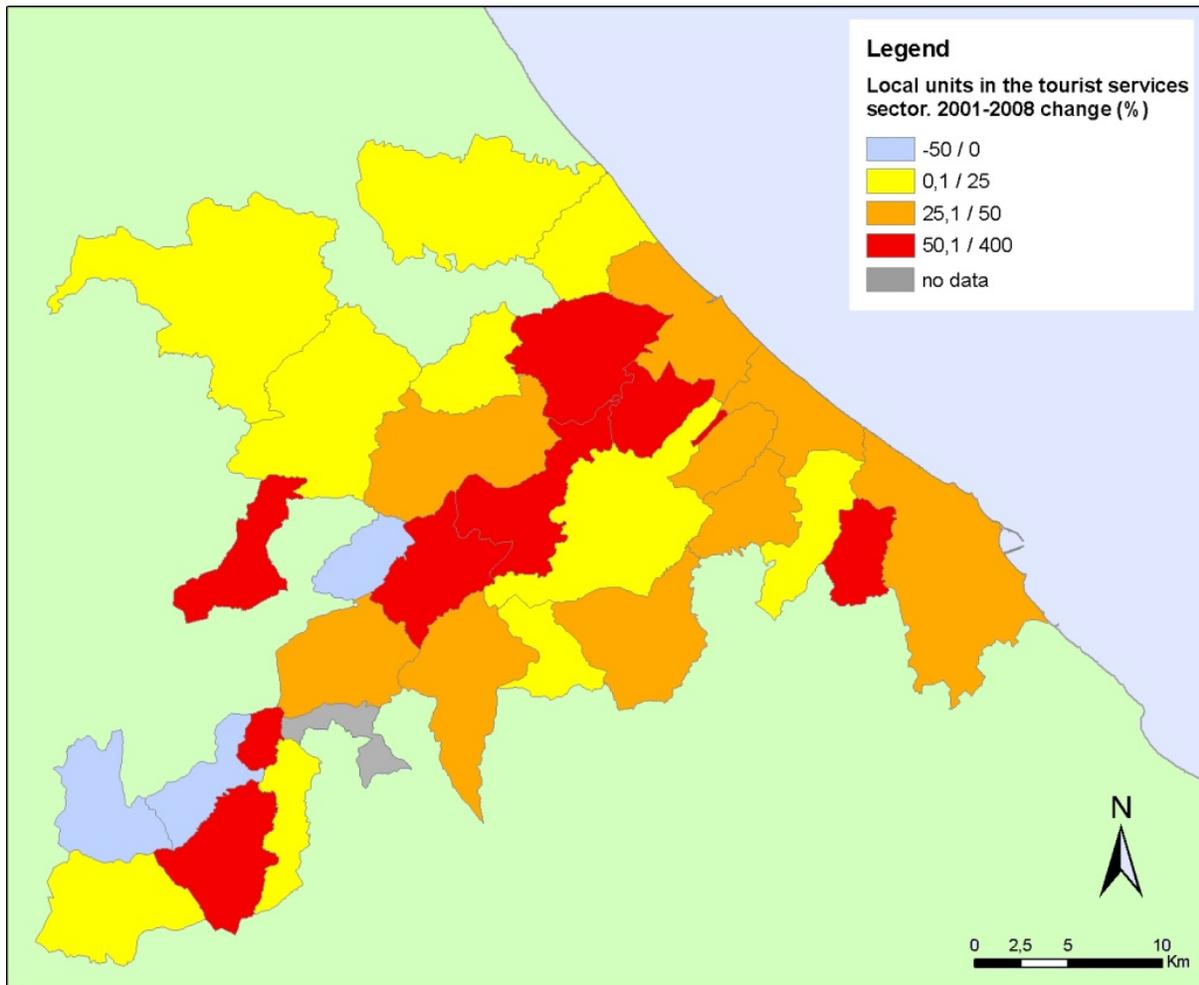
Focusing our attention on the Rome coastal area, the tourist presence is linked both to the summer beach activities and to the all year long tourist activities related to the historical goods and cultural heritage. Passengers of cruise ships as well as business people have to be added. A very high pressure on the coast is undeniable. In the case of the Chieti-Pescara urban area, tourist presence is mainly linked to the summer beach activities and to the business during the rest of the year. There are not, in fact, along the coast, relevant historical goods and cultural heritage.

Figure 2.20. Rome MA, dynamics of the tourist industry.*



* Source: own elaboration

Figure 2.21. Chieti-Pescara UA, dynamics of the tourist industry.*



* Source: own elaboration

Figure 2.22. Rome coastal area, overnight stays, 1998-2008, excluding the Rome municipality.*

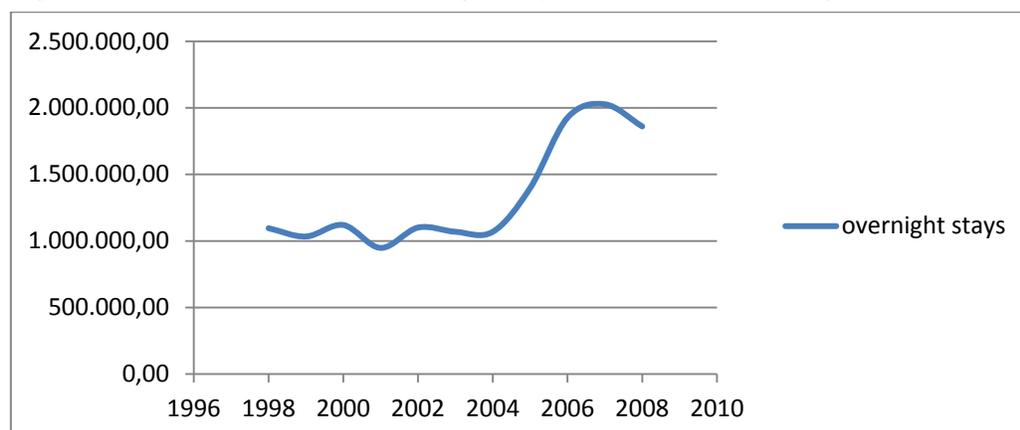


Figure 2.23. Rome coastal area, number of hotels, 1996-2008, excluding the Rome municipality.**

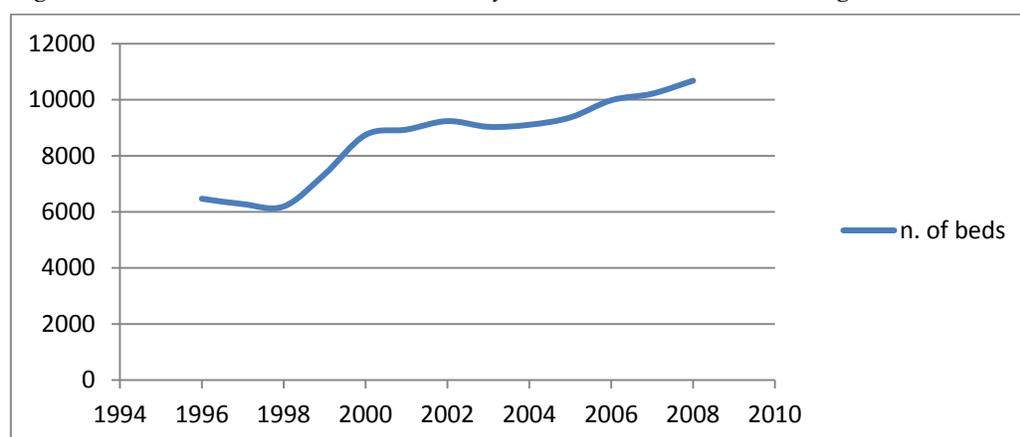
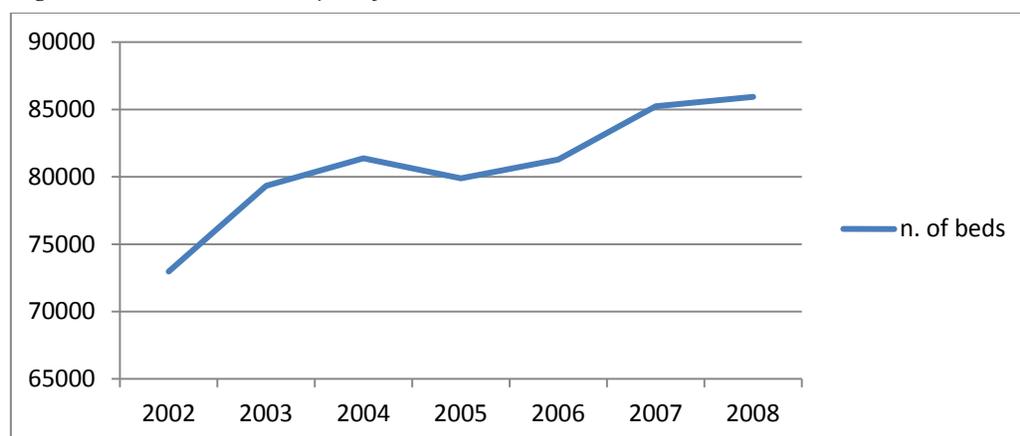


Figure 2.24. Rome municipality, hotels, 2002-2008.***



* Source: own elaboration on EBTL, 2010.

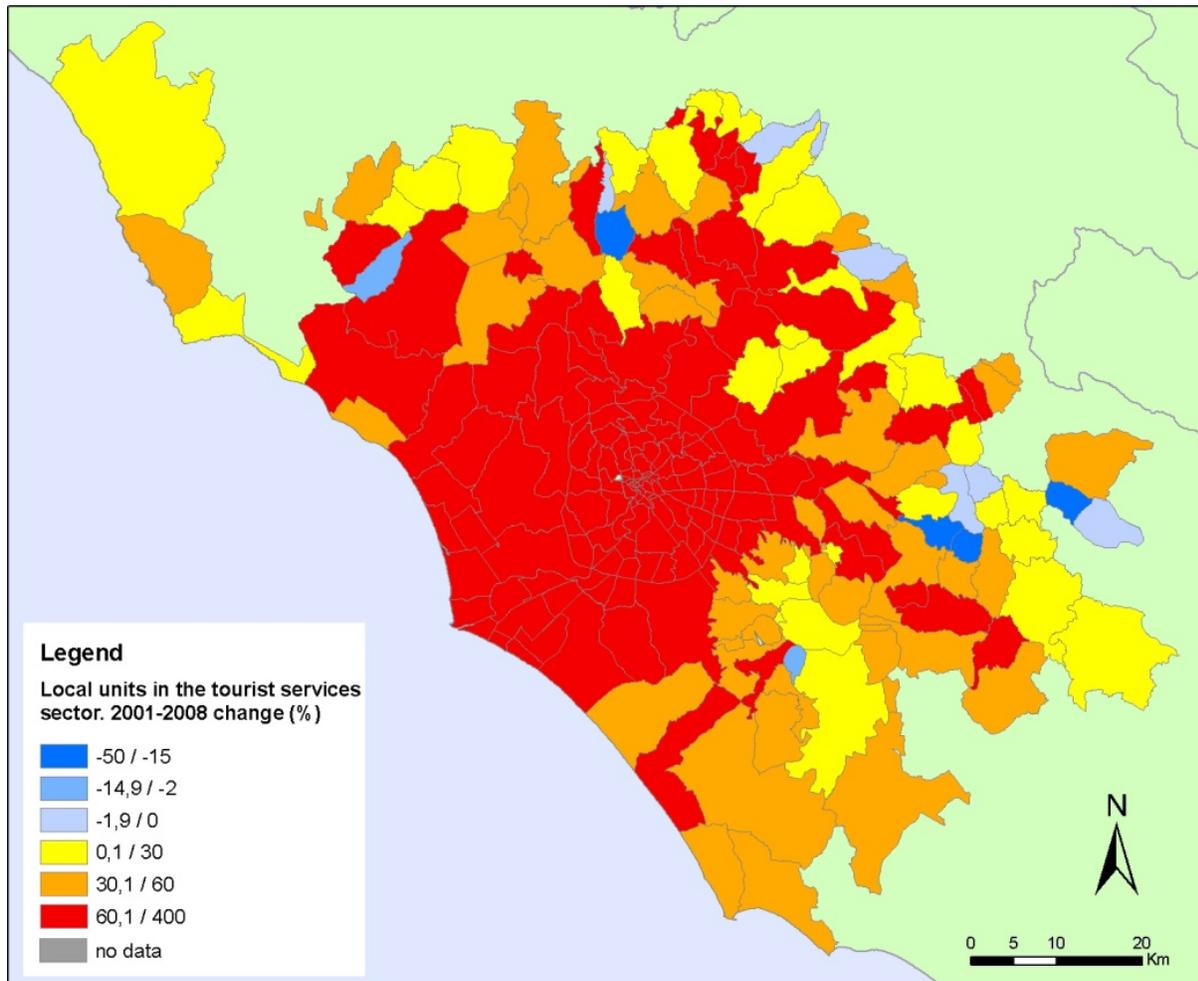
** Source: own elaboration on EBTL, 2010.

*** Source: own elaboration on Municipality of Rome.

4.2 Trading and commerce

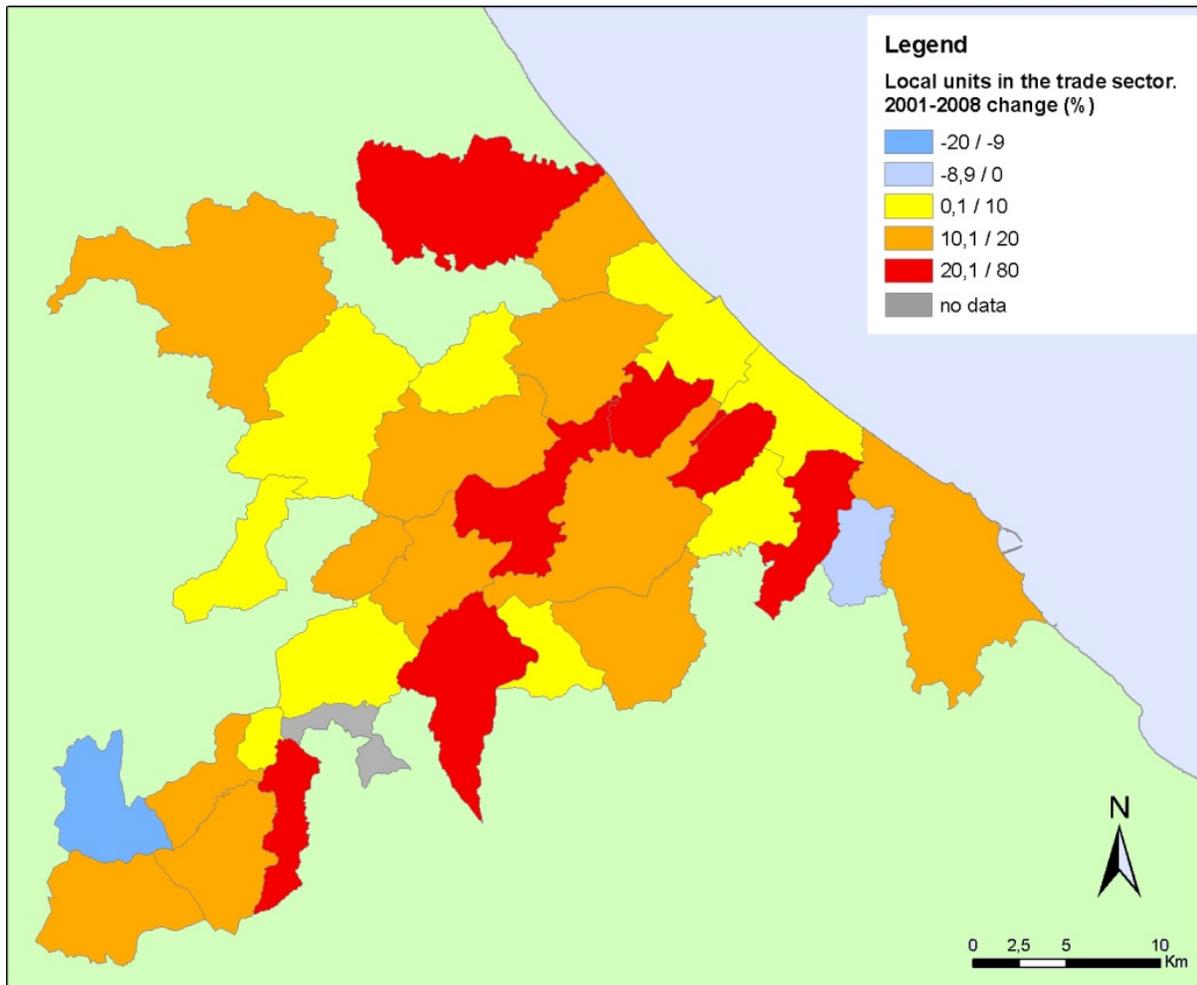
In both metropolitan areas a general development of activities in the commerce sector is recorded. In the period 2001-2008 the Rome central city experienced an increase in the number of local units equal to 18%. The increase was even more marked in the inner ring (+28%) and in the outer ring (+20%). Along the coastal area it reached +19.2%. In the case of the Chieti-Pescara urban area, the growth was lower but still relevant: +7.6% in the central city, 17.2% in the inner ring, 15% in the outer ring. Along the coastal area an increase of 8.4% was registered. This growth was accompanied by the disappearance of many small shops and the creation of numerous malls and shopping centres that surrounded the cores of the areas. This process of economic deconcentration accompanied residential deconcentration that, in many cases, was characterized by sprawl.

Figure 2.25. Rome MA, dynamics of the commerce sector.*



* Source: own elaboration.

Figure 2.26. Chieti-Pescara UA, dynamics of the commerce sector.*



4.3 Fishing fleets

The Rome metropolitan area is characterized by a low rate of activity in the fishing sector, while the Chieti-Pescara urban area shows a sector more important in the local economy. While the Rome metropolitan area accounts, in the year 2001, for 201 local units in the fishing sector, the Chieti-Pescara accounted for 138 in spite of its smaller territorial size. The fishing sector shows, in spite of this, a positive dynamism in the Rome metropolitan area (+41.7% in the period 2001-2008) and a negative dynamism in the Chieti-Pescara urban area (-18.8% in the same period).

* Source: own elaboration.

4.4 Ports

The Rome metropolitan area owns three harbors: Civitavecchia, Fiumicino and Anzio, characterized by different functions and scopes. The harbor of Civitavecchia, built by the emperor Traiano (103-110 A.D.), has today a commercial function – almost 7 millions tons of goods moved in the year 2008 -; it works as a port for passengers – more than 4 millions passengers in the year 2008 – and for cruise passengers – almost 2 millions in the year 2008. It is the main sea gate to the city of Rome. Its existence poses many problems for traffic and congestion of the main road axis connecting the city of Civitavecchia with the core of Rome. The harbor of Fiumicino was built by the emperor Claudio. It is today a commercial harbor, particularly dedicated to liquid bulks (more than 5 million tons moved in the year 2008) but also a connecting point through ferry boats to close islands (Ponza, Flegree and the Gulf of Aranci in Sardinia) and a marina. The passenger traffic is not very relevant in numbers if compared to Civitavecchia: around 60,000 passengers registered in the year 2008. The harbor of Anzio is located at the south end of the Rome metropolitan area. Its main function is connecting passengers to the Ponza island.

The harbor of Pescara was built in 1995 and has a double function: for movements of goods (around 350,000 tons moved in 2006) and for passengers mainly moving to Eastern European destinations (Croatia and Albania). The number of passengers, as well as the number of goods, is not very high (less than 50,000 in 2006) but growing. Ortona is the main harbour of the Chieti-Pescara urban area and has an important commercial function. Almost 1.4 million tons of goods were moved in 2005 and 881 ships moored in the same year.

Several marinas can be reckoned along the Rome coastal area: Civitavecchia, Santa Marinella, Fiumicino, Ostia, Anzio and Nettuno as well as along the Chieti-Pescara coastal area: Pescara and Ortona.

4.5 Energy production companies

In both metropolitan areas the period of 2001-2008 experienced a growth in the energy production companies. In the Rome metropolitan area the number of local units increased from 331 to 772 (+133.23%), while in the Chieti-Pescara urban area figures remain smaller (38 local units in 2001; 66 local units in 2008; an increase of 73.68%). It is worth mentioning the fact that the number of local units located in the coastal area is very high: 87% in Rome and 56% in

Chieti-Pescara in the year 2008. It is worth noticing that the energy power plant in Civitavecchia (inner ring of the Rome metropolitan area) is, for long time, a source of conflicts.

4.6 Environmental groups and community groups

In both areas environmental and community groups are present and active. Their action, coherently with the Italian culture, is often linked or in deep contrast with the political players. Their role is particularly important when development projects mainly aiming at economic growth put in danger natural and cultural heritages. The most important associations, active at national level, are WWF Italia, GreenPeace, LegAmbiente, Italia Nostra, FAI, MareVivo. Also very active are the associations linking the idea of high quality production and services and environmental and cultural preservations. Among the most important we can mention are Slow Food, AgriTurist, TerraNostra. Less active can be considered the consumers' associations – even existing – since the Italian legislation does not confer to them an ample freedom of actions. Among the others we can quote Altroconsumo, Codacons, Adiconsum. Furthermore ad hoc environmental and citizens' associations have been created in the Rome metropolitan area for the problems linked to the pollution generated by the energy power plant and the port of Civitavecchia and in the Chieti-Pescara urban area for the on-going debate about the definition of the national park boundaries.

4.7 Second homes

In the coastal zone of the Rome metropolitan area (including the municipality of Rome) in the year 2001, second homes were 219,735 and the total number of dwellings was 1,360,478, i.e. second homes represented 16.15% of the total. In the coastal zone of the Chieti-Pescara urban area, second homes registered in the year 2001 were 16,900 and the total number of dwellings was 95,159, i.e. second homes represented 17.75% of the total. Both in the case of the Rome metropolitan area and Chieti-Pescara urban area, the new trend, especially after the economic crisis, by the owners, is to rent their second homes, mostly to students, young couples, immigrants. The result is an overload of residents in the coastal areas all year round (Montanari & Staniscia, 2011).

5. Conclusions

In both metropolitan areas phenomena of coastal erosion are registered. In the case of the Chieti-Pescara urban area many engineering structures are recorded, often ineffective in their scope of protecting the coast.

Both coastal areas are very highly populated and heavily urbanized.

In both metropolitan areas an increase of the population is registered along the coastal areas; this increase is more marked in Rome; that means an increase of the human stress on this environment.

In both areas natural habitats and open spaces are decreasing, even if at a slow pace.

In both the metropolitan areas a decrease of the agricultural land is recorded; the industrial areas are expanding in the metropolitan area of Rome and reducing in the urban area of Chieti-Pescara; the built-up and commercial areas are expanding in both regions.

An increase of the pollutant economic activities (industrial sector), a decrease of the economic activities (agricultural sector) with a potential use for the landscape protection, and an increase of the service activities are recorded along both coastal areas. The increase in the weight of the industrial sector is particularly relevant in the Chieti-Pescara urban area as much as the losses (in terms of local units) in the agricultural sector.

In both metropolitan areas the tourist sector is in rapid growth. A very high increase is recorded in the number of enterprises and a non-negligible increase is also reported in the number of tourists.

In both metropolitan areas a relevant growth in the commerce sector is recorded, linked to the increase of shopping centres and malls, and to a process of economic deconcentration.

Fishing companies are not numerous in the Rome metropolitan area; they are relatively more important in the Chieti-Pescara urban area. The sector is growing in the first case study, while declining in the second case study.

Cultural heritage is an important resource in the Rome metropolitan area, while natural resources have an high value in the Chieti-Pescara urban area.

Both coastal areas in the past decades have experienced a very rapid increase of population. In the case of the Rome region this increase was linked to the high prices of the real estate in the core; in the case of the Chieti-Pescara area, the growth was linked to a preference for living along the seaside, made possible by the slow dynamism of the real estate market. Both coastal areas have experienced phenomena of growing large commercial surfaces. Those two phenomena have induced a growing traffic and road congestion as well as a decline in the quality of local services.

Both coastal areas are affected by an intense use in the summer season, due to a higher number of temporary inhabitants. It poses problems of water availability and waste production. Harbours and airports activities all year long contribute to the pollution problems. The numerous beach house activities during the summer contribute to lower the quality of life of the residents. The very valuable cultural and natural resources are put in danger by the intense use of the coastal areas. All those elements risk to compromise the sustainability of the coastal development.

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