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HUMAN MOBILITY IN COASTAL REGIONS
The Impact of Migration and
Temporary Mobilities on Urbanization

edited by
Allan M. Williams



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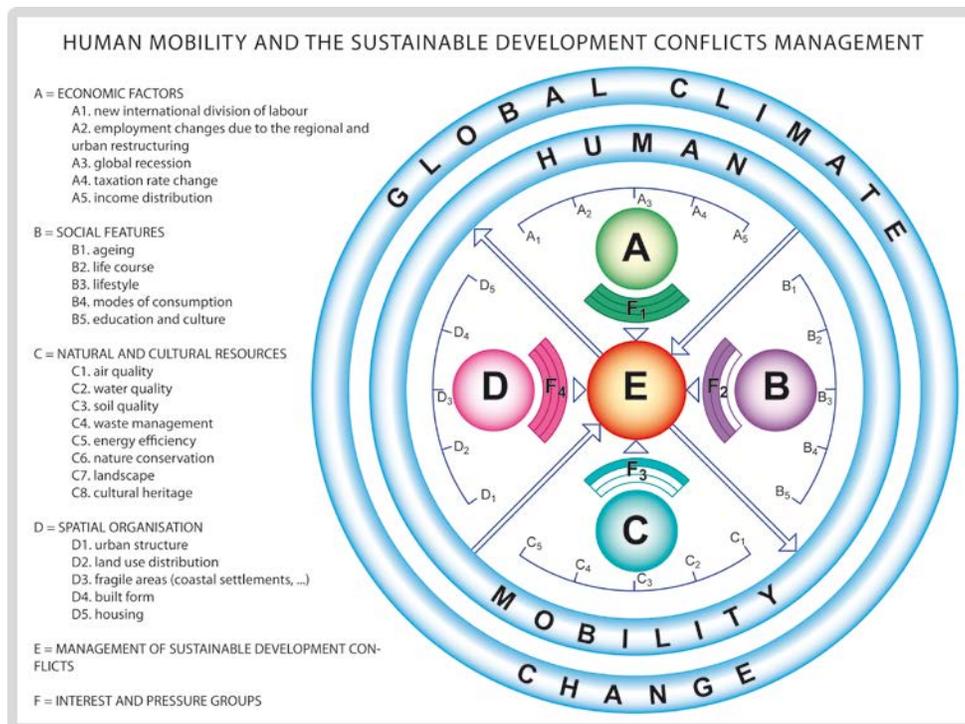
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Editor's Preface to the Series

This volume is part of a new series on cross-national comparative research in the fields of global climate change, coastal areas, sustainable urban development and human mobility. These factors, which arise at both the local and global level, are confronted with a conflict of interest in every possible combination between the local and the global. The volumes being published in this series attempt to provide a contribution to resolving these conflicts. This multi-national and multi-disciplinary network was set up in 2009 on the occasion of the European Commission's call for proposals for a Seventh Framework Programme (FP7) project. The research project Solutions for Environmental Contrasts in Coastal Areas (SECOA), Global Change, Human Mobility and Sustainable Urban Development won the bid and began work in December 2009 (<http://www.projectsecoa.eu>), coordinated by Sapienza Innovazione (Riccardo Carelli) with scientific coordination by Sapienza Rome University (Armando Montanari).



Global changes affect both the environment and socio-economic conditions: first the economic crisis of the 1970s and then the financial crisis of the first decade of the new millennium have had a profound impact on environmental and socio-economic conditions. SECOA examines the effects of human mobility on the growth and restructuring of urban

settlements in coastal areas, where: a) the environment is particularly fragile and space is limited, b) every phenomenon is far more concentrated and c) the effects on natural and cultural resources and the environment are more acute. Being aware of these effects can be extremely useful for governments and companies – particularly in the building sector, but also in tourism – in planning their future growth. Awareness of the environmental status of the coast and the local population's usage preferences can help to plan the development of homes, retail and leisure facilities. The problems have multiplied as a result of climate change and its influence on environmental parameters such as the sea level, sparking an increased risk of flooding, the spread of pollution and the displacement of a large number of inhabitants. The control and reduction of undesirable consequences is leading to increased conflict among stakeholders. An integrated approach to the ecosystem incorporating the social, economic and natural sciences is essential to understand the complex and dynamic problems typical of coastal towns, as the figure illustrates. The complexity of the problems and the heterogeneousness of the data required to document very diverse phenomena are being managed using Geographic Information Systems (GIS). SECOA aims to: 1) identify conflicts, 2) analyse their quantitative and qualitative effects on the environment, 3) create models to synthesise the various social, economic and environmental systems and 4) compare the priorities of each type of coastal town using a taxonomic tool. Coastal areas have traditionally been considered difficult to manage because of the problem of the weather, the tides and the seasons and the overlapping of the specificities features of physical geography and hydrography, as well as overlapping jurisdictions and remits of individual government bodies and the competing needs of various civil society stakeholders. Local, regional and national administrations are often responsible for similar aspects of the same physical area and the uses of coastal zones, such as fisheries, environment, agriculture, transport (inland and marine), urban planning, the land registry and the national cartographic and hydrographic services. Many people are able to intuitively recognise a coastline, although they find it harder to determine its precise landward or seaward extent and vertical growth. For this reason, and considering the diversity of the stakeholders, managing authorities and administrative structures, there are inevitable conflicts between users of coastal zones, developers and the rest of society. Similarly, there is a conflict between human society and natural resources. Because of the complexity of the problems involved, the spatial component of data has also been taken into account through the use of GIS, which offer enhanced possibilities of contributing to coastal zone management for a number of reasons: (i) their ability to manage large databanks and integrate data relating to quite heterogeneous

criteria; (ii) their inherent tendency to harmonise data from different sources and thereby contribute to the exchange of information between governing bodies and research institutes; (iii) the possibility they offer of using shared data banks; (IV) their inherent aptitude for modelling and simulation that allows for alternative scenarios to be built before being implemented. The basic function of information that can appropriately inform decision-makers is the ability to produce online geographical maps to illustrate the location of problems, the densification and concentration of shortcomings, the density, the content, what happens in the environs, and changes.

Together with the problems created by climate change, the SECOA project examines the spread of human mobility – an area that principally involves the social science disciplines, each with its own research framework, levels of analysis, dominant theories and hypotheses of application. The social science fields can be considered according to the dependent and independent variables they use. For example, anthropology, demography and sociology consider behaviour a dependent variable; for economics, it is microeconomic flows and impacts; for geography, it is decision-making ability; for history, it is experience; for law, it is treatment and for political science, the dependent variables are management policies and their results. Examples are always hard to agree on, but in this case they are being used to emphasise the differences that exist even between related sectors, and the obvious multiplication of variables when the ones proposed by the social sciences must include geomorphological variables (the way the coast physically changes) and environmental and cultural resources (their availability and the way they are consumed). The SECOA project has attempted to tackle this problem by also measuring types of individual mobility and the attractiveness of the territory. For previously mentioned reasons, these data are not generally registered, so it was decided to use the GIS tool to add space and time values. Space in coastal metropolitan areas is characterised by the differences among the various spatial components, and it is not always easy to identify the coastal stretch used as the element of comparison. Time, on the other hand, is defined in terms of recurring daily, temporary and permanent mobility, with a further variant of mobility that is either production-led (blue-collar, white-collar, managers, regular and irregular workers) or consumption-led (including mobility for reasons of tourism, leisure and retirement). The prediction models, on the other hand, are an instrument to connect the past to the future, and hence to integrate the natural and cultural heritage and contribute to building prediction scenarios.

The Series Editor would like to thank the colleagues who participated in compiling the section of SECOA WP3 co-ordinated by Allan Williams of which this volume is the result. Mention must also be made of the key role played by the Editorial Board, which also took on the responsibility of checking the work of the referees whose collaboration was essential to ensuring the quality of the volume *Human Mobility in Coastal Regions: the Impact of Migration and Temporary Mobilities on Urbanization*. The book is the result of the considerable expertise that Allan Williams has accumulated over the years on the subject of human mobility as a key instrument of urbanization and the conflicts that emerge because of this phenomenon, which is complex by its very nature. Allan Williams has also attempted to take a fresh look at the concept and meaning of the functional urban region, a concept we both worked on between the late 1970s and early 1980s when we were very young researchers – Allan in London and me in Vienna – as part of an international comparative analysis group following in the footsteps of Brian Berry; one result was the publication of the book by Van den Berg et al. (1982). Allan later also proved to be a great innovator in the geographical sciences when, as an established academic, he introduced, together with other scholars, the concept of human mobility, a complex phenomenon of criss-crossing flows that provides an enhanced demonstration of the different forms of tourism and migration in contemporary society, and that Allan has illustrated in several works on the subject published over the past decade. He also provided a valuable contribution to setting up and obtaining approval for a new International Geographical Union research committee on Global Change and Human Mobility (Globility), which has operated under the chairmanship of the undersigned since 2000. The SECOA project is the natural continuation of these experiences and results. Allan Williams's expertise has proved invaluable in managing the considerable difficulties of a multinational, multidisciplinary project such as this one, which has been tackled with great patience and understanding – qualities that are essential, and should not be underestimated, when it comes to producing a work of great quality such as this excellent volume.

Armando Montanari

Rome, July 2012

Preface to the Volume

This volume is one of the outputs from the EU FP7 project SECOA, Solutions for Environmental Contrasts in Coastal Areas, which commenced in December 2009 and involved five European partners, and three partners from outside Europe. The main goals of the project were to analyse conflicts in coastal areas, in context of transformational shifts which have occurred in urbanization and mobility, and in the face of future anticipated major environmental changes, especially related to climate and sea level changes. As part of the preparatory work for analysing these conflicts, the project produced a number of building blocks, mostly constituting aggregate analyses of socio-economic and environmental data sets for the 17 case studies distributed across eight countries. This book is the outcome of the major report D3.1 which specifically examined how mobility shapes urbanization. It does not set out to analyse the reverse influences of urbanization on mobilities.

Other than the breadth of the case studies, the approach of the book has two distinctive features. The first is that it revisits the notions of functional urban regions, as the most appropriate scale at which to examine human mobility flows in these coastal urban areas. And the second is its emphasis on temporary mobilities as well as the more 'permanent' migrations and regular journeys to work that have usually dominated such research. The outcome is an extensive portfolio of case studies, illustrated by a range of illustrative materials, but mainly by a series of maps and tables which seek to capture the characteristics of these functional urban regions at two recent points in time, and the changes between these. We hope that these will be as useful to some of the readers of the book as they have been for the SECOA teams who have viewed them as part of the platform building for their subsequent research.

As editor of this volume I wish to acknowledge the thanks of the research teams to La Sapienza press, who have taken on the responsibility of publishing the series of SECOA books. But above all we wish to thank the teams at La Sapienza University who have made the four year research programme possible. Armando Montanari was the originator of the project, and he drove it on, with the able assistance of Barbara Staniscia, when others started to falter. And Riccardo Carelli and Arianna Braccioni have administered the project with great charm and good humour however much the academic members of the team have tested their patience! And of course the project would never have happened without the considerable financial support of the European Union and Framework Seven.

Allan Williams

26th May 2012

CHAPTER I.
**Human Mobilities and Urbanization Impacts:
A Conceptual Framework**

Allan M. Williams

1. Introduction

The broad aim of this book is to examine human mobility-urbanization relationships as the unit of analysis within the framework of the natural environment of the coastal areas with a focus on unfolding major conflict categories/themes. The book does not address the question of how urbanization shapes mobility: this lies outside the project specification that this book is based on, as approved by the EU. Therefore, the analysis of how different urban forms, such as the compact city, shape mobility are not considered here. Instead, the book has four specific research objectives that structure this overview chapter and the national case studies presented in the remainder of the book.

I. To analyze the relationships between migration and urban change.

The distribution of permanent human mobility (migration) across and between the cores and rings of the city region, and how this is contributing to the changing socio-demographic composition of the case studies.

II. To analyze the spatial and temporal balance between permanent versus temporary populations in the core v ring v coastal zone.

What are the main temporary human mobility flows within and across the different urban zones of the case studies – especially in terms of commuting, students, second homes and tourism/leisure? To what extent do these reinforce or are contrary to the dominant flows of human mobility?

Cores are dense concentrations of jobs and population, which match critical size thresholds, and are at the dominant destination of journey to work and other functional linkages in metropolitan areas. Rings are the surrounding areas which depend on employment and services on the core, and are linked to the latter by journey to work and service flows. Coastal regions are defined simply in terms of their proximity to the coast. These definitions are discussed in more detail later in this chapter.

III. To analyse how human mobility shapes key aspects of urbanization.

How do different types of human mobility relate to the changing nature of urbanization in the case studies, in terms of land use, the built environment, housing and socio-demographic features? Particular attention is paid to extensification versus intensification.

IV. To consider the main human-environmental conflicts resulting from human mobility.

The final section reflects on the implications for human-environmental conflicts of the changing relationship between mobility and urbanization in the case studies. These point to key themes for future research rather than presenting systematic analyses. They are above all driven by our concern with human mobility-urbanization relationships as the unit of analysis within the framework of the natural environment of the coastal areas with a focus on unfolding major conflict categories/themes

Figure 1.1 summarises the key relationships that are examined in this report. This introductory chapter will first set out some of the lines of the theoretical orientation of the book and its methodological challenges, and will then provide a comparative overview of the 17 case study metropolitan regions. Five of these are drawn from Europe, representing both the north and the south of the continent, with Israel, India and Vietnam providing contrasting case studies of urbanization under different economic, environmental and cultural conditions.

Belgium: Oostende & Zeebrugge

India: Mumbai and Chennai

Israel: Tel Aviv & Haifa

Italy: Rome & Chieti-Pescara

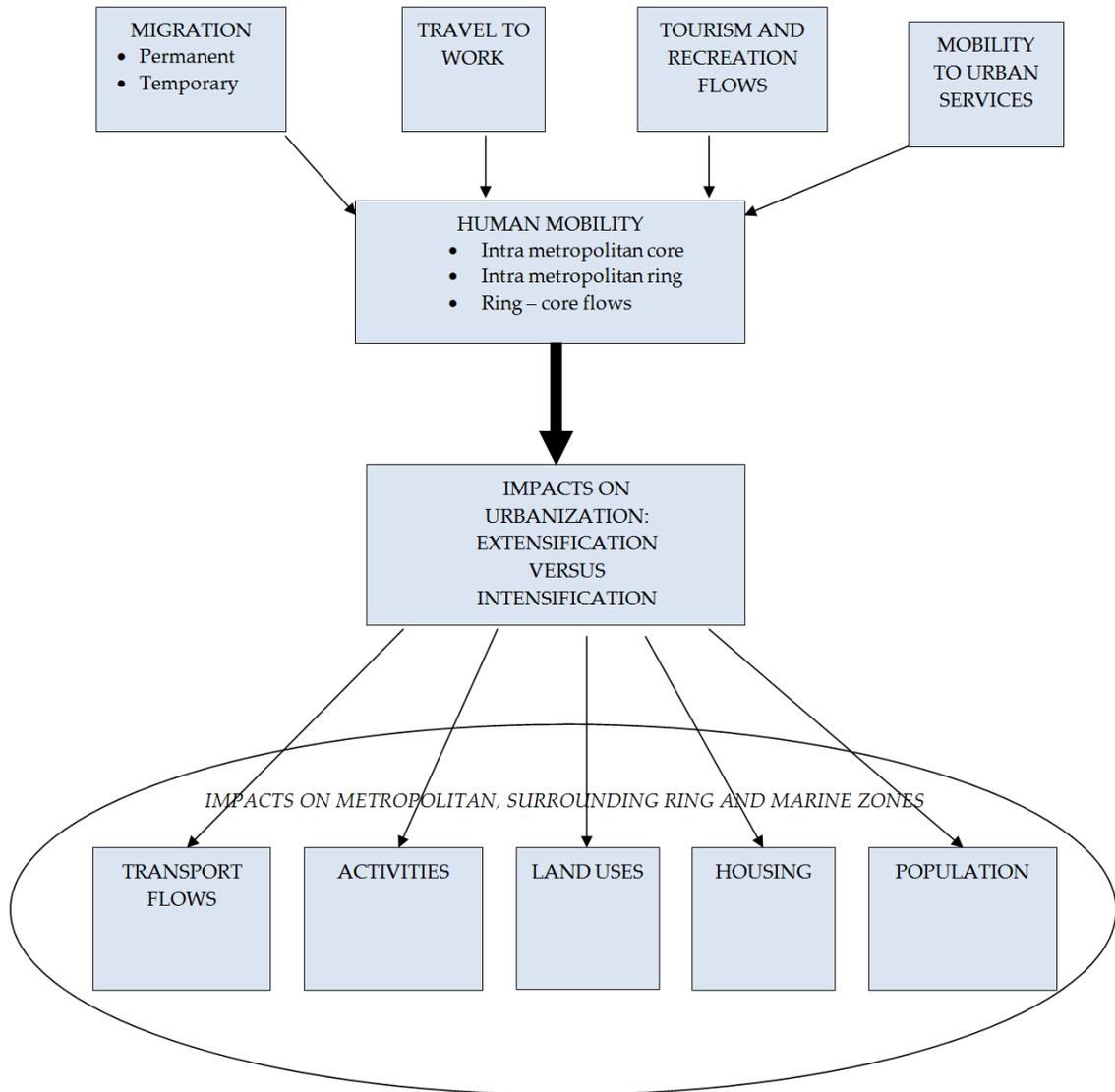
Portugal: Lisbon, Eastern Algarve, & Funchal

Sweden: Gothenburg & Malmo

UK: Thames Gateway & Portsmouth

Vietnam: Hai Phong & Nha Trang

Figure 1.1. *Human mobility and urbanization*



2. Conceptual Issues: Human Mobility And Urbanization

2.1 Functional regions

An important theme in framing the analysis of human-environmental conflicts in coastal areas is to place them in context of changes in the broader metropolitan regions. One particularly important theme in this literature concerns urban centralization versus decentralization, dating back to the work of Berry et al (1969). This research identifies regularities in the phases or stages of urban development, with centralization, decentralization and decline being experienced sequentially by urban regions in Europe (Hall and Hay 1980; van den Berg et al 1982).

This simplistic model has been challenged in later work, notably by Cheshire (1995) who emphasizes that such sequences are complex and not necessarily uni-linear: a key point in this book. Cheshire finds evidence of cumulative causation, related to human capital and human capital mobilities. Functional urban regions (FURs) 'with advantages in attracting skilled residents can cumulatively improve living conditions and experience recentralization and growth, while FURs with fewer advantages may experience continuing decentralization and decline' (Cheshire 1995: 1058). This approach has the advantage of shifting the focus from morphology and structures to ideas about flows of people. However, it focuses on national scale mobility whereas the modern city is unprecedentedly based on the intensification and globalization of mobility, or 'globility' (Montanari 2002).

2.2 Urban places, mobilities and social diversity

Functional urban regions make an important contribution to urban research in shifting the focus from structures to flows. However, by focusing largely on labour market areas, many significant arenas of urban life are excluded. They also visualize functional urban regions as relatively self contained, because they focus on internal flows. In reality, as Amin and Thrift (2002) argue: the modern city is unprecedentedly based on mobility which has been experiencing accelerated growth in recent decades. One important aspect of this is the globalization of mobility, or 'globility' (Montanari 2002), and there is a need to understand cities as situated at the nexus of diverse global flows.

Doreen Massey (1994: 154) captured this elegantly:

"All places are 'a hybrid mixture of local and more widely stretched relationships.... the question is the ways in which the stretching, articulation, and intersection of different social relations across time-space have changed, and how this reorganization of social relationships in time-space is altering people's concrete experience of their world ... need to understand places as made as 'articulated moments in networks of social relations and understandings."

For Massey, places are constituted of both local and more distanced relationships, and they are 'articulated moments in networks of social relations and understandings'. Katz (2001: 1228) built on these notions, arguing that researchers should take a broader relational approach to globalization.

The articulated moments in relationships, which effectively constitute places, are constituted of many different types of mobilities – both material and virtual, of individuals and groups, or finance and ideas. As Amin (2002: 391) writes 'places now can be seen as the embodiment of virtual or immanent forces, and as the temporary spatiotemporalisation of associational networks of different length and duration'. Virtual travel complements, sometimes challenges, but is not always a substitute for corporeal travel (Urry 2007). This book focusses only on corporeal mobility, hereafter referred to as human mobility.

2.3 Inter-related Mobilities and Urban Conflicts

Human mobilities are interlinked in three ways. First, individual mobilities are linked because they are rooted in networks which 'produce complex and enduring connections across space and through time between people and things' (Urry 2000: 34). These enduring connections constitute 'enfolded mobilities' (Williams 2009) which are also based on 'contingent mobilities' in the sense that some mobilities are a consequence of, or dependent on, other mobilities. For example, family members who travel with the lead, decision-making migrant. And individual histories of mobility, determine subsequent mobilities through time and space. For example, the au pair who later returns to live and work in the destination country because the earlier experiences influenced her human capital and tacit knowledge.

Secondly, individual actors have multiple and contingent mobilities. The commuter who travels to work in the city may after work do his or her shopping and socializing in the same

area. These contingent mobilities can be understood in terms of individual resources, tacit knowledge of the city or the sheer practicalities of time-space constraints.

Thirdly, mobilities are also woven together because flows through the city are shaped by scapes (Urry 2000). Scapes are the technologies, organizations, infrastructures, and prevalent discourses which together 'reconfigure the dimensions of time and space' (p35). All cities are deeply structured by 'scapes' – by motorways, scheduled flight routes, airports, bus and ferry routes, train lines, networks, and various forms of organizations - which shape human mobilities and tend 'to wall them in' (Urry 2000: 38). Moreover, scapes tend to 'wall in' not single but multiple flows. For example, the schedule airline routes which shape tourism flows also shape long distance commuting. And the bus routes which carry commuters by day, transport leisure seekers in the evening.

Migration is one of the most powerful of mobilities in terms of the reach and intensity of its implications. Cities are shaped by migrations, of various duration, whether these originate from within the city, the surrounding region, the same country or globally. This generates tensions between newcomers and long term residents, between outsiders and insiders, and contributes to the already deep social and spatial divisions that characterize cities. Sassen (1991) argues that this globalization of mobility is a major contributor to social polarization. At the same time, the demands of the highly skilled migrants who occupy many of the well paid financial and professional jobs in the global city generate demands for services that are often delivered by other, usually less skilled and lower paid migrants: in other words there is a dual labour migration system.

As Marcuse and van Kempen (2000: 3) note:

"There is a new spatial order of cities, commencing somewhere in the 1970s, in a period often described as one of a globalizing economy. While cities have always been divided along lines of culture, function and status, the pattern today is a new, and in many ways deeper-going combination of these divisions. Although it varies substantially from city to city by historical development of the built form, by national political and economic structures, by the weight of the contending forces involved in development, by the role of 'race' and ethnicity, and by the place in the international economy, nevertheless there are basic features in common. They include a spatial concentration within cities of a new urban poverty on the one hand, and of specialized 'high level' internationally connected business activities on the other, with increasing spatial divisions not only between each of them but also among segments of the 'middle class' in between."

These divided spaces are not static, but are constituted of shifting and polarizing mobilities. These mobilities may have different temporalities but they often overlap, as between tourists and commuters, or theatre goers and clubbers. They compete not only in terms of the use of transport and spaces, but also in terms of the norms of behaviour that are expected in these. The city can be understood as a series of arenas where social changes and conflicts resulting from human mobility are played out, exacerbated or ameliorated, if not resolved. Market forces and state intervention manage these mobility conflicts – to some extent – through transport and urban planning policies, but the city remains seething mass of mobilities, with inherent and often explicit potential for conflicts.

Conflicts can result from the gentrification of the cores, perhaps through the regeneration of waterfronts with investments in land reclamation, up-market housing, offices, services, festival marketplaces, conference facilities, tourism attractions that have created new landscapes of consumption (Zukin 1991; 1995). Such waterfront zones are often subject to gentrification, leading to polarized social structures, and conflicts over housing and urban spaces between different different income and age groups, and between immigrants and the long established communities in these areas. Migration is not only the source of conflicts because these zones are also the focus of other mobilities, whether tourists, local leisure activities, or late night clubbing – all of which potentially conflict with the life styles and norms of many residents.

These, and other changes and conflicts, contribute to a long standing debate about the organization and planning of urban spaces (Vilhelmson 2007). They focus on ideas such as compact cities and urban containment strategies (van der Waals 2000; Breheny 1995). These policy debates are explicit recognition of the links between urban form and people's activities in time and space (Newman and Kenworthy 1991), in other words of the pivotal role of human mobility.

3. Methodologies for Identifying Functional Regions

Research on the travel to work area has a long history, dating back to the pioneering work of Berry et al (1969) in the USA and of Hall et al (1971) in the UK, followed by the work of Spence et al (1982). Hall and Hay (1980) and van der Berg et al (1982) were early attempts to extend these definitions to (western) Europe as a whole. Subsequently, the definitions of travel to work areas have been revised in many countries, as well as in European projects such as the EPSON project 1.1.1. For Europe, probably the most useful comprehensive definitions of

functional urban regions are to be found in the work of Cheshire and Hay (1989) but their work mainly focuses on larger functional urban regions, which only incorporate some of the case studies in this project.

Robson et al (2006: 1) provide an useful explanation of the concept of city regions:

"City-Regions are essentially functional definitions of the economic but also of the social 'reach' of cities. The aim in defining them is therefore to identify the boundaries of those areas in which a majority of the population see the core city as 'their' place – in which they may work, shop for certain types of goods, visit for entertainment and leisure pursuits, and with which they identify".

There will necessarily be 'fuzziness and overlap at the boundaries of many City-Regions; and the degree of self-containment is likely to vary for different kinds of activity' (Robson et al 2006: 1). In other words, the cores and rings are defined by different forms of flows and activities, which only partly overlap. Early researchers, however, paid little attention to the diversity of activities and flows. Instead, they focussed mostly on employment and population, and the most widely used definition is based on the Local Labour Market Area, that is on a single type of human mobility, the journey to work.

There are two main models based on local labour market, journey to work or travel to work (TTWA) definitions (Robson et al 2006):

a) Exhaustive and non-nodal. A bottom up approach based on setting minimum levels of journey to work self-containment and minimum employment levels for identifying functional regions. This is an exhaustive approach which allocates all districts to a city region.

b) Non-exhaustive and nodal. This is a top down approach. The cores of these regions are predefined nodes and it is then simply a case of identifying which other areas have minimum levels of journey to work flows into these nodes as the criteria for being considered a part of the ring or metropolitan ring of their functional region. Various criteria are used to predefine the nodes and to identify critical levels of minimum journey to work flows from other areas: mostly between 15% and 35% of journeys to work originating in an area being into the core.

Other definitions include:

- Housing-market definitions: these examine patterns of residential mobility, or housing prices, in order to define local housing markets.
- Economic activity-based definitions: based on inter-firm business linkages.

- Service-district definitions. based on defining service area hinterlands for shopping and other major services.
- Administrative area definitions; based on convenience, and public service delivery.
- Transport data as a proxy for journey to work.

Table 1.1. *Definitions of metropolitan zones in the case studies*

| CASE STUDIES | FUNCTIONAL ZONES | METHODOLOGY FOR DEFINING METROPOLITAN REGIONS | COASTAL DEFINITION |
|--------------|---|--|---|
| Belgium | Core (core and city edge) and Ring | Employment, journey to work, population density, income, migration, housing | Statutory (extensive, based on municipalities) |
| India | Core and Ring | Administrative definition | 500m from high tide line: no socio-economic data available |
| Israel | Core, inner ring, middle ring, outer ring | Central Bureau of Statistics: journey to work flows and administrative boundaries | 1 km buffer zone |
| Italy | Rome (core, inner suburban ring, outer suburban ring) | Rome: Journey to work, flows to schools and hospitals, second homes, changes in residence, transport costs. Chieti-Pescara: residential and economic dynamics | Administrative areas bordering the ocean; |
| Portugal | Core, ring | Lisbon: administrative definition based on migration and journey to work. Eastern Algarve and Funchal: employment, housing and population concentration and dynamics. | 500m from the high tide line: special coastal plans |
| Sweden | Core, inner ring, outer ring | Administrative areas and travelling times | Sub-city and sub-district areas connected to the coast. |
| UK | Core, ring | Employment and journey to work data for local authorities and small areas statistical units | Small statistical areas contiguous with a 100m buffer zone from the high water mark |
| Vietnam | Core, ring | Administrative areas: urban v rural | Administrative areas bordering the ocean |

Given differences in the availability of secondary data, and limited resources available for defining urban regions, nationally specific definitions were used in the different case studies (Table 1.1). Most of the definitions are based on employment concentrations and journey to work data (e.g. Israel) or travelling times (Sweden), but others are based on mixed criteria which also include housing, migration and population density (Belgium), or journeys to school and hospitals, and residential mobility (Italy). International comparisons therefore must necessarily be approached with caution, but remain valuable at the level of identifying broad relationships between mobility and urbanization. Some of the studies in this book use existing definitions, usually provided by national census authorities or city/regional councils, but others (e.g. UK) have created new definitions based on analysing small areas statistics for employment and journey to work. Where appropriate data were not available, administrative areas have been used as building blocks, with the definitions being informed by reviewing a broad range of indicative data, and talking to key informants (India, Vietnam).

More detailed accounts of the functional urban regional definitions are presented in the national case studies in the Annex. However, particular note should be taken of issues relating to these definitions in three of the case studies:

a) In the UK, Thames Gateway is not a functional region, but is mostly embedded in the London functional region. Therefore the unit of analysis in this study is London and its surrounding labour market areas. The coastal zone is entirely contained within, but does not cover the whole of, Thames Gateway. It should be noted that the eastern reaches of Thames Gateway lie beyond the functional urban region of London according to this definition, and are excluded from the analysis (for more details, see the UK report). The existence of significant employment concentrations, combined with historically relatively weaker transport links, means there is an area, labelled Outer Gateway, which is relatively weakly linked to London. Instead, this area to the south and east of London in Kent has significant commuting flows to local employment and economic centres such as the Medway towns, Maidstone, Canterbury, Sevenoaks, Dartford and Tunbridge Wells (see chapter eight, Figure 8.5). A small part of Thames Gateway to the north of the Thames also lies outside the ring.

b) Employment, housing and population concentration are the main features of the Eastern Algarve definition, rather than journey to work. As the Eastern Algarve region does not exist for administrative or statistical purposes, it was necessary to analyze material and immaterial flows within the larger region at NUTS II level, and then to place their particularities in specific context. The Algarve had experienced increasing urbanization, mainly due to tourism. Tourism

is one of the main economic sectors in the Algarve, and a driving force for changes, many of which facilitate improvements to the quality of life as a result of enhancements to transportation networks, and the urban and natural environment. Faro, as the capital of the Algarve, was the starting point for the functional region definition, around which concentric rings were “designed” based on inter-zonal dependency relations. Because similar cumulative urban development has been experienced by Faro and Olhão, they were grouped together to constitute the core. The ring was defined on the basis of subsequent analyses of human mobility, economic and employment exchanges around the core, materializing the Eastern Algarve axis where the internal mobility organized within these rings is stronger than in other parts of the Algarve. Levels of cohesion in population densities, social uses, migration, occupations, retail and industrial sites, and urbanization processes were also taken into account. In addition, housing-market definitions were examined to establish patterns of residential mobility, population concentration and density, as well as housing dynamics. Second residences patterns were helpful in defining housing prices and local housing markets, while temporary residences were also important in differentiating the core or in ring.

c) Employment, housing and population concentration are also the main features of the Funchal region, rather than the conventional focus on journey to work data. The Funchal Urban Area has a simplistic form because the urban, economic, touristic, accesses and social systems are organized around the capital city of the Island, which is at the same time an autonomous region (Autonomous Region of Madeira). The approach taken to define this functional region was a top-down approach (non-exhaustive and nodal). Funchal is the only municipality of the core and, although the central node, the patterns of journey to work into the core are complex. Therefore, population densities have been one of the central criteria in this functional regions definition because people have location patterns that follow the availability of work, services, transportation and housing. For this reason, a service-district definitional approach was utilized based on defining service areas (shopping and major services, such as banks, public services, financial and others). In addition, the transportation network is clearly concentrated on Funchal, with respect to both internal and cross-zonal circulation, so that commuting mostly occurs within the core or from the ring to the core. The ring municipalities of Funchal Urban Area have experienced processes of urbanization near the coastal area, but a large proportion of the municipalities are still peri-urban areas with some traces of rurality in their ways of life, work and economic exploitation, and social practices.

4. Conclusions

This chapter has outlined the conceptual framework which has guided the empirical analyses of the SECOA project. As was stressed earlier, the focus is on the impact of human mobility on urbanization, and it does not address the reverse causalities or impacts. The starting point for the project was the definition of functional urban regions as the basic territorial unit of analysis but, recognizing the diversity of definitions and data availability across the eight case studies, a flexible approach was taken to this, on a case by case basis.

The functional urban regions approach has mainly concentrated on national spaces, and on the enduring functional linkages constituted of permanent migration and journey to work flows. This has limitations in capturing the full range of mobilities that are now the focus of an expanding body of research in the mobilities approach. The chapter sets on the nature of the temporal mobilities which interact with more permanent mobilities to define the shifting spaces of flows in the modern city in coastal regions, and the conflicts that arise from and shape these flows.

While much of the literature that we draw on, of necessity, has a global focus, the specific focus of this volume is on coastal metropolitan regions. These are not just a subset of all metropolitan regions, or all European and Asian metropolitan regions. There are three distinctive aspects of coastal metropolitan regions that are particularly important, and which become evident in the accounts provided by the individual case studies. First, that the existence of the coast necessarily and obviously truncates the land available for the development of the metropolitan region, and therefore increases pressures on the available land. This can involve increasing the need for even greater spatial extensions on the landward side in order to accommodate the population of a similarly sized non coastal metropolitan region – with implications, for example, for increased journeys to work, to shop etc. Or it can mean greater pressure to intensify land uses as a trade off to higher travel costs to increasingly distant suburbs. Secondly, the coast is itself usually constructed as an attractive location for housing and recreational usage, in addition to being the locus of seaborne transport, and attractive to particular types of economic activities. It is therefore a zone of intense land use and other forms of competition. Thirdly, coastal ecosystems are especially fragile and are both high vulnerable to the particular mix of mobilities and land uses that they become a focus for, and shape these through the intervention of regulatory and planning systems, such as the designation of coastal nature reserves.

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CHAPTER II.
Human Mobilities and Urbanization:
A Comparative Overview

Allan M. Williams

1. Introduction: The Case Study Metropolitan Areas

1.1 Diverse growth and mobilities

The case studies have diverse histories of growth and development, reflecting differences in terms of colonial roles, the foundation of the settlements, the timing and the key drivers of growth, and their current and recent flows in international trade and migration flows. These have shaped the growth of 'scapes' (Urry 2002) – in the form of infrastructures, built environments, institutions and policy legacies – which continue to shape current mobility and urbanization trends, and how these interact with the natural environment. They are summarised briefly below:

1. Brugge: an historically important city with significant port activities dating from at least the 12thC. Central Brugge is a UNESCO listed site, and Zeebrugge is an important port city.
2. Ostende: a history of coastal tourism and port activities, which experienced major stimuli to growth with the building of a new harbour in the 15th century and the development of tourism facilities from the late nineteenth century.
3. Mumbai: with a population of 19.36 million (2001), it is the sixth largest city in the world. It began its rise to a modern mega city following colonial rule from the 16th century, and especially with the growth of port activities and industrialization in the nineteenth century. It is a magnet for in-migration, a hub for high tech industries, and one of most socially and ethnically diverse cities in India.
4. Chennai: with a total population of 7.18 million (2001) is the fourth largest urban agglomeration in India, and much of its growth dates from the opening of the railway and the completion of a new harbour in the late 19th century.
5. Tel Aviv: a truly dominant or 'primate' metropolitan region within its national boundaries, accounting for some 50% of all jobs in Israel.

6. Haifa: the economic centre of Israel during the British mandate. Its growth and functional linkages have been eclipsed by Tel Aviv, but it is still a significant and rapidly expanding metropolitan area with important port functions.
7. Rome: one of the largest cities in Europe, its historical roots are well known. It has long been a focus of international tourism, and more recently of international migration. A strong and historical central area contrasts with a poorly regulated and often degraded periphery.
8. Chieti-Pescara. the central city is constituted by the main cities - Chieti and Pescara - the first of these having an ancient origin on the hill, the second being of more recent origin along the plain and the coast.
9. Lisbon: the main urban region in Portugal, and a major European city, its population increased strongly from the 1940s, with industrialization attracting rural migrants. More recently the city has become a focus of international migration.
10. Eastern Algarve: following a long period of stagnation, its growth took off from the 1970s based on tourism and successive waves of migration, initially from the ex-colonies, and later of life style migrants from northern Europe and the rest of Portugal.
11. Funchal: despite a relatively long history, rapid growth only took off after the 1980s, being driven particularly by international tourism. Its island location makes it unique amongst the case studies.
12. Gothenburg: developed rapidly through trade from the 18th century and via industrialization from the early 20th century.
13. Malmo: developed rapidly after the development of the port at the end of the 18th century, and then through industrialization in the first half of the 20th century. It experienced decline after the 1970s, followed by a recovery which coincided with the building of the new Öresund bridge (to Denmark) that opened in 2000.
14. Portsmouth: most of the city is built on what was historically an island. Its growth was based on naval and commercial port activities, and it has experienced urban regeneration in recent years, including significant growth in tourism.

15. London/Thames Gateway: a world city whose metropolitan region has more than 9 million people. After a long period of population loss over several decades after World War Two, London has experienced strong growth in recent decades, driven by financial services expansion and international migration.
16. Haiphong: the most important commercial and transportation hub in northern Vietnam, it has grown very rapidly since the 1990s driven by trade and industrialization.
17. Nha Trang: a relatively new metropolitan area which was only recently recognized as a 'first class urban area'. It developed rapidly only in the 20th century, and has significant tourism functions.

1.2 Population features: a mosaic of population shifts

The metropolitan regions of the case study areas vary enormously in size (Table 2.1). At one extreme is Mumbai (19.3 million) which is the sixth largest city in the world. It is followed by London, the largest city in Europe and a global city in terms of functions and reach, and by Chennai one of the largest cities in southern Asia. Several other case studies have populations over one million, while, at the other end, are the Algarve, Funchal and Ostende all of which have less than a quarter of a million residents. Despite these differences in size, all the case studies are characterised by strong national and international linkages and inflows/outflows of goods, people and knowledge – although at different scales and intensity.

Table 2.1. *Population and population changes*

| CASE STUDY | Population ('000s) | Date | Population change 'over last decade' (%) |
|------------------------------|--------------------|------|--|
| Brugge (B) | 255,875 | 2008 | 1.3 |
| Ostende (B) | 123,470 | 2008 | 7.5 |
| Mumbai (In) | 19,280,000 | 2001 | 33.2 |
| Chennai (In) | 7,200,000 | 2001 | 32.3 |
| Tel Aviv (Is)* | 3,096,499 | 2008 | 19.9** |
| Haifa (Is)* | 1,004,456 | 2008 | 21.4** |
| Rome (It)* | 4,259,027 | 2009 | 11.3 |
| Chieti-Pescara (It)* | 424,283 | 2009 | 8.1 |
| Lisbon (P) | 2,402,638*** | 2001 | -4.1 |
| Eastern Algarve (P) | 224,591 | 2001 | 16.5 |
| Funchal (P) | 202,537 | 2001 | 1.4 |
| Gothenburg (S)**** | 714 696 | 2005 | 13.6 |
| Malmo (S)**** | 331 822 | 2008 | 9.3 |
| Portsmouth (UK) | 545,201 | 2009 | 2.2 |
| London (Thames Gateway) (UK) | 9,098,572 | 2009 | 5.6 |
| Hai Phong (V) | 1,840,790 | 2009 | 10.1 |
| Nha Trang (V) | 393,533 | 2009 | 16.1***** |

* Data for the different rings have been combined.

** Data only available for 1995-2008 and these have been used to estimate change over the previous decade.

*** 1991-2001.

**** Outer ring excluded in this and other tables.

***** Data only available for 2000-9 and the 10 year rate has been extrapolated from this.

The metropolitan areas have experienced very different rates of growth in recent years, as indicated by the population changes over the last decade. These reflect differences in their stages of urban development, international roles, and the stages of economic development of their national and regional economies. The most dramatic rates of growth are observed in the Indian case studies, with 33.2% growth in Mumbai and 32.3% in Chennai, followed by the Vietnamese case studies, Rome, the Israeli cities, and the Eastern Algarve and Gothenburg. All the remaining, European, cities have experienced growth of less than 10%, being very low in Funchal, Brugge and Portsmouth, and declining in Lisbon due to large scale changes in its dilapidated inner city areas.

1.2.1 Population densities

The population density data are dependent on the definitions employed. Nevertheless, the population density data are indicative of the very different nature of these metropolitan regions, and of the different pressures that urban systems are exerting on coastal natural environments. The European cities have relatively modest population densities with many below 500 persons per sq. km. although there are strong contrasts relating to scale and function: for example, in Portugal, Lisbon has an overall density of 898 while in the Algarve, very much a nascent metropolitan region, this is only 169. There are, of course strong contrasts within these cities, being indicative in part of the intense social polarization that characterizes most of these case studies. For example, there are areas in central and inner London where the population densities exceed 20,000 per sq km and in Ostende where they exceed 9000. However, all of these pale in contrast with Mumbai and Chennai where the overall population densities exceed 4000 per sq km, while there are many sub areas with densities in excess of 50,000 or even 100,000. Haiphong and Nha Trang have lower population densities than this, at 1212 and 1,558 respectively, although these are still greater than the levels in the European metropolitan areas.

Table 2.2. *Population features*

| CASE STUDY | Population density (persons per sq km) | % population Resident in core | Core-ring population shifts over last decade |
|------------------------------|---|----------------------------------|---|
| Brugge (B) | 415 | 65.1 | Relative decentralization |
| Ostende (B) | 605 | 75.9 | Relative decentralization |
| Mumbai (In) | 4445 | 61.7 | Relative decentralization |
| Chennai (In) | 6042 | 59.6 | Relative decentralization |
| Tel Aviv (Is)* | 2182** | 12.5 | Relative decentralization |
| Haifa (Is)* | 996** | 25.8 | Relative decentralization |
| Rome (It) | 735.4 | 65.5 | Relative decentralization |
| Chieti-Pescara (It) | 435.7 | 44.6 | Relative decentralization |
| Lisbon (P) | 898 | 59.4 | Absolute decentralization |
| Eastern Algarve (P) | 169 | 44.0 | Relative decentralization |
| Funchal (P) | 609 | 51.3 | Absolute decentralization |
| Gothenburg (S) | 446 | 22.7 | Relative decentralization |
| Malmö (S) | 559 | 38.9 | Relative centralization |
| Portsmouth (UK) | 1614 | 37.3 | Absolute centralization |
| London (Thames Gateway) (UK) | 2257 | 18.7 | Relative centralization |
| Hai Phong (V) | 1,212 | 39.3 | Absolute centralization |
| Nha Trang (V) | 1,558 | 33.6 | Relative decentralization |

* Data for inner, middle and outer rings are combined.

** These data are for the same time frames as in Table 2.1, except for Israel (population densities, 2009).

1.3 Population centralization and decentralization

Given the different definitions used, the data on the percentage of the metropolitan population resident in the core is not a reliable comparative indicator of the degree of urban concentration versus dispersal of people and activities (Table 2.2). However, they are informative about the nature of the individual case studies. Approximately half have more than 50% of their populations living in the core, with Ostende, Brugge and Rome having more than 65%. In contrast, the other metropolitan regions have proportions as low as 12.5% (Haifa) living in the cores, with London also being less than 20%. This reflects definitional differences, but also genuine differences in the functional reach and impact of the metropolitan cores on their surrounding regions, including the coastal zones.

Some of the classic models of urban change, mostly undertaken in Europe and North America (e.g. Hall and Hay 1980; van den Berg et al 1982) suggest that metropolitan regions pass through stages of:

- a) absolute centralization (denuding the surrounding regions of residents),
- b) relative centralization as growth and development impacts spread to the ring but the core is still expanding more rapidly;
- c) relative decentralization as the ring grows more rapidly than the core, due to the suburbanization of population and, usually to a lesser extent, jobs and services, and
- d) absolute decentralization as the cores decline but the rings continue to grow.

Each of these stages of urban change has a different impact in terms of migration, commuting and other flows, which in turn impact on the natural environment. The changes are driven by the interaction between market forces and state regulatory systems.

Most of the case studies have experienced relative population decentralization in the last decade: population is growing relatively more quickly in the rings, but the cores are also still expanding – sometimes as a result of urban regeneration after several decades of decline, as in the case of London. The exceptions are Hai Phong, Malmo, Portsmouth and London which have experienced centralization – in the last three cases through urban regeneration. These emphasize that the sequence of stages is not linear (Cheshire 1995), but may be reversed at particular times.

These changes are not of course uniform across these zones and, for example, the decline in the core of Lisbon is highly concentrated in some of the more historic areas near the waterfront, while in Tel Aviv, there are striking differences in the rates of change in the three constituent rings.

The lack of (recent) small area data makes it difficult in many of the case studies to provide specific socio-economic profiles of the populations in the coastal zones (Table 2.3). Although such data exists in some countries, such as Sweden, the UK and Portugal, in other cases the problem – as in Italy – is that of classifying large administrative as coastal. Rather than focusing therefore, on the size of the populations of these areas, or their population densities, which are both highly sensitive to definitional differences, it is more helpful to examine the population change data, where available. Despite this, it is notable that in some cities most of the population are considered to live in the coastal zone. Other than Rome, we can point to two thirds of the population of the Eastern Algarve living in the coastal zone, a proportion that increases to 80% in the case of Funchal, where urban development is severely constrained by topography.

Table 2.3. Population features in the coastal zone

| CASE STUDY | Population | Population density (persons per sq km) | Population change % |
|---------------------|------------|---|---------------------|
| Tel Aviv (Is) | 1,467,800 | NA | 30.1* |
| Haifa (Is) | 595,800 | NA | 24.2* |
| Rome (It) | 3,148,386 | 1350 | 9.4 |
| Chieti-Pescara (It) | 234,408 | 1108 | 9.3 |
| Gothenburg (S) | 88,448 | 487 | 10.8 |
| Malmo (S) | 34,512 | 1149 | 34.2 |
| Portsmouth (UK) | 55,635 | 3,165 | 5.1 |
| Thames Gateway (UK) | 234,561 | 1,386 | 20.2 |
| Hai Phong (V) | 650,950 | NA | 2.9 |
| Nha Trang (V)** | 132,273 | 1080 | 4.8*** |

* Data only available for 1995-2008; these have been used to estimate change over the previous decade.

** The core is the same as the coastal zone.

*** Data only available for 2000-9 and the 10 year rate has been extrapolated from this.

In all cases, the coastal zones have experienced population growth in recent decades, reflecting their importance as foci of industrial, trade, tourism/recreation and residential activities. The rates of growth in particular areas, such as Malmo and Thames Gateway, are very high, indicative of the intense pressures being exerted on their socio-economic, cultural and environmental systems. Elsewhere, the population changes in the coastal zones are smaller than in the metropolitan areas as a whole (Table 2.3) reflecting either strong planning constraints on new developments or to the lack of available land for new residential developments.

These population changes are indicative of intense urbanization processes in particular cities, which have profound implications for both nature and society. For example, the urbanization process in Chieti-Pescara has been driven by increasing population, residential preferences for the seaside, increases in house prices, lack of effective public planning, and delays in the implementation of development policies. The result has been highly uneven urbanization, with strong concentrations of buildings and people along the coast itself, often poorly regulated and planned.

2. The Complexity of Human Mobility

2.1 Permanent mobility: migration in context of internationalization

2.1.1 Metropolitan scale migrations

Population changes have been driven by both natural change (deaths v births) and by migration, and this report focuses on the latter. These migration changes operate at different levels, from the intra-metropolitan to the global. Migration data at the level of the metropolitan area, or its zones, is not available in India, while the latest available data in Israel were considered to be too dated for the purpose of this study (Table 2.4).

Table 2.4. *Migration in the metropolitan regions (latest year available)**

| CASE STUDY | In-migration in latest year available | Net migration in latest year available | Net migration as % of most recent population |
|------------------------------|---------------------------------------|--|--|
| Brugge (B) | 11,722 | +618 | +0.2 |
| Ostende (B) | 7,342 | +965 | +0.8 |
| Rome (It) | 130,374 | 46,155** | +1.1 |
| Chieti-Pescara (It) | 13,485 | 3,346** | +0.8 |
| Lisbon (P)*** | 421,233 | 1,375 | +0.06 |
| Eastern Algarve (P)*** | 40,331 | 4754 | +2.12 |
| Funchal (P)*** | 1,547 | -2246 | -0.13 |
| Gothenburg (S)*** | 81,166 | 3,298 | 0.50 |
| Malmö (S) | 44,256 | 3,609 | +1.2 |
| Portsmouth (UK) | 34,293 | 3204 | +0.58 |
| London (Thames Gateway) (UK) | 765,618 | 13,454 | +0.15 |
| Hai Phong (V)**** | 9,423 | 6,458 | +0.35 |
| Nha Trang (V)***** | 14,074 | 8,940 | +2.5 |

* Data for inner, middle and outer rings are combined.

** Average annual migration over the past decade.

*** Average annual migration, 2006-9.

**** Average annual migration, 2004-9.

***** Italian data tend to underestimate out-migration, and over-estimate net migration.

In aggregate terms, in-migration in the last year for which data are available indicate that the scale of in-migration ranged from less than 10,000 in Ostende, Hai Phong, Funchal and Eastern Algarve, to over 100, 000 in Rome and Lisbon, and to three quarters of a million in London. Data are not available for Mumbai and Chennai but both are known to be the recipients of truly massive inward migration flows that drive urban changes. This is reflected in the estimate that one half of the total population of Greater Mumbai were classified as in-migrants in 2001.

Inward migration is balanced to varying extents by outmigration, so that – at least in terms of the aggregate outlines of urbanization – net migration is a more important indicator of dynamism. All but one of the metropolitan areas had positive net migration. However, the net changes were more modest, being less than 5.000 in all the European case studies for which data are available, except London and Rome, in both of which net inward international migration plays an important role. There were also strong net increases in Vietnam, and that is also likely also in the case in India, although data are lacking in this instance. The surprising feature is the relatively low net migration in the London Metropolitan area: this is deceptive however in that it represents the impact of the economic crisis, and a year of strong international return migration after a period of sustained immigration

When the migration changes are expressed in relation to the total populations of these cities, we obtain a good indicator of the simple ‘headline’ effect of recent migration. Net migration is equivalent to less than one per cent of the population in most of the case studies but, although this seems modest, taking into account the economic crisis in the late 2000s, it is indicative that the cumulative impact of net migration over the longer time frame is likely to be a significant driver of urbanization and urbanization pressures. Within Europe, particularly high growth rates can be observed in Rome, Malmo, Gothenburg and especially Eastern Algarve. Malmo is a particularly interesting example of how changes in accessibility (the opening of the Öresund Bridge to Copenhagen in 2000) – that is a change in the scapes which shape flows - can impact on migration into coastal zones. The number of Danish inhabitants in Malmo has more than doubled since 2000, and in 2009 they constituted 1,3% of the total city population, with the coastal zone being particularly attractive.

There are even higher relative net migration rates in Nha Trang, indicative of intense pressures being exerted by migration systems. Nha Trang indicates how quickly migration can

accelerate in particular cities: whereas in 2003-2006 net migration was + 5,531, by 2006-2009 this had increased to 26,191. The net annual migration in Hai Phong is more subdued, partly reflecting its earlier history of rapid expansion.

2.1.2 Core versus ring migration changes

Inter-zonal migration differences can play an important role in reshaping the population distribution within the metropolitan area. Table 2.5 compares net absolute migration differences in the core and the ring of the metropolitan areas. There have been net migration increases in both the core and the ring in all cases, for which data are available, except for the core of Lisbon. Migration is therefore a force that is increasing population pressures on resources in both zones, although there are variations within these.

A comparison of the percentage changes in net migration, relative to population sizes, in the two zones, gives an indication of whether it has contributed to centralization or decentralization. The picture is more mixed than for population changes, although relative decentralization is the most common picture, as would be expected given the prevalence of positive net migration rates. The main exceptions are absolute decentralization in the case of Lisbon, reflecting the population losses in its core related to urban renewal in the more dilapidated urban zones, absolute centralization in Funchal, and relative centralization in London: the London data is specific to the crisis of the late 2000s, whereas the changes in Funchal are due to continued population losses from the more rural parts of the metropolitan region.

Table 2.5. Net migration changes by urban zone*

| CASE STUDY | CORE: NET MIGRATION CHANGE, LATEST YEAR | RING: NET MIGRATION CHANGE, LATEST YEAR | CONTRIBUTION TO CENTRALIZATION/ DECENTRALIZATION TENDENCIES: COMPARATIVE RATIOS OF PERCENTAGE CHANGES IN CORE AND RING |
|------------------------------|---|---|--|
| Brugge (B) | +207 | +411 | Relative decentralization |
| Ostende (B) | +444 | +515 | Relative decentralization |
| Rome (It) | +25,116 | +21039 | Relative decentralization |
| Chieti-Pescara (It) | +695 | +2651 | Relative decentralization |
| Lisbon (P) | -1299 | 1,504 | Absolute decentralization |
| Eastern Algarve (P) | +1274 | +3480 | Relative decentralization |
| Funchal (P) | +199 | -2445 | Absolute centralization |
| Gothenburg (S) | +675 | +2679 | Relative centralization |
| Malmo (S) | -26 | +3635 | Absolute decentralization |
| Portsmouth (UK) | +3,200 | +1519 | Relative centralization |
| London (Thames Gateway) (UK) | +7,900 | +26,907 | Relative centralization |
| Hai Phong (V)** | +1,612 | +1,488 | Relative decentralization |
| Nha Trang (V)*** | +2089 | +6,631 | Relative decentralization |

* Data for inner, middle and outer rings are combined.

** Annual average 2004-9.

*** Annual average 2006-9.

These aggregate data conceal considerable variations in the sources of migration. For example, in the core of Mumbai, 61% of the in-migrants now living there are from other Indian states, whereas this proportion is only 34% in the ring, reflecting more localized rural-urban migration. In both Indian metropolitan areas, the vast majority of migrants are from rural areas, and there are relatively few international migrants. International migration plays a more significant role in the other cities. For example, international migration is more important than national-scale migration in Portsmouth, and Russian immigration played a dynamic role in the 1990s in population growth in the rings of the Israeli case studies.

2.1.3 Migration flows within the metropolitan areas

International migration is only one component of the complex patterns of migration that are being shaped by and are shaping urbanization in the metropolitan areas. One important mechanism in all the case studies is intra-zonal migration. Data is only available at this scale for a small number of case studies (Table 2.6). These indicate a relatively mixed pattern in terms of both flows between core and ring, and differences in respect of external (to the metropolitan area) migration to the two zones.

In the Belgian case studies, the cores continue to be the major foci for migration. The cores attract more migrants from the rings than vice versa, and also attract more external migrants. The net differences (between immigration to the cores and rings) are relatively modest in all instances, with the exception of Ostende where the core has a far more powerful appeal than the ring for external migrants. The same applies to Hai Phong with the core gaining more migrants from the ring than vice versa. In the other cities for which data is available, the net migration patterns generally favour the rings. Migration from core to ring is stronger than vice versa (in absolute terms) in the case of London, Portsmouth, and Gothenburg. In the case of London, the differential is substantial – 18,944 – confirming that it is external migration, and in fact international migration, which is driving total net migration and population changes in the core. The ring receives more external migrants in these cities, excepting Portsmouth.

Table 2.6. Contributions of inter-zonal in migration flows to centralization v decentralization: selected case studies*

| CASE STUDY | Core to ring and ring to core: net difference | External to core v ring: net difference |
|------------------------------|---|---|
| Brugge (B) | Core +163 | Core +49 |
| Ostende (B) | Core +64 | Core +1547 |
| Gothenburg (S) | Ring +297 | Ring +8546** |
| Portsmouth (UK) | Ring +107 | Core +3,810 |
| London (Thames Gateway) (UK) | Ring +18,944 | Ring +155,927 |
| Hai Phong (V)*** | Core +997 | Ring +2171 |

There does therefore seem to be a general picture in the European cities of in-migration to the cores, especially internationally but also nationally, which is a ‘replacement’ for net migration outflows to the rings, and this theme is considered further in the next section. International migration is particularly instrumental in this in the larger cities such as London (and probably Rome and Lisbon, for which data is unavailable). There are however exceptions to this pattern, and we lack data to be able to comment with any confidence on India and Vietnam.

2.1.4 Inter-zonal migration and social polarisation

Migration plays an important role in terms of shaping the social profiles of the population in the cores and rings, and especially in particular sub areas of the city. It is therefore instrumental in shaping and reshaping social polarisation (Marcuse and van Kempen 2000), as well as differential social needs and access to resources across the metropolitan regions.

* Data for inner, middle and outer rings are combined.

** Based only on in-migration.

*** Annual average rate 2004-9.

The most obvious change relates to the ages of the migrants. In those cases where data is available, such as the UK and Sweden, there is confirmation of the prevalence of the well known family life-cycle of mobility. Migrants into the core tend to be disproportionately young adults (both genders usually equally represented) drawn to the city centres by both employment and social opportunities. In contrast, migrants from the cores to the ring (and beyond) tend to involve more younger migrants (children) and older people. These represent respectively, the movements of families to the ring where housing is usually cheaper and where there is perceived to be a better social environment for family life, and retirement migration. Retirement migration is particularly important in many northern European countries and, indeed, links some of the case studies. For example, the Eastern Algarve attracts significant numbers of retired and early retired migrants from the UK, including London and Portsmouth. These different groups have contrasting requirements in their travel, work, and leisure patterns as evident, for example, in their participation in the night time economy, or travel to school flows.

A second dimension of social polarization is around income, but there is even less data available on this. However, it can be argued that socio-economic polarisation is probably more likely to occur at the micro scale within urban zones rather than systematically between them, as in the case of ages. One important point to note, however, is that the urban regeneration which is characteristic of many central cities, and especially waterfront areas, is often disproportionately targeted at young professionals, creating a cohort of active, and relatively well resourced workers and consumers in these areas.

Ethnicity represents another dimension of social polarisation and of potential social conflicts that can be associated with both international and – in the case of India - national migration. International migrants constitute a significant presence in many cities, especially the larger European metropolitan regions such as London, Rome and Lisbon. Migrants in these cities tend to be polarised between highly skilled and ‘unskilled’. The situation of migrants varies according to country of origin, race and ethnicity as well as duration of residence in the destination and can not easily be generalised in a study such as this. However, there is considerable evidence in the academic and policy literature of how migrants – especially from poorer countries or regions – are seen as outsiders, and face various forms of barriers and discrimination that mean they tend (over long time periods) to have relatively lower incomes

that the indigenous population. Their experiences are variable, however, as reported in the Rome case study: Poles, Romanians and Filipinos have relatively less problems in finding jobs, compared to Muslims and Africans.

Care must be taken not to over-generalize. For example, in Gothenburg the percentage of the foreign born population is higher in the ring than in the core. This reflects both changes over time in the residences of the longer established migrants, as well as the complex patterns of job opportunities and social segregation at the micro scales.

2.1.5 Migration in the coastal zone: a focal point

Given the focus of SECOA on coastal regions, particular attention was given to trying to analyse migration in the coastal zone, but unfortunately this was not possible in several case studies (Table 2.7). However, there is evidence that net migration did contribute positively and, in some cases such as Rome, Chieti and Nha Trang, very significantly to population changes in the coastal zone in absolute terms. In relative terms, this contribution was greatest in Malmo and in Nha Trang. However, even the more modest – in relation to population size – changes in the other cities for which we have data, indicated a substantial contribution is likely over time. The one exception, however, is Hai Phong, although the decline is more apparent than real, being due to the redrawing of administrative boundaries.

*Table 2.7. Migration in the coastal zone**

| CASE STUDY | NET MIGRATION, LATEST YEAR | % POPULATION |
|------------------------------|----------------------------|--------------|
| Rome (It) | +30,636 | +0.97 |
| Chieti-Pescara (It) | +2,219 | +0.95 |
| Gothenburg (S) | +604** | +0.68 |
| Malmo (S) | +1780 | +5.43 |
| Portsmouth (UK) | +171 | +0.31 |
| London (Thames Gateway) (UK) | -496 | 0 |
| Hai Phong (V)*** | -2,490 | -0.38**** |
| Nha Trang (V)***** | +2,089 | +1.6 |

In practice, the patterns can be complex, as indicated by Malmo. Looking at data on foreign inhabitants in each zone, rather than migration data, there were relatively less migrants living in the coastal zone than in the core and inner ring. However, this proportion had increased significantly from 9% in 2000 to 15% in 2009. The extent to which migrants, or especially international migrants are driving urbanization changes, and are a focal point of land use and environmental conflicts in the coastal zones, can not be determined from the secondary data used in this study, and instead is investigated further in WP4 through a micro case study methodology. It is also a question of how attractive the coastal zone is compared to other parts of the city: it is not inevitably the most attractive zone as the contrasts between Tel Aviv (highly valued residentially) and Haifa (port dominated) demonstrate.

* Data for inner, middle and outer rings are combined.

** Average annual migration for the last decade.

*** Average annual migration, 2006-9.

**** Average annual migration 2004-9.

***** Due to the redrawing of administrative area boundaries.

2.2 Temporary mobilities: the city in motion

Migration – which of course can be of varying duration – is only one element of population mobility which is shaped by and shapes urbanization. In this section, we review the evidence for what can be termed temporary mobility. In general, there is less reliable secondary data available for migration, although the importance of various forms of temporary mobilities is clearly evident through everyday observation of urban life.

Probably the single most important element of temporary mobility in most cities is commuting – because of its volume, temporal peaking, regularity and the distances involved. However, to put this in perspective it is important to note that a travel survey in Lisbon recorded that the number of trips made for work or study were approximately equal, accounting for one half of all daily trips, while shopping and leisure accounted for another 14%. And in Hai Phong only 24% of all trips made are for journeys to work.

2.2.1 Commuting: the daily rhythms of labour markets

Most commuting occurs within the urban zones, and over relatively short distances. For example in Rome in 2001 – for all journeys - it was estimated that on the average day almost 800,000 people moved within the core, while 100,000 moved from the ring to the core. Over time the scale of commuting has increased in most cities partly because of the growth in population, but also because employment has generally – but not universally – remained more centralized than population. An indication of the extent of these changes is provided by Rome: in 2000, some 300,000 vehicles moved into and out of the main access point to the metropolitan area on the average day, but just 10 years later that number had increased by a third to circa 400,000.

Table 2.8 presents summary statistics on the extent of intra-communal zoning in the latest year for which data is available. Bearing in mind that intra-zonal commuting is usually greater than inter-zonal commuting, there is still evidence of significant movements across zonal boundaries. The net differences in commuting flows between core and ring demonstrate, as expected, strong inward flows to the concentrations of jobs in the main cities. These vary in absolute size according to the size of the city, but the single most striking figure is the net inwards flow of 1,114,910 into the core of London – a figure that is shaped by the relatively narrowly definition of the core. The inflow into London is about six times larger than the

outflow. Tel Aviv also demonstrates a high level of net inward flows, again partly reflecting how the core is tightly defined.

Perhaps of greater significance in terms of the pressures created on urban life and on the environment is the total inflow of commuters to the core from beyond its boundaries, which is standardised in Table 2.8 in relation to population size, for the latest year available. London, followed by Tel Aviv, stand out for the enormous relative impact of inward commuting on the core, with both exceeding a ratio of 40%. Even taking into account definitional issues, this still represents an enormous flow of people and vehicles into relatively small zones. The inflows into the other cores are all equivalent to less than 20% of core population, except in Gothenburg.

Table 2.8. *Inter-zonal commuting*

| CASE STUDY | Net DAILY commuting core-ring | Inwards DAILY commuting to core as % of population of core |
|------------------------------|-------------------------------|--|
| Brugge (B) | +10,669 | +6.4 |
| Ostende (B) | +4363 | +4.7 |
| Tel Aviv (Is)* | +158,815 | +40.9 |
| Haifa (Is)* | +42,790 | +16.5 |
| Rome (It)** | +95,158 | +4.4 |
| Chieti-Pescara (It)** | +12,713 | +6.7 |
| Lisbon (P) | +147,770 | +13.5 |
| Eastern Algarve (P) | +575 | +4.2 |
| Funchal (P) | +11,170 | +13.8 |
| Gothenburg (S)** | +52,240 | +34.3 |
| Malmö (S) | +32,826 | +8.3 |
| Portsmouth (UK) | +18,933 | +18.6 |
| London (Thames Gateway) (UK) | +1,114,910 | +79.6 |

* Data for inner, middle and outer rings are combined.

** 2001.

*** Only available for commuting to and from the city of Gothenburg/Malmö to the suburbs and elsewhere (which is different from the core) and inwards commuting to the city of Gothenburg/Malmö as % of day population.

The impact of these commuter flows is of course mediated by the type of transport utilized. The experiences of Mumbai are especially distinctive. As reported in the case study, there are about 2,154,860 passenger trips at the peak hour into the city, and of this 88% of the commuters use public transport (buses and local trains), while about 7% use private vehicles. However, with increasing prosperity and greater separation of work and home, reliance on car usage has increased. In Chennai, which has a less well developed rail network, 25.8% of commuters use public buses, 19.1% use two-wheelers, nearly 12.8% travel on bicycle and 32.7% walk to work.

2.2.2 Students: educational mobility

With the growth of higher education in most countries, students have become a significant component of the population in many metropolitan areas which tend to be the loci of the largest institutions. Their importance as an element of temporary mobility is twofold. First, as evident in the daily 'journeys to education'. Taking both schools and universities into account, the case studies of Rome and Nha Trang emphasise that there are the same daily number of educational journeys as there are of journeys to work, and they are both highly peaked in narrow time slots in the morning and evening. Secondly, many students, especially higher educational students, live away from home, often in a different city and increasingly internationally. They can represent a major component of the temporary – in this case seasonal – populations in metropolitan areas, particularly as most universities are highly localized and attract thousands or even tens of thousands of students daily to the central areas of the major cities.

Table 2.9. *Higher education students in the metropolitan areas*

| CASE STUDY | TOTAL NO. OF HIGHER EDUCATION STUDENTS | % OF METROPOLITAN POPULATION |
|--------------------------------|--|------------------------------|
| Tel Aviv (Is)* | 100,324 | NA |
| Haifa (Is)* | 32,212 | NA |
| Rome (It) | 125,926 | 3.9 |
| Chieti-Pescara (It) | 9818 | 2.3 |
| Lisbon (P) | 125,892 | 5.2 |
| Eastern Algarve (P) | 8,432 | 3.8 |
| Funchal (P) | 2773 | 1.4 |
| Gothenburg (S) | 48,000 | 7,3% |
| Malmo (S) | 24,000 | 8.1% |
| Portsmouth (UK)** | 17,140 | 3.1 |
| London (Thames Gateway) (UK)** | 350,000 | 3.8 |
| Hai Phong (V) | 60,734 | 3.3 |
| Nha Trang (V) | 13,000 | 3.3 |

Data is usually not available on the numbers of students living away from their ‘permanent’ or usual homes, but Table 2.9 provides a broad indication of the importance of this phenomenon. The largest single cohort of higher education students – for the case studies we have data for – is in London: an estimated 350,000. There are also more than 100,000 students in Rome, Lisbon and Tel Aviv. The proportion from outside the metropolitan area is variable, and usually not known: but, for example, in Hai Phong, it is estimated to be 55%.

In terms of relative impact, students in several metropolitan areas account for more than 3% of the total population. The most striking figures are for Gothenburg and Malmo, in both of

* Data for inner, middle and outer rings are combined.

** Students whose normal residence is outside the study area.

which the proportions exceed 7%. Taking into account the concentration of students not only in the cores, but in particular zones within the core, their zonal and micro-spatial impact is considerably greater. They also reinforce the relatively large numbers of young adults living in the cores, with different life styles and mobility rhythms compared to other socio-demographic groups.

2.2.3 Second homes: multiple meanings of a growing phenomenon

Second homes are used for a variety of purposes – by those working away from where they consider to be their main home, weekend or seasonal leisure and recreational activities, and for renting/ real estate purposes. The coast is, of course, particularly attractive for second homes that are used for leisure and recreational uses. Many second homes eventually become permanent homes, so that they are an important ‘scape’, which condition future migration and population redistribution.

Where case study data exist for changes over time, these indicate strong growth in second home ownership, reflecting changes in income, life style aspirations and mobility. For example, the number of second homes in London almost doubled in the core, ring and coastal zones between 2001 and 2007.

For the countries for which data are available, there are considerable differences in the importance of second homes (Table 2.10). This reflects the nature of the metropolitan areas with all three Portuguese case studies having levels above 10%, and the Eastern Algarve having a remarkably high proportion, indicating the region’s tourism and life style vocation. However, the largest single number of temporary home is in Rome (293,374), which includes both those used for business purposes and temporary stays by students in the core, as well as recreational usage in the ring and especially at the coast. Lisbon has more than 100,000 and Chieti has more than 50,000. In the case of Belgium it is known that the total number of second homes in the coastal communities is very high – an estimated 82,700 in the coastal communes, adding to the intense seasonal pressures in this area.

Table 2.10 also seeks to differentiate the relative importance of second/temporary homes in relation to the total number of dwellings in the core and the ring. In the UK, second homes in the cores are mostly for work purposes and exceed the relative importance of second homes in the rings. This is partly because of relatively low levels of second home ownership in the UK, combined with preferences for ownership of such properties in remoter areas with highly valued landscapes, such as the Lake District, Wales and Cornwall. There is also an important

element of second home ownership abroad, particularly in the Mediterranean regions (King et al 2000).

*Table 2.10. Second and temporary homes**

| CASE STUDY | Total number of second homes | % of total dwellings in core | % of total dwellings in ring |
|------------------------------|------------------------------|------------------------------|------------------------------|
| Rome (It)**** | 293,374 | 12.04 | 24.15 |
| Chieti-Pescara (It)** | 31,838 | 12.65 | 19.72 |
| Lisbon (P) | 134,694 | 11.7 | 11.5 |
| Eastern Algarve (P) | 55,853 | 19.6 | 45.8 |
| Funchal (P) | 8,831 | 12.0 | 11.9 |
| Portsmouth (UK) | 1,763 | 1.0 | 0.6 |
| London (Thames Gateway) (UK) | 37,955 | 2.1 | 0.7 |

There is a different picture in Portugal. All three case studies have large proportions of second homes, both in the cores and rings, representing the importance of regular weekend use of these homes i.e. that they are relatively accessible, and culturally important to day to day lives. However, the outstanding feature is the fact that almost one half of all dwellings in the ring in the Eastern Algarve – although a relatively small absolute number – is accounted for by second homes, which are in both national and international ownership. In Rome and Chieti-Pescara, approximately a fifth to a quarter of the housing stock in the ring is constituted of second homes.

* Data for inner, middle and outer rings are combined.

** Italian data based on numbers of houses used by non residents – which probably exaggerates the number of second homes compared to the data collection used in other countries.

2.2.4 Tourism: fluxes, flows and diverse motivations

Tourism is another important element of the temporary mobilities that shape the relationship between urbanization and the natural environment. It also has distinctive temporal rhythms, peaking seasonally, at weekends, around particular events, and at different times in the day. This means that the impact of tourism is far greater than is suggested by the raw numbers, especially as their visits are also highly spatially concentrated. For example, Nha Trang attracts almost 4,000 tourists per day on average, but that number increased to 10,000 at the Lunar New Year in 2010. And in Tel Aviv, in the summer of 2010, a concert by Elton John in the Israeli national stadium, located in Tel Aviv's inner ring, attracted approximately 47,000 people. The temporal and spatial polarisation that characterise this activity mean that we have to think of urban tourism representing mass mobility, in many cases.

In this study, we sought to standardize the data on tourism to the average number of tourists per day in each zone of the city (Table 2.11). Unlike commuting, or even second homes, it is important to acknowledge the very high levels of temporal variability in tourism numbers in the case studies. It is also important to recognize that there are significant differences between countries in how they collect tourism statistics – for example, whether it is via hotel registrations or surveys of both national and international visitors, and whether they include all overnight visitors or only those whose main objective is leisure.

Table 2.11. *Tourist numbers: average number of tourists per day*

| CASE STUDY | Tourists in metropolitan area; avg NO. per day | % of total population in core | % of total population in ring |
|------------------------------|--|-------------------------------|-------------------------------|
| Brugge (B) | 3186 | 1.3 | 1.1 |
| Ostende (B) | 1663 | 1.4 | 1.1 |
| Chennai (In) | 31,160 | NA | NA |
| Tel Aviv (Is)* | 7,699 | NA | NA |
| Haifa (Is)* | 1,085 | NA | NA |
| Rome (It) | 74,332 | 2.4 | 0.6 |
| Chieti-Pescara (It) | 3,539 | 0.5 | 1.1 |
| Lisbon (P) | 1,795 | 0.1 | 0.04 |
| Eastern Algarve (P) | 1805 | 0.2 | 1.3 |
| Funchal (P) | 2291 | 2.1 | 0.16 |
| Gothenburg (S) | 6975 | 4,7% | 1,4% |
| Malmo (S) | 4685 | 4,02% | 2,5% |
| Portsmouth (UK) | 1,800 | 1.72 | 1.0 |
| London (Thames Gateway) (UK) | 79,453** | 2.7 | 0.5 |
| Hai Phong (V) | 3,561 | 0.4 | 0.02 |
| Nha Trang (V)*** | 3,964 | 3.0 | NA |

* Data for inner, middle and outer rings are combined.

** Data mostly based on overseas and domestic tourists (London LAs) but includes relatively small element of day visitors in some areas within the ring (LTG Essex and Kent).

*** Data only available for the main city which accounts for most tourism activity.

Taking into account the above qualifications, we can observe the major differences that exist between the case studies. The outstanding tourism destination is London with 79,453 overseas and domestic tourists on average per day in 2007. This is closely followed by Rome which received, on average, 74,332 tourists. These temporary populations represent only 2.7% and 2.4% respectively of resident populations of their cores. These are relatively modest proportions, but in fact most tourists are highly concentrated in the historic cores and central areas of these two cities. The impact of this tourist influx is particularly significant in Rome as it is focused on its fragile historical heritage. The strongest impact relative to the population total is in Sweden, where tourists account for more than 4% of all residents in both Malmo and Gothenburg. The Chennai metropolitan areas attracts the third largest number of tourists (31,160) The other metropolitan areas received between 1,000 and 8,000 tourist per day on average.

The relative impact of tourism is indicated by the ratio of tourists to resident population for the core and metropolitan rings. Unfortunately data is not available for tourism numbers at the zonal level for most of the cities, but the data do indicate that the average number of tourists per day can add up to 3% to the populations of these zones: even at this scale, it is still important to remember that spatial and temporal polarisation greatly exacerbates their impacts. For example the British Museum in London attracts 6 million tourists a year, and the Vatican Museums attract some 4.5 million.

Finally, the dynamic nature of the tourism system needs to be recognized, as this is a rapidly expanding form of activity, especially at the international level and within emerging market economies. However, there is also evidence of strong growth in the well established tourism industries in the European case studies. For example, in Rome – already a tourism ‘hot spot’ with some 20 million tourists a year – there was a 10% growth in tourism numbers over the last decade. Although tourist numbers are subject to external risk/shocks, tourism is a remarkably resilient industry and numbers usually recover quickly from crises.

2.2.5 Cultural activities and the night time economy

Metropolitan areas also have significant leisure and cultural activities for local residents, as well as for tourists (usually defined as overnight visitors). Many of these – such as using sports facilities – are distributed throughout the day, usually with rather shallow temporal peaks compared to say commuting, or journeys to school. There are of course exceptions such as major sporting events that draw larger audiences. However, some activities have a different

rhythm being concentrated in the evening or the night – therefore, bringing new flows of temporary mobility into particular sites at a different time of day. There are probably double but overlapping peaks in these activities in most cities: an early evening inflow to enjoy restaurants, theatres, concerts and cinemas (as well as shopping) which gives way to a second inflow to enjoy the night time economy of pubs, clubs and – particularly in Asia – street night markets. Many such activities may be localised in residential areas throughout the cities, and only involve relatively limited population flows (e.g. to pubs or restaurants) but there are usually also specialized zones in the city centres, and or in the waterfront areas: indeed, these types of activities are often planned as driving forces of urban regeneration in waterfront areas.

There is lack of comparable data for the case studies to present a systematic comparative overview of this sector. However, the national reports provide insights into the scale and nature of the activities. For example, in Brugge it is estimated that 145,000 spectators are attracted on average to a range of events in the city, a number that is far larger than the total number of tourists (i.e. staying overnight). And in Haifa, one multi-screen cinema alone receives up to 4,000 visitors at any one time, at the weekend – a movement of population that is equivalent to approximately 1.5% of the total population of the core. Finally, in terms of the night time economy, this is strongly developed in several of the larger cities, such as London, Rome, Lisbon and Mumbai, but it is also an important feature in the smaller case studies. For example, it is estimated that in the centre of Nha Trang, there are about 26 cafés, 15 bars and clubs, and 75 restaurants which attract visits from beyond the immediate locality, and that these together attract some 8,800 consumers on average per night, which is equivalent to almost 1% of the total population of the core.

2.2.6 Pressure points: temporary mobilities in the coastal zone

The coastal zones are varied in their functions and their locations – in respect of the core v the ring of the metropolitan areas, but they are often pivotal to the flows that have been described above. In addition to the temporary mobilities discussed above, given their proximity to the sea the coastal zones can also be the foci of beach tourism, leisure boating, and cruise ship berthing, as well as ferry and trade activities.

Unfortunately, socio-economic data are not usually available at a scale that allows data to be agglomerated meaningfully at this spatial scale (Table 2.12). However, a few points can be noted about the scale of the flows into and through the coastal zones. First, that cruise ship tourism is an important element of the tourism economies of many coastal urban areas. For

example, between 1,000 and 4,000 passengers can regularly disembark from cruise ships onto a single landing place in the coastal zone, before dispersing for a few hours – usually by bus – for an excursion that adds significantly to visitor numbers at key tourism sites. The cruise ship port at Civitavecchia typifies this: few tourists stop there but instead are taken by bus to the centre of Rome. There can also be several thousand boats berthed in marinas – for example, more than 7,000 in Gothenburg. At weekends in peak season, these can attract three or four times that number of visitors, with many visitors also staying on board overnight. Beaches are also important magnets for tourists, but reliable data are scarce: there are however estimates that in Hai Phong some 18,000 tourists and day visitors go to Do Son beach and Cat Ba island on the Labour Day public holiday.

The most comprehensive data are for the UK case study. It is estimated that, in Portsmouth, net commuting adds some 32.6% to the population of the coastal zone temporarily. There are also substantial but unknown volumes of journeys to shop, school and leisure, as well as an estimated maximum of an additional 11% of the population who are students, second home owners, tourists, and day visitors from cruise ships. Users of the marinas may add another 1 %. Not all these groups coincide temporally in their use of the coastal zone, but together they represent the equivalent of almost 45 per cent of the population of the coastal zone, to which should also be added the day visitors for leisure, shopping, cultural purposes and the night time economy. The effect in Thames Gateway is even greater, not least because there are strong concentrations of employment at several places in the coastal zone, resulting in net inward commuting equivalent to 46.6% of the total population, together with another 6.6% in terms of students, second home owners, tourists, cruises ship passengers, and leisure boat users.

Table 2.12. *Temporary flows into the coastal zone*

| CASE STUDY | Net NO OF commuters as % of pop. | Students as % of pop. | Second homes % of total dwellings | Average number of tourists as % of pop. | Cruise ships passengers (avg daily no.) % of pop. | Maximum number of boats in marinas |
|---------------------|----------------------------------|-----------------------|-----------------------------------|---|---|------------------------------------|
| Tel Aviv (Is)* | NA | NA | NA | 0.42 | 0.04 | NA |
| Haifa (Is)* | NA | NA | NA | 0.05 | 0.07 | NA |
| Rome (It) | NA | 4.0 | 16.15 | 2.2 | 0.6 | 7167 |
| Chieti-Pescara (It) | NA | 2.6 | 17.76 | 1.3 | 0 | 1261 |
| Lisbon (P) | NA | NA | NA | NA | 0.27 | 2667 |
| Eastern Algarve (P) | NA | NA | NA | NA | 0 | 2319 |
| Funchal (P) | NA | NA | NA | NA | NA | 267 |
| Gothenburg (S) | NA | NA | NA | NA | NA | 7,241 |
| Portsmouth (UK) | 32.6% | 4.5** | 2.0 | 2.2 | 2.1 | 715 |
| Thames Gateway (UK) | 46.6% | 2.5** | 1.7 | 0.27 | 2.1 | 600 |
| Hai Phong (V) | NA | 0 | NA | 1.25 | 0*** | 0**** |
| Nha Trang (V) | NA | 8.4 | NA | 2.99 | 2.34 | 242***** |

* Data for inner, middle and outer rings are combined.

** Students whose normal residences are outside the study area.

*** Cruise ship passengers arrive at Hai Phong port which is not classified as part of the coastal zone.

**** But large numbers of fishing boats, and also boats for hire.

***** Boats for hire.

3. Mobility and Urbanization Impacts

Human mobility, both permanent and temporary, is interwoven with the process of urbanization, in a circle of causality which is variable and not always easily predictable. We have already considered one aspect of this in the earlier discussion in terms of the contributions of different forms of mobility to the changing populations of the different metropolitan zones. This section consider some of the other ways in which these relationships are articulated.

3.1 Population: living at ever higher densities

The population densities in the metropolitan areas have already been noted earlier in Tables 2.3 and 2.4. These are of course the direct outcome of different types of demographic shifts including migration. In most of the cities, population densities have been increasing in both zones over the last decade and, in many cases, over several decades. As the data on centralization and decentralization (Table 2.2) indicate, only three out of the entire 34 zones (cores and rings) in the 17 case studies experienced absolute population declines: the ring in Portsmouth and the cores in Lisbon and Funchal. In other words, in only three zones did aggregate population densities decline – although of course there were also differences within these zones. There is therefore across the set of cities, and different types of economies, strong evidence of the increasing pressures being exerted throughout the metropolitan systems by population growth and increasing population densities.

Only in the UK has it been possible to undertake a detailed analysis of the relationships between population densities and migration, and the evidence is mixed. There are high levels of in-migration to areas of high and low population densities reflecting the complex geographies of land use extensification/intensification and household changes that are discussed below.

3.2 Household size

Household size has been declining in most societies due to demographic and social shifts. Of particular importance are reductions in birth rates, greater longevity, increasing and age selective migration, and life style changes. Nuclear families and older dependent relatives are tending not to be co-resident, while more younger people are seeking – where socio-economic and housing conditions permit – to establish new households separate from their parents. Delayed marriages are also tending to add to the number of smaller, younger households.

In the case studies, household size declined in many cores and rings with a few exceptions (Table 2.13): Gothenburg, London and Portsmouth, both ring and core, and Chieti-

Pescara core. There are particular local factors at play in all these cases, including housing supply constraints driving up prices, and making it more difficult for young adults to establish separate households. In the UK this reflects both a housing crisis in cities where the rate of new build has not kept up with demand, particularly for family size dwellings, and higher birth rate amongst migrants. Elsewhere household sizes have been falling: immigration of young adults plays a particular role in this process in the cores, but the existence of such shifts across the rings indicates that national demographic and social shifts are at least, if not more, important in this process as migration.

Table 2.13. *Changes in household size over last decade*

| CASE STUDY | Household size change in core. Percentage point change | Household size change in ring. Percentage point change |
|------------------------------|---|---|
| Brugge (B) | -0.09 | -0.1 |
| Ostende (B) | -0.2 | -0.3 |
| Mumbai (In) | -0.08 | -0.13 |
| Chennai (In) | -0.30 | -0.27 |
| Tel Aviv (Is)* ** | -0.15 | -0.12 |
| Haifa (Is)* ** | -0.08 | -0.19 |
| Rome (It) | -0.15 | -0.12 |
| Chieti-Pescara (It) | +0.21 | -0.03 |
| Lisbon (P) | -0.4 | -0.3 |
| Eastern Algarve (P) | -0.4 | -0.2 |
| Funchal (P) | -0.7 | -0.6 |
| Gothenburg (S) | +0.03 | +0.02 |
| Malmo (S) | -0.1 | -0.1 |
| Portsmouth (UK) | +0.11 | +0.10 |
| London (Thames Gateway) (UK) | +0.20 | +0.19 |
| Nha Trang (V)** | -1.17 | -1.03 |

* Data for inner, middle and outer rings are combined.

** Data for 1995-2008 have been converted into a 10 year estimate.

*** Data for 2000-9 extrapolated over 10 years.

The scale of the change is mostly relatively modest, being a shift of less than 0.3, e.g. declining from 2.9 to 2.5 in the core of Lisbon. The changes are greater in the Portuguese studies than in the other European cities, essentially due to population aging in the core – 24% of the resident population of Lisbon's municipality is more than 65 years old and live alone. But the most rapid changes are in Vietnam where, large average household sizes are declining rapidly: for example, from 5.21 to 4.02 in the core of Nha Trang. Whatever the causes of these changes in household sizes, the implications are strong demand for increased numbers of dwellings, through sub-dividing existing buildings, intensified development within the existing built-up area, or extensification through building on previously unoccupied land.

3.3 Land use changes: extensification versus intensification

Land use changes are one of the most observable and significant changes resulting from population and mobility shifts, evident in extensification and intensification tendencies. There is a well developed literature on intensification (for example, Flynn et al 2009; Kristensen 1999) but in this volume it is understood as an increase in the intensity of existing non-agricultural, non-open space land use. It therefore includes urban renewal (that is, building on brown field land), or processes of infilling which strictly speaking represents building on greenfield sites, although this is in part a matter of scale. It does not include the conversion of say agricultural land to housing or industrial functions. The latter represents an example of land use extensification for the purposes of this study: that is the development of land which was previously open space, whether agricultural, forestry, wilderness, or sports field. Such areas will tend to be located in the urban periphery, but this is not always the case, as building on a sports field in the inner city demonstrates. The aim then is to distinguish between intensification in existing built up areas, and the extension of the latter. It is particularly useful in context of this study for the purposes of differentiating between cities in more and less developed economies, and also provides insights into regulatory differences.

There are major differences between the case studies in terms of the amount of land which is currently considered to be developed versus underdeveloped – understood here to include agricultural land, nature reserves, sports fields, and other open spaces. It has to be noted that the differences in the proportions partly relates to definitional variations in respect of both land use and urban zones. The more tightly the boundaries of the core are drawn, then the lower the proportion of underdeveloped land is likely to be.

Table 2.14. *Land use changes: extensification v intensification*

| CASE STUDY | % land undeveloped in core | % land undeveloped in ring | Extensification (E) and intensification (I) in core | Extensification (E) and intensification (I) in ring |
|------------------------------|----------------------------|----------------------------|---|---|
| Brugge (B) | 84.4 | 84.3 | | E |
| Ostende (B) | 77.9 | 89.3 | | E |
| Mumbai (In) | NA | NA | I height | E |
| Chennai (In) | | | I - height | E |
| Tel Aviv (Is)* | NA | NA | I | I (inner ring) E |
| Haifa (Is)* | 28.7 | 82.5 | E | E |
| Rome (It) | 73.1 | 93.1 | E | E |
| Chieti-Pescara (It) | 66.6 | 95.8 | E | E |
| Lisbon (P) | 35.6 | 82.7 | I (apartments) | I (height) E |
| Eastern Algarve (P) | 94.2 | 95.8 | I E | I E |
| Funchal (P) | 72.8 | 89.1 | I E | E |
| Gothenburg (S) | 22.34 | 67.61 | I | I E |
| Malmo (S) | 16.06 | 49.62 | I | E |
| Portsmouth (UK) | 36.6 | 70.5 | | E |
| London (Thames Gateway) (UK) | 12.81 | 66.55 | I highly localised | E highly localised |
| Hai Phong (V) | NA | NA | NA | NA |
| Nha Trang (V) | NA | NA | NA | NA |

* Data for inner, middle and outer rings are combined.

The lowest proportion of underdeveloped land is in the core of London, followed by Malmo, Gothenburg, Haifa and Portsmouth, reflecting the tightly drawn boundaries of these zones, as much as the intensity of the development processes (Table 2.14). At the other extreme is the Eastern Algarve, where much of the area remains agricultural, and the proportion of undeveloped land is estimated to be over 90% in both the core and the ring. Rome has an exceptionally high proportion of underdeveloped land in its core – 73% – and this reflects both the ways in which the zones are defined, as well as the unusual pattern of development where areas of intensive built-up fabric are separated by large, relatively undeveloped areas.

More importantly for the purposes of this book, are the summaries of intensification and extensification of land uses in the study areas. The patterns of land use and land use change are complex in detail, and are outlined in the national case studies. However, the broad patterns are clear and predictable. There is evidence of significant extensification – development on previously underdeveloped land (other than infilling in areas which are already mostly subject to development) – in the rings: this is, where most land is available for this purpose. The main difference is whether it is largely incremental, being concentrated in and around existing nuclei of development in the ring, as in the UK, or constitutes a process of urban sprawl as, until recently, was the case in Tel Aviv. There is only limited evidence of any substantial tendencies to intensification of land use (increased sub-division of plots, increased building height, small scale infilling etc) in the ring, which reflects the realities of development costs.

The ring, as would be expected, is more characterized by intensification than extensification, but the latter is also observed in the cores of some cities such as Rome, Chieti-Pescara, Haifa, Eastern Algarve and Funchal. In part, this reflects differences in the way that cores and rings are defined in different case studies. But the pressures emanating from population growth, migration, and developers are articulated in different ways in the case studies, reflecting institutional as well as economic development differences. In Gothenburg, for example, the general plan for the city indicates that new housing areas should be located in already existing urban centres within the ring which have good access to public transport.

In Rome, the lack of intensification in the core reflects a system of relatively restrictive land use planning, combined with mixed land uses (vertically within buildings) which makes increasing the heights of individual properties very difficult. In India there is a different situation: slums already occupy most spare land, often illegally so there is very little scope for extensification. Finally, it should be emphasized that the relationship between population change and intensification can be complex: in Lisbon, for example, despite population loss in the core (or perhaps because of it?) there has been rapid growth in the number of apartments in the last decade – by 41% which is even greater than the 23% increase in the ring.

3.4 Housing: ‘temporary’ and shanty dwellings, both mainstream and marginal

One of the most striking and problematic aspect of urbanization in some countries is the existence of large areas of temporary or shanty dwellings constructed, often illegally, in response to the inability of either the public or private housing sectors to provide accommodation for lower income residents, especially in-migrants. Nowhere is this more striking than in the mega cities outside the developed economies, and specifically in Mumbai (Table 2.15). In Mumbai, it is estimated that nearly 53% of the total population of Greater Mumbai now live in slums, mostly in shanty towns within the city itself: this is partly due to the fact that the slum dwellers cannot afford the high travel costs from the ring to the core where the jobs are concentrated. In Greater Mumbai (core), there are nearly 1959 slum settlements: the *Dharavi* Slum is the biggest slum in Asia, and it is predominantly built over a low-lying marshy area. In Vietnam, data for Hai Phong shows that the number of temporary houses has increased by over 40% in the last 10 years, in response to rural in-migration. These still account for relatively small proportions of the total housing stock in the ring and core, but if ‘semi-solid’ houses are also included then the proportion of the total stock of dwellings in the core is about one third.

Table 2.15. *Temporary housing and shanties: selected case studies**

| CASE STUDY | Shanties as % of all dwellings in core | Shanties as % of all dwellings in ring | % change in shanties in metropolitan area over last decade |
|------------------------------|--|--|--|
| Mumbai (In) | 52.9 | 13.4 | NA |
| Chennai (In) | 18.5 | 4.5 | NA |
| Rome (It) | 0.19 | NA | NA |
| Chieti-Pescara (It) | 0 | 0 | NA |
| Lisbon (P) | 0.72 | 0.35 | -69.6 |
| Eastern Algarve (P) | 0.29 | 0.15 | -70.3 |
| Funchal (P) | 0.13 | 0.35 | -74.6 |
| Portsmouth (UK) | 0.21 | 0.57 | NA |
| London (Thames Gateway) (UK) | 0.11 | 0.22 | NA |
| Hai Phong (V) | 0.20 (35.4)** | 0.43 (19.6)** | 41.7 |

* Data for inner, middle and outer rings are combined.

** Temporary (and semi-solid houses).

Most European cities have relatively few temporary houses and do not collect statistics on the phenomenon. There are exceptions, however, and there are shanty settlements in both Italy and Portugal, although nowhere do they account for more than 1% of the housing stock in a particular zone. The shanty towns in Rome are associated with the presence of Roma and Sinti camps: the biggest concentration is the XIII District (adjacent to the coast) where it is estimated that some 10,000 people live in such dwellings. They have become a focal point for migrant versus local social and political conflicts, as well as in respect of illegal development of often protected open spaces. Portugal also has shanty towns dating particularly from rapid rural-urban migration from the 1960s, 'return' migration from the ex colonies in the 1970s, and more recent international migration. However, there were notably large reductions in the numbers of shanty dwellings in all three Portuguese case studies, of around -70%, reflecting urban renewal and rehousing policies. The UK has a small proportion of temporary houses, which are mainly constituted of trailer parks.

3.5 Transport: scapes that shape urban mobilities

The urbanization features outlined above mainly relate to permanent mobility, especially migration – although they also reflect second home and tourism mobilities. Both permanent and temporary mobilities are however reflected in the intensity of movement around the city. This is evident in a range of different data on public and private transport that are summarised in the national case studies. These data sources are not easily comparable, but they do tell a story of strong and continuing growth in road traffic in virtually every zone of every metropolitan area. This is particularly evident in the growing motorization rates in the Indian and Vietnamese cities. In Nha Trang, for example, there was a three fold increase in the number of registered motor vehicles in just four years, 2006-10, accompanied by a relative shift away from motorbikes and cycles, although these remain by far the dominant type: in Hai Phong they account for 98% of all trips. The changes in the European cities are relatively smaller. For example, in Portsmouth the average number of private vehicles on the roads increased by 14% in the core and the ring, and by 11% in the coastal zone over a 10 year period.

Gothenburg is the only exception to this story of inexorable increases in traffic intensity, and even here the evidence is preliminary. In 2009 there was, for the first time since 1993, a decline in the volume of private car traffic across the city boundaries, a change that is probably due to a policy of sustainable development which has encouraged greater use of environment-friendly collective transport. London, despite the introduction of congestion charging in the

inner part of the core, still experienced a 6% growth in private vehicles in the last decade – a rate which was only slightly less than in the ring.

This traffic growth is driven by all the different types of mobility changes that have been outlined in this report. Its consequences are considerable in terms of pollution, congestion and its impacts on the quality of daily urban living experiences. For example, in Chennai the public buses carry 1.5 times more passengers than their supposed maximum capacity.

4. Conclusions

This chapter has provided a comparative overview of the demographic and land use changes which have characterised the 17 case studies over the last decades. There are difficulties in any such comparative analysis arising from differences in territorial delimitations, the definition and availability of data, and the exact time frames covered. Even so, it is possible to discern broad trends that characterise the patterns of growth, centralization versus decentralization, migration, temporary mobilities and urbanization in this metropolitan regions. These include differences related to the sizes of the cities, the nature of their economies, the level and rate of growth in the national economies, urban cultures and government/governance.

However, any comparisons need to be carefully qualified, and the summary data provided in this chapter need to be put in overall context of the individual case studies which follow.

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CHAPTER III.

Belgian Coastal Urban Environments: Reading Human Mobility Processes in a Spatial Framework

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1. Introduction

In this chapter, urbanization and mobility aspects of the two Belgian case studies are reviewed and analysed. They are the Brugge Study Area (SA) with 9 communes (4 in the Ring and 5 in the Core) and Oostende SA with 5 communes (2 in the Ring and 3 in the Core). The SAs are defined using criteria describing human mobility (migration and commuting) and urbanisation processes (describing the spatial extension of urban features and other related demographical characteristics).

The two study areas lie next to each other in the coastal front of Belgium, occupying around a half of the total Belgian coastline. According to an official delineation of the Belgian Coastal Zone, most of these two study areas lie within the coastal zone.

The main objective of this review is to identify urbanisation and human mobility patterns in the case studies based on their development trends in the last decade. In both case studies, it is presumed that urbanisation and human mobility have evolved hand in hand and together play a crucial role in shaping the transformations happening in their respective urban centres.

By analysing functional urban regions through urbanisation processes and human mobility, it is hoped that different issues relating to those processes can be discerned. The intention behind discerning these issues is to facilitate the identification of conflicts that will be the focus of further work in the framework of the SECOA project.

In this chapter, diverse forms of human mobility are taken into account, which differ in terms of scale (local to the global) as well as in terms of temporality (or time frames). These different types of mobility are seen as the source of potential conflicts over resources.

In our reading of the human mobility processes within the specifically defined spatial framework, we observe three-fold phenomena characterised by land-use change, temporary mobility and tourism that structured urban development.

Land-use changes show both extensification and intensification. While extensification describes the process where new buildings are filling up on previously open spaces, intensification describes the process where there are shifts in land-use in existing developed areas. Extensification can occur either through urban spread into new areas (new buildings at the outer margins of the city) or through infilling within the already largely built up areas. Intensification can occur either by shifts between residential and economic/commercial land uses or via redevelopment leading to an increase in the average heights/stories of buildings.

The effects of temporary mobility such as home-work travel are analysed through the framework of functional regions based on travel to work areas. The home-work travel pattern helps define urban cores and rings with the understanding that the urban core is a dense nucleus of jobs and attracts work-related commuting from within this zone and from its ring. Home-work travel therefore gives an insight into employment patterns and relations between the core and the ring of an urban area.

Tourism-related mobility includes daily, seasonal and regular tourism activities and is differentiated between the core and the ring. This chapter considers data on the numbers of tourists and overnight stays as well as the peak numbers of day visitors.

2. Materials and Methodology

2.1 Sources and data

This chapter draws mostly on the quantitative analysis of secondary data. Where data are not available, a qualitative evaluation was made based on the literature. Data from multiple sources are used. The most notable is the statistical data provided by the West-Flanders Province online database 'Lokale Statistieke' – Local Statistics (http://aps.vlaanderen.be/lokaal/lokale_statistieken.htm). Tourism data was gathered from publications by the West-Flanders Province Tourism Office (Westtoer). Another source for data was annual reports from individual communes in the study areas during the period 2000 – 2009.

Lokale Statistieke provides the most standardised data for all communes covered by this study. The communes' annual reports were used when specific data are not available elsewhere as they vary substantially in their manner of reporting.

2.2 Methods

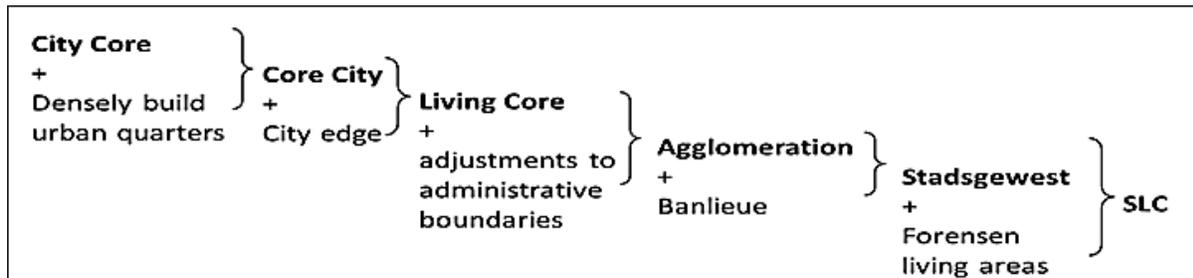
The main method used is quantitative assessment based on secondary data. Maps were produced using ArcGIS with data from various sources. Basic map data (boundaries of statistical units, communes and provinces) come from the 2001Census provided by the Federal Statistical Office.

2.3 Defining the study areas

SECOA aims to study the ways in which human mobility shapes urbanisation in different metropolitan areas in Europe and Asia. This necessitates the definition of a spatial framework for the organization of data collection and analysis. Accordingly, a framework is defined that is comprised of three zones:

- The *metropolitan core* that can be seen as the administrative area of the metropolitan area. The largest numbers of jobs are also generated in this area. Minimum employment numbers are used to decide whether or not to allocate a sub-area to the core.
- The surrounding *outer metropolitan ring* is functionally linked to the core. The boundaries for this ring are defined by journey to work flows in the first part. The ring should be constituted of those areas where at least 15% of the workforce travels from the area to the core. Additional information can come from other functional linkages e.g. transport flows, migration flows.
- Given the nature of this project, a *coastal strip* or *shoreline sub unit* should be defined. This can be statutorily defined, or in terms of a fixed buffer.

Metropolitan areas are usually associated with mega cities that one can find in the United States, India, China, etc. According to Bogart (2006), a typical American twenty-first century metropolitan area has to contain a number of features related to the rate of employment, commuting distance, population density and internal mobility issues. The study areas in the Belgian cases have been defined taking into consideration the above-mentioned characteristics, as well as other methods of demarcation used in Belgium, especially the works of Van der Haegen (et al. 1979; 1996). Based on a national census, the status 'Stadsgewest' [City-region] has been given to regions in Belgium primarily based on employment and commuting data. These regions are made up from several other, cumulative, spatial zones (see for an overview).

Figure 3.1. *Hierarchy of spatial definitions in Belgium**

The centre of a *stadsgewest* is called a 'core city', where most of the administration and governing entities reside. Additionally, a substantial concentration of regional retailing and other services can be found here as well as socio-cultural activities. The outer limits of the *core city* are made up of the *densely build urban quarters*. In a Western-European context, this usually corresponds to the historic inner city and its 19th century expansions. It is a multifunctional area with residential buildings and activities like retail, crafts, schools, hospitals and small-scale industries. Quarters are defined as a part of the *core city* if they reach a score of at least 4/5 for the following criteria:

- Population density at least 50 inhabitants/ha(1 point).
- Number of houses built before 1945 > 30 % (2 points).
- Number of houses smaller than 45 m² > 10 % (1 point).
- Percentage of family houses in regional cities < 85% (1 point)
or Percentage of family houses in big cities < 50 % (1 point).

The *core city* is surrounded by a *city edge*, which is made up from less densely but yet unified, primarily 20th century, buildings. Its main function is residential, but a lot of green spaces remain. The city edge of large cities can contain secondary retail and service centres. These are usually old communes, which have been integrated in the expansion of the city. In this *city edge*, special zones are allocated for industry and traffic.

These limits are visually defined based on aerial photographs. The edge is marked if there are buildings present within 200 meters of the visual edge. This *city edge* also marks the

* Source: adopted from Van der Haegen et al 1979.

end of the *living core* of a *stadsgewest*. To help with data collection, this visual line is adjusted using administrative boundaries. If more than 50% of the inhabitants of a surrounding commune live within the city edge of the *stadsgewest*, then the whole commune is considered part of the *agglomeration*.

Finally, another part functionally linked to the core city is the *banlieue*. It is the outer zone of the city. The population dynamics here are linked to suburbanization fluxes from within the city. Morphologically, the *banlieue* looks rural, but functionally it has an urban character. To be included in the *banlieue* of a *core city*, communes need to correspond to at least 5 of the following criteria:

- The number of inhabitants has grown in the last 20 years.
- The median income of the commune is equal to, or bigger than, the median income of the jurisdiction.
- Migration from the agglomeration as a proportion of total immigration in the commune is at least 40% during the last 10 years.
- OR Emigration to the central city from within the commune accounts for at least 25% of total emigration during the last 10 years.
- At least 25% of the workforce of the commune works in the agglomeration.
- The share of people working in the agglomeration, instead of in the forensen (discussed later), is more than 50%.
- More than 35% of the students of a commune (high school and higher education) follow classes in the agglomeration.
- The share of the built area is more than 20% of the total surface of the commune.
- OR The evolution of the total built upon surface, between 1991 and 2003, was 128% for communes in Wallonia and 130% for Flemish communes.

Stadsgewest is then defined as the *agglomeration* and its corresponding *banlieue*. A *stadsgewest* represents a densification area in the country in terms of population, economic activities and socio-cultural activities. A *stadsgewest* offers considerable job opportunities, for people living both within and beyond its borders. If at least 15% of the active labor force from a commune works in an agglomeration, it is classified as a *forensen* area of that specific *stadsgewest*.

All these *forensen* communes, combined with the *stadsgewest*, are called the '*Stedelijk Leef Complex*'* (SLC). These SLCs are comparable with other spatial frameworks used in European and international research e.g. ESPON and GEMACA II (called *Functional Urban Regions*). They all use three focal points in determining boundaries: a morphological viewpoint, a functional one and population density (Van Hecke et al. 2007).

The first assessment and demarcation of *stadsgewest* was undertaken in 1996 when 15 regions were designated as *stadsgewest*. A revision of that status has been carried out in 2007, using the census of 2001, by Van Hecke (et al. 2007). The result disqualifies one area as a *stadsgewest*, gives the status for a region for the first time, and two new regions are created by dividing an old one. At this point, Belgium has 18 areas that have been given the status *stadsgewest*. Both Belgian case studies in the project SECOA (Oostende and Brugge) are *stadsgewest*.

For the SECOA case studies in Belgium we define the metropolitan **core** as being equal to the *stadsgewest* (*agglomeration + banlieue*). The *forensen* communes of the *stadsgewest* make up the metropolitan **ring**.

The Oostende Study Area (SA) includes the following communes (Van Hecke et al. 2007):

- Agglomeration (Core): Oostende and Bredene.
- Banlieue (Core): Oudenburg.
- Forensen (Ring): Gistel and Middelkerke.

For the Brugge Study Area (SA) these include the following communes (Van Hecke et al. 2007):

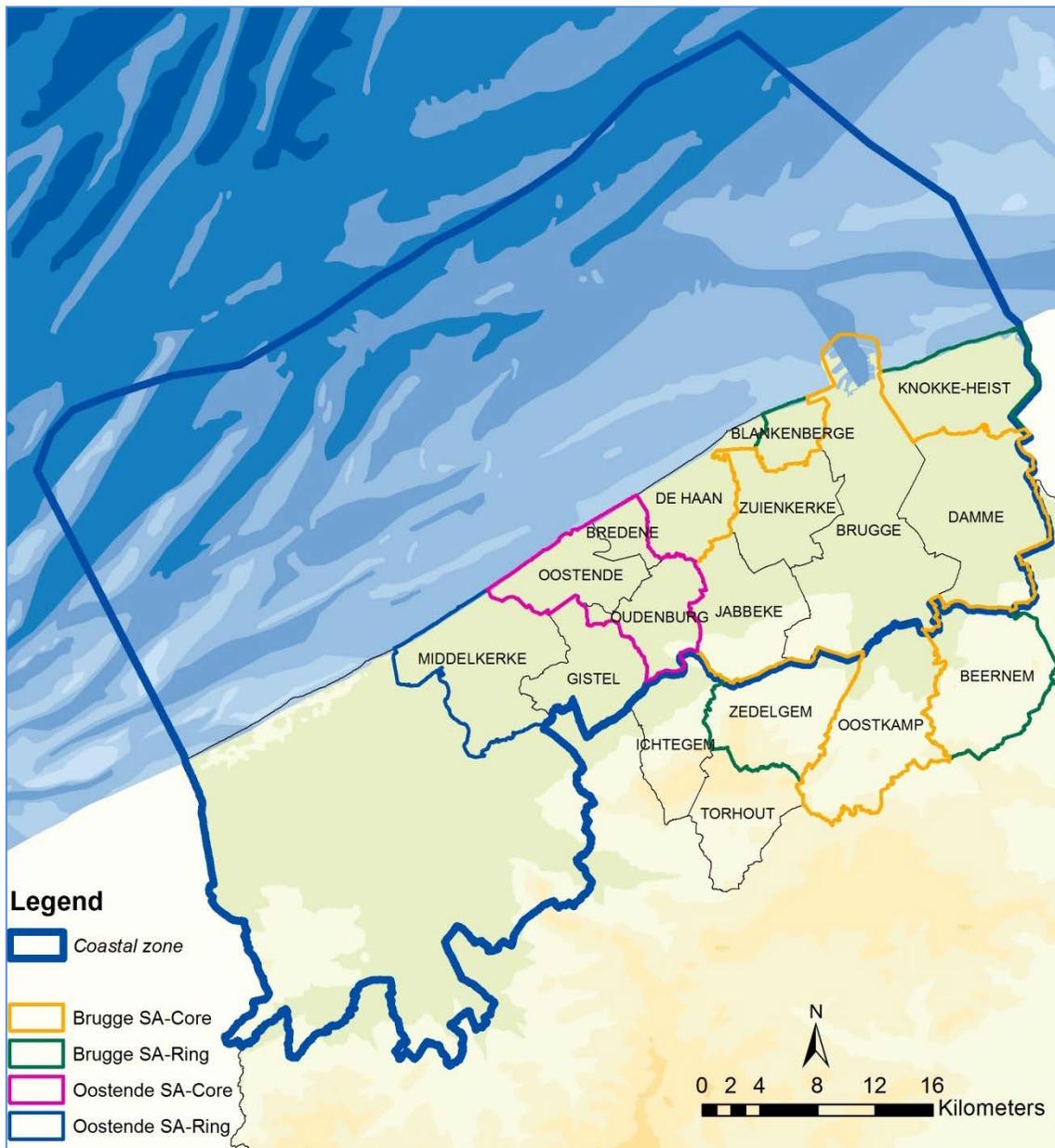
- Agglomeration (Core): Brugge.
- Banlieue (Core): Damme, Jabbeke, Oostkamp and Zuienkerke.
- Forensen (Ring): Beernem, Blankenberge, Knokke-Heist and Zedelgem.

For both case studies, the coastal zone is defined using the statutory coastal zone definition. The whole of the Oostende SA lies within the coastal zone demarcation. Three

* Loosely translated as 'Urban Living Complex'.

communes of the Brugge SA fall outside the coastal zone: Oostkamp, Berneem and Zedelgem (Belpaeme *et al.* 2004).

Figure 3.2. The study areas: Brugge SA and Oostende SA



3. Brugge

3.1 Overview

The first case study in Belgium is Brugge (or Bruges), with a focus on Zeebrugge, a coastal area of the Municipality of Brugge and itself a seaport. Located in the northwest of the country, Brugge is the capital and largest city of the Belgian province of West-Flanders. The historic centre of the city is a UNESCO site, which is located roughly 15 km from the sea and has an area of about 430 ha. The whole city comprises 14 km². In 2009 the city had almost 117,000 inhabitants, with 20,000 residents in the centre. The economic activities of the city are directly linked to its seaport, located in Zeebrugge.

The Brugge study area (SA) comprises the city of Brugge and several of its surrounding communes: Blankenberge, Zuienkerke, Jabbeke, Zedelgem, Oostkamp, Beernem, Damme and Knokke-Heist. This creates a total study area of over 616 km² with a total of over 255,875 inhabitants. The coastline in the study area is roughly 18.5 km long.

In this study area there are numerous sites and important areas, both in terms of the region and the whole of Belgium:

- The centre of Brugge is a UNESCO world heritage. It is an outstanding example of a medieval historic settlement, which has maintained its historic fabric as this has evolved over the centuries, and where original Gothic constructions form part of the town's identity. As one of the commercial and cultural capitals of Europe, Brugge developed cultural links to different parts of the world. It is closely associated with the school of Flemish Primitive painting.
- The historic centre of Damme, the outer port of Brugge developed in the 12th century. Damme historical centre was defended by a star-shaped fortification, which is still visible in aerial pictures.
- The pier of Blankenberge: The pier in Blankenberge is the only pier on the Belgian coast. It was constructed in 1933, and is 350m long.
- The Zwin, a nature reserve with a coastline of 2,3 km, is located across the border between Belgium and Holland, with 125ha being found in Belgium and 33ha in Holland. It is an important RAMSAR site, has unique coastal flora and is a safe haven for a variety of seabirds.

- The port of Zeebrugge: initially, it was a village, dating from the end of the 19th century. At that point there was a small fishing settlement, surrounded by beaches and dunes. Nowadays, Zeebrugge is dwarfed by the enormous manmade harbour, which has been developed there since 1895.

Table 3.1 gives detail on the population by each commune in the study area, divided by age group (West-Vlaanderen, 2008-2010). Population has increased slowly in both the core and the ring of the Brugge SA with the growth in the ring a little higher than in the core – in other words, there is modest relative decentralization. Population growth has been faster during the period 2000-2008 (0.95%) than during the period 1991-1999 (0.86%).

Table 3.1. Population of the Brugge study area at the end of 2008

| Commune | 0-17 y | 18-64 y | 65+ y | Total | Density |
|----------------------------|---------------|----------------|---------------|----------------|----------------|
| Berneem | 2,924 | 9,313 | 2,660 | 14,897 | 208 |
| Blankenberge | 2,675 | 11,183 | 4,789 | 18,647 | 1071 |
| Knokke-Heist | 4,697 | 19,543 | 9,644 | 33,884 | 600 |
| Zedelgem | 4,552 | 13,812 | 3,677 | 22,041 | 365 |
| <i>Sub-total Ring zone</i> | <i>14,848</i> | <i>53,851</i> | <i>20,77</i> | <i>89,469</i> | <i>435</i> |
| | | | | | |
| Brugge | 20,823 | 71,589 | 24,274 | 116,686 | 843 |
| Damme | 2,062 | 6,749 | 2,021 | 10,832 | 121 |
| Jabbeke | 2,876 | 8,543 | 2,335 | 13,754 | 256 |
| Oostkamp | 4,562 | 13,928 | 3,848 | 22,338 | 280 |
| Zuienkerke | 560 | 1,800 | 436 | 2,796 | 57 |
| <i>Sub-total Core zone</i> | <i>30,323</i> | <i>100,809</i> | <i>32,478</i> | <i>163,61</i> | <i>406</i> |
| Brugge SA | 45,171 | 154,66 | 53,248 | 253,079 | 415 |

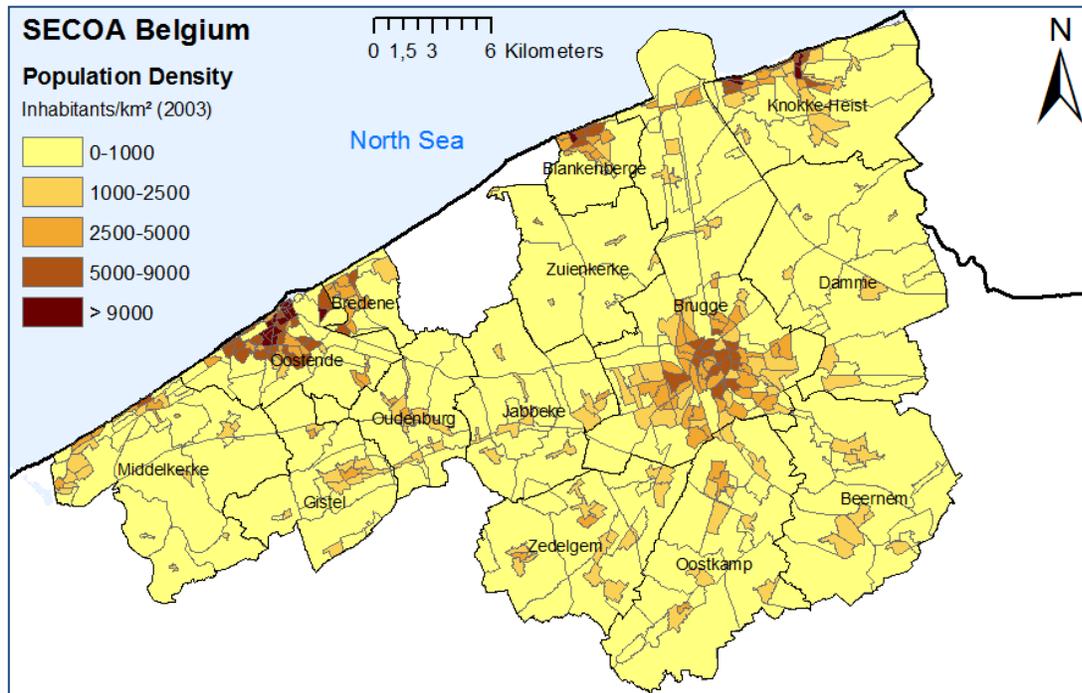
The core area of Brugge SA accommodates two-thirds of the total population of the Study Area. Brugge Municipality (the central core) accounts for 70% of the total population of the core and 45% of the total population of the Study Area.

Table 3.1 shows that the ring has a relatively older population with 23% of its total population being over 65 year-old. Blankenberge and Knokke-Heist have the highest proportions of aged population (26% and 28% respectively). In comparison, 20% of the core population is over 65 year-old, with Brugge having the highest proportion, 21%. In the ring, the proportion of young population (under 17 year-old) is lower than the proportion of older population (over 65) while in the core the situation is reversed.

The average density of the whole study area is 415 persons per square kilometer, with the ring and the core having somewhat similar densities. Brugge Municipality is the most populous area with a density two times higher than the regional average. Brugge Municipality is one of the most populous areas in the Province of West-Flanders (West-Vlaanderen, 2010). Blankenberge (in the ring and directly located by the coastline) is the third most populous commune. Some sections within Brugge have a density of between 5000-9000 people/km². In Blankenberge and Knokke-Heist, there are some sections with densities over 9000 people/km² (Figure 3.3).

In the ring, private household size has decreased steadily from 2.43 in 1992 to 2.2 in 2008. The core has experienced a brief increase in private household size in the period 1992-1993 but subsequently there has been a steady decrease. Nevertheless, private household size in the core is still higher than in the ring. This phenomenon might be linked to the higher proportion of migrants in the core, who disproportionately live in larger household units.

Figure 3.3. Population density in the two Belgian case studies in 2003



Land-use changes in Brugge SA occur slowly. During the period 1997-2007, there were minor reductions in agricultural areas in the ring and minor increases in the core. In both the ring and the core, the area for natural and semi-natural habitats and government offices increased. In contrast, areas for residential, industrial and office uses increased in the ring and decreased in the core. The entire Brugge SA is still dominated by agricultural land (2.2). An explanation on each category of land-uses is given in Annex 1.

Table 3.2. Land-use changes in Brugge SA (data from Lokale Statistieken, 2010)

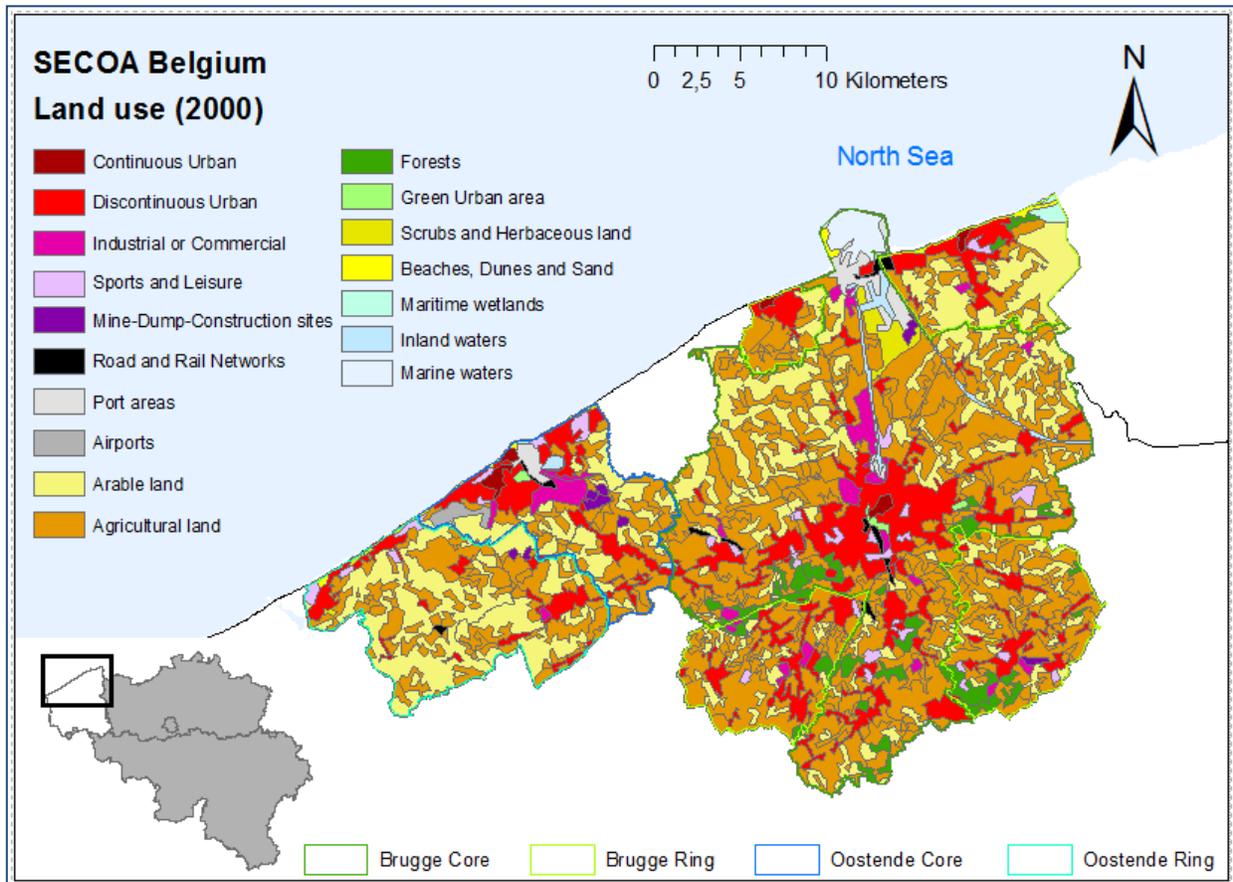
| Land-uses categories | Area (ha) in the Ring | | | Area (ha) in the Core | | |
|---------------------------|-----------------------|-----------|--------------|-----------------------|-----------|--------------|
| | 1997 | 2009 | Change 97-09 | 1997 | 2009 | Change 97-09 |
| Agriculture Area | 14,402.66 | 13,965.84 | -3% | 26,855.35 | 25,999.00 | -3% |
| Natural/Semi-natural Area | 1,494.60 | 1,538.98 | 3% | 2,737.70 | 2,589.83 | -5% |
| Open Space Area | 1,838.48 | 1,824.39 | -1% | 5,830.90 | 6,012.10 | 3% |
| Residential area | 2,072.16 | 2,367.59 | 14% | 3,804.85 | 4,358.22 | 15% |
| Industrial Area | 401.88 | 510.49 | 27% | 887.58 | 1,124.72 | 27% |
| Commercial Area | 118.53 | 114.20 | -4% | 256.20 | 269.30 | 5% |
| Office Area | 247.16 | 253.12 | 2% | 487.04 | 514.36 | 6% |
| Government Area | 11.13 | 11.99 | 8% | 159.94 | 152.01 | -5% |

The process of extensification can be observed in Brugge SA as follows:

- Urban spread (extension at the outer edge): the expansion of residential and industrial areas occurs both in the ring and the core at broadly similar rates (at the rate of 14% and 27% respectively).
- Infilling (filling-up open space in already build-up areas) processes also occurred in both the ring and the core, though at a very slow pace. Open spaces and commercial areas (areas for shops, kiosks, etc.) were reduced in the ring and increased in the core.

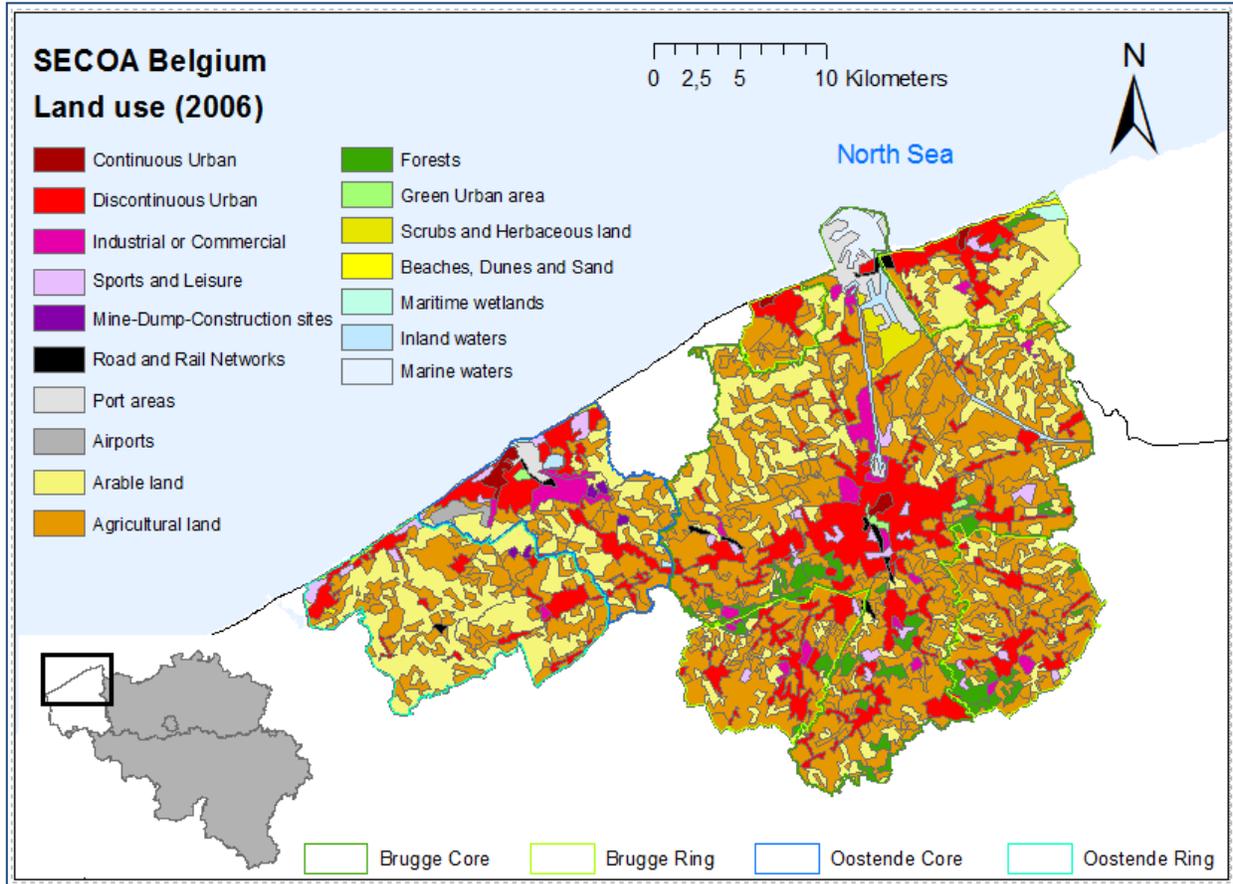
The process of extensification has occurred slowly in Brugge SA during the last decade. This could be due to the fact that urbanisation has passed its fast transition period in the SA and the region has entered into the stabilised period where both extension and infilling occur at a very low pace.

Figure 3.4. Land uses according to CORINE 2000, level 2 categorisation*



* Source: EEA (2010).

Figure 3.5. Land uses according to CORINE 2006, level 2 categorisation*



Intensification processes are also evident although these are very slow moving, and are evident through:

- Shifting land-use: in the ring, the agricultural area is being reduced, giving space for residential and industrial areas. In contrast, agricultural space has increased in the core.
- Redevelopment (increase intensity through high-rise buildings): there is no evidence of redevelopment processes, leading to intensification, in Brugge SA.

* Source: EEA (2010).

3.2 Migration

3.2.1 In-migration

Table 3.3 shows the data on in-migration for each commune within the Brugge SA and the core and ring of the study area. Brugge Municipality is the commune with the highest in-migration flux during the period 1997-2007, accounting for 80% of the total in-migrants in the core. Within the core, Zuienkerke has the fastest growth in in-migration. In the ring, Knokke-Heist is the most popular destination for in-migrants, followed by Blankenberge. However, in relative term, Blankenberge has the highest proportion of in-migrants as a proportion of the total population.

Around two third of the people moving in the Brugge SA go to the core. However, the figures show that growth due to in-migration is becoming slower in the core compared to the ring. It increased 11.85% in the core compared to 16.08% in the ring, 1997-2007, even though the former remains the main focus in absolute terms.

Table 3.3. In-migration data for Brugge SA (Lokale Statistieke, 2010)

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| Beernem | 475 | 542 | 537 | 509 | 536 | 577 | 527 | 596 | 647 | 684 | 720 |
| Blankenberge | 1025 | 1015 | 1032 | 1119 | 1214 | 1211 | 1277 | 1169 | 1176 | 1189 | 1198 |
| Zedelgem | 826 | 844 | 772 | 789 | 791 | 812 | 802 | 776 | 862 | 1013 | 979 |
| Knokke-Heist | 1598 | 1622 | 1586 | 1640 | 1612 | 1522 | 1744 | 1719 | 1813 | 1749 | 1658 |
| Brugge | 4310 | 4433 | 4524 | 4308 | 4452 | 4461 | 4601 | 4738 | 4616 | 4717 | 4841 |
| Damme | 469 | 552 | 440 | 441 | 450 | 458 | 354 | 449 | 490 | 465 | 497 |
| Jabbeke | 598 | 526 | 625 | 533 | 537 | 499 | 547 | 582 | 507 | 660 | 677 |
| Oostkamp | 899 | 855 | 917 | 778 | 848 | 879 | 900 | 1029 | 1039 | 1050 | 1045 |
| Zuienkerke | 176 | 148 | 160 | 181 | 157 | 140 | 133 | 184 | 157 | 155 | 157 |
| | | | | | | | | | | | |
| CORE | 6452 | 6514 | 6666 | 6241 | 6444 | 6437 | 6535 | 6982 | 6809 | 7047 | 7217 |
| RING | 3924 | 4023 | 3927 | 4057 | 4153 | 4122 | 4350 | 4260 | 4498 | 4635 | 4555 |

3.2.2 Out-migration

Table 3.4 shows that out-migration in Brugge SA is as fast as in-migration, and sometimes has out-paced it. Most of the people moving out of Brugge SA are from Brugge Municipality. In the ring, Knokke-Hesit and Blankenberge also have high rates of out-migration. Out-migration seems to mirror in-migration in most communes, with Zuienkerke and Blankenberge experiencing the fastest out-migration in the ring.

Table 3.4. *Out-migration data for Brugge SA**

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| Beernem | 417 | 536 | 499 | 480 | 538 | 581 | 527 | 601 | 562 | 630 | 624 |
| Blankenberge | 974 | 911 | 924 | 911 | 887 | 923 | 963 | 993 | 1030 | 950 | 998 |
| Zedelgem | 810 | 814 | 783 | 836 | 895 | 829 | 920 | 940 | 879 | 980 | 946 |
| Knokke-Heist | 1385 | 1404 | 1310 | 1355 | 1333 | 1274 | 1325 | 1489 | 1450 | 1505 | 1576 |
| Brugge | 4331 | 3977 | 4151 | 3913 | 4098 | 4359 | 4250 | 4463 | 4665 | 4899 | 4791 |
| Damme | 491 | 427 | 419 | 422 | 488 | 505 | 431 | 505 | 470 | 516 | 474 |
| Jabbeke | 491 | 578 | 581 | 515 | 530 | 581 | 537 | 603 | 600 | 617 | 631 |
| Oostkamp | 888 | 900 | 911 | 876 | 812 | 822 | 857 | 896 | 854 | 948 | 963 |
| Zuienkerke | 165 | 163 | 143 | 181 | 184 | 157 | 160 | 182 | 148 | 199 | 151 |
| | | | | | | | | | | | |
| CORE | 6366 | 6045 | 6205 | 5907 | 6112 | 6424 | 6235 | 6649 | 6737 | 7179 | 7010 |
| RING | 3586 | 3665 | 3516 | 3582 | 3653 | 3607 | 3735 | 4023 | 3921 | 4065 | 4144 |

3.2.3 Internal migration

Internal migration shows the movement within the country. Internal migration data for the communes in the Brugge SA show a diverse picture. In the Brugge Municipality, a generally high in-migration figure was seen between 1997 and 2002 when there was always a positive influx of internal migrant (from other communes in Belgium). There was a dip in 2002 when there was a small negative influx but internally this picked up during the period 2003-2005. During the period 2005-2007, there was a steady negative influx of internal migrants to Brugge,

* Source: Lokale Statistieke (2010).

indicating that less people from other Belgian communes came to settle in Brugge compared to the number of people who moved out of Brugge. During the same period 1997-2007, there was a positive influx into most of the communes surrounding Brugge. Blankenberge and Knokke-Heist were two communes with positive high influxes throughout, both in term of absolute numbers and in term of the proportion of migrants in relation to the population. Oostkamp is the third commune, which has experienced an increasing trend in in-migration internally. For other communes, internal migration was variable.

In relative term, Zuienkerke saw the largest movement of population to other Belgian communes, mostly because it has a very small population.

Table 3.5. Internal migration data for Brugge SA (Lokale Statistieke, 2010)

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--------------|------------|------|------|------|------|------|------|------|------|------|-------------|
| Beernem | 50 | 6 | 34 | 41 | 4 | -31 | -17 | -2 | 66 | 39 | 67 |
| Blankenberge | 129 | 96 | 170 | 247 | 381 | 301 | 264 | 209 | 129 | 203 | 163 |
| Zedelgem | 29 | 38 | -10 | -40 | -107 | -47 | -134 | -163 | -46 | 20 | 13 |
| Knokke-Heist | 184 | 181 | 213 | 271 | 242 | 204 | 351 | 184 | 276 | 202 | 16 |
| Brugge | -36 | 282 | 204 | 190 | 176 | -57 | 273 | 111 | -323 | -328 | -310 |
| Damme | -12 | 120 | 31 | 9 | -31 | -41 | -78 | -75 | 9 | -41 | 23 |
| Jabbeke | 113 | -51 | 36 | 36 | 9 | -94 | -18 | -30 | -100 | 22 | 18 |
| Oostkamp | 10 | -61 | 17 | -95 | 3 | 56 | 23 | 132 | 163 | 87 | 78 |
| Torhout | 25 | 49 | 27 | -64 | -4 | 99 | 101 | 155 | 185 | 43 | 138 |
| Zuienkerke | 6 | -17 | 15 | 10 | -29 | -16 | -20 | 10 | 14 | -41 | 0 |
| | | | | | | | | | | | |
| Core | 106 | 322 | 330 | 86 | 124 | -53 | 281 | 303 | -52 | -258 | -53 |
| Ring | 392 | 321 | 407 | 519 | 520 | 427 | 464 | 228 | 425 | 464 | 259 |

In 2000, most of the residential relocations within the Brugge SA occurred within the core. Migration from ring to core or from core to ring is very limited in absolute terms in comparison to migration between the communes within the core. In 2000, core mobility was 59.35% of the total mobility while it was 27.05% in ring mobility. Movement from ring to core is similar to the rate from core to ring.

| Year 2000 | From \ To | Core | Ring | Total |
|-----------|-----------|-------|------|-------|
| Brugge SA | Core | 10121 | 1077 | 11198 |
| | Ring | 1242 | 4612 | 5854 |
| | Outside | 2432 | 2383 | |

3.2.4 External migration

External migration shows the movement amongst different countries, i.e. number of people moving in and out of Belgium, also referred to as international migration. Brugge Municipality within the case study area is the most popular destination for foreign migrants.

Table 3.6. *External migration data for Brugge SA**

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| Beernem | 8 | 0 | 4 | -12 | -6 | 27 | 17 | -3 | 19 | 15 | 29 |
| Blankenberge | -78 | 8 | -62 | -39 | -54 | -13 | 50 | -33 | 17 | 36 | 37 |
| Zedelgem | -13 | -8 | -1 | -7 | 3 | 30 | 16 | -1 | 29 | 13 | 20 |
| Knokke-Heist | 29 | 37 | 63 | 14 | 37 | 44 | 68 | 46 | 87 | 42 | 66 |
| Brugge | 15 | 174 | 169 | 205 | 178 | 159 | 78 | 164 | 274 | 146 | 360 |
| Damme | -10 | 5 | -10 | 10 | -7 | -6 | 1 | 19 | 11 | -10 | 0 |
| Jabbeke | -6 | -1 | 8 | -18 | -2 | 12 | 28 | 9 | 7 | 21 | 28 |
| Oostkamp | 1 | 16 | -11 | -3 | 33 | 1 | 20 | 1 | 22 | 15 | 4 |
| Zuienkerke | 5 | 2 | 2 | -10 | 2 | -1 | -7 | -8 | -5 | -3 | 6 |
| | | | | | | | | | | | |
| Core | 5 | 196 | 158 | 184 | 204 | 165 | 120 | 185 | 309 | 169 | 398 |
| Ring | -54 | 37 | 4 | -44 | -20 | 88 | 151 | 9 | 152 | 106 | 152 |

During the period 1997-2002, many communes saw a negative figure for external migration, which signifies that the number of people moving in from abroad was lower than the number moving out to foreign destinations. Brugge and Knokke-Hesit are the two communes with the strongest positive trends throughout the period 1997-2007, with more people coming in than went out.

* Source: Lokale Statistieke (2010).

Figure 3.6a. Net migration for the Belgian case studies in 2000

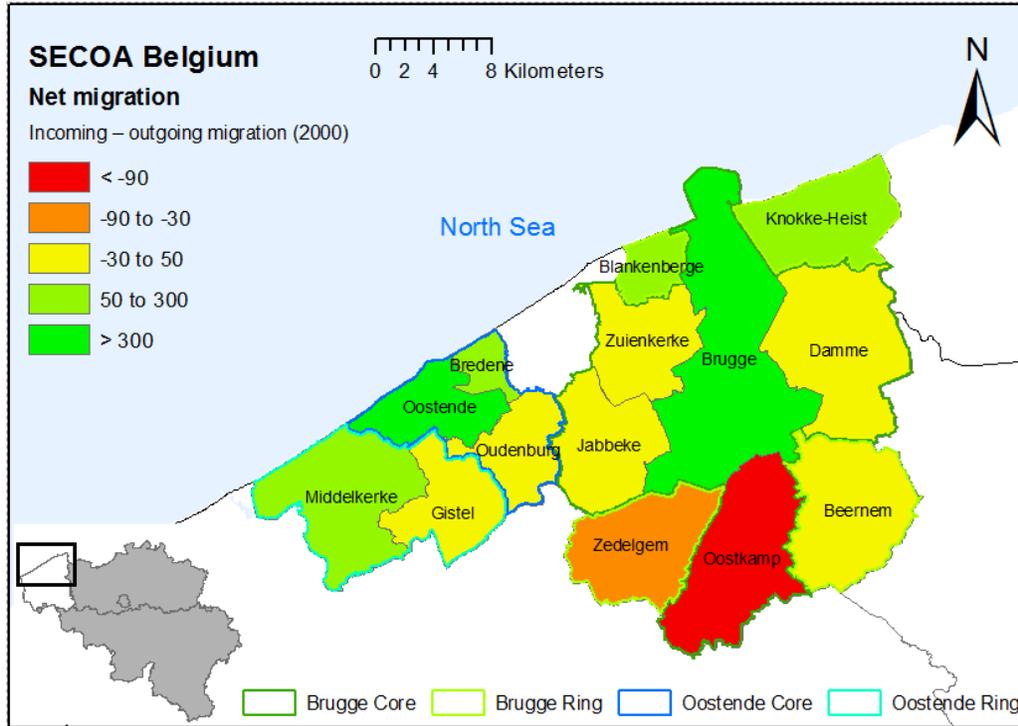
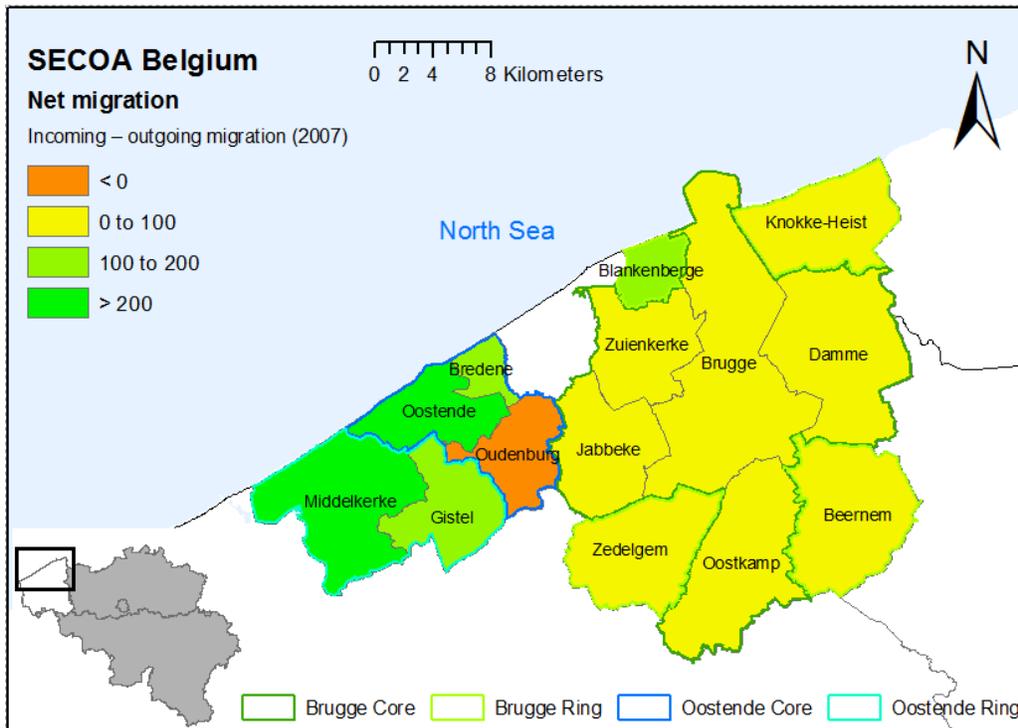


Figure 3.6b. Net migration for the Belgian case studies in 2007



3.2.5 Temporary residents

Temporary residents are those who come to reside temporary or intermittently, such as students and second-home owners.

Students are an important element in the temporary population of the case study area. The Katholieke Hogeschool Brugge – Oostende (KHBO or Catholic University College of Bruges–Ostend) is a college, which provides professional training at the Bachelor and Master levels on a wide range of topics. It is the product of a merger of 5 former independent colleges of higher education in Bruges and Ostend with approximately 3800 students and approximately 400 members of staff (330 FTE). It has a campus in Brugge and a Campus in Oostende. The Brugge campus was put into operation in the academic year 2008-2009 with approximately 280 personnel and around 2900 students. However, there is no data available on the residency of the students.

In 2007, the coastal communes of Brugge SA and Oostende SA had total of 82,700 second-homes (Gunst *et al.* 2008). Coastal communes within Brugge SA are the most popular destinations for second-home owners, with Knokke-Heist leading the list with some 18,200 second-homes. Blankenberge has roughly 6,600 units and Zeebrugge has around 830 units (Gunst *et al.* 2008).

The coastal communes of the Oostende SA are also a popular destination, with Middelkerke being first ranked with more than 14,000 units, followed by Oostende with around 6,600 units. Bredene also has around 1000 second homes units (Gunst *et al.* 2008).

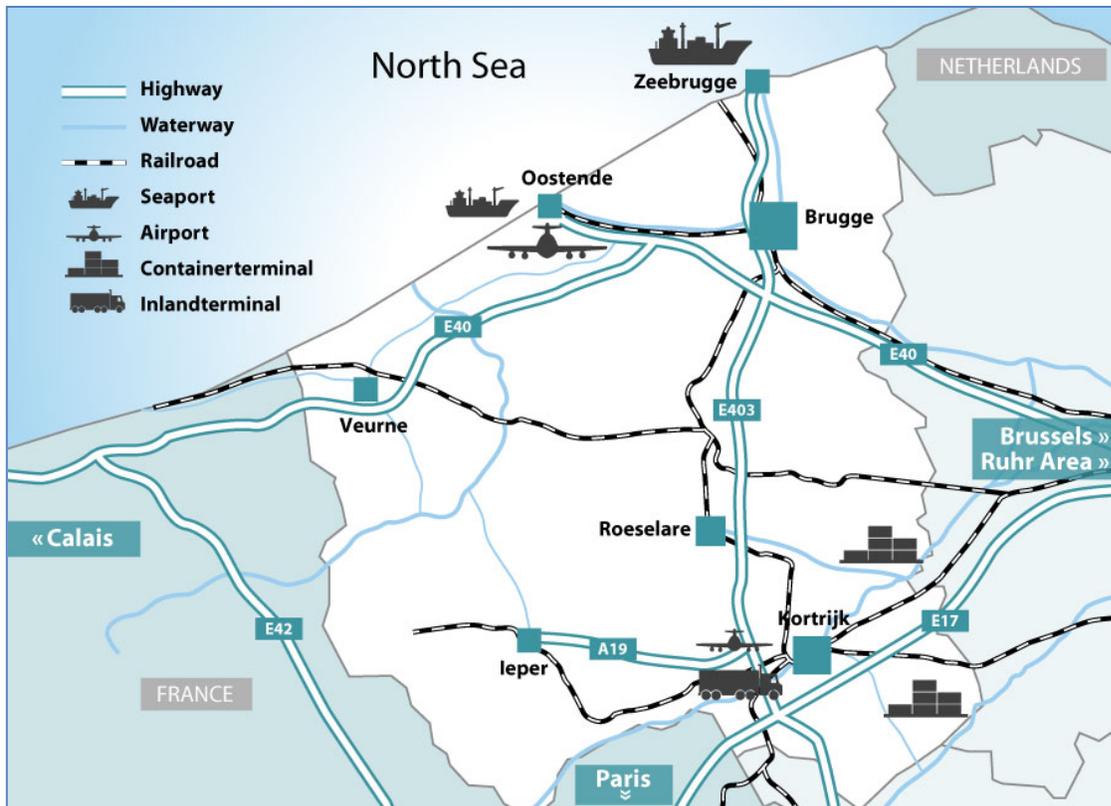
Between 1989 and 2007, the total number of second-homes in the coastal communes (both in Brugge SA and Oostende SA) has increased by more than 25,000 units or 43%, representing an annual increase of approximately 2% (Gunst *et al.* 2008). Most of the second homes are at the sea front, right onto the beaches.

Approximately 60% of the second homes are used by the owners (46%) or made free for his/her acquaintances (14%) for tourism/recreation purposes. Around 40% of the second homes are used as tourism lodging facilities (rented accommodation) (WES 2008).

3.3 Mobility

West Flanders province has a very good multi-modal transport network (Figure 3.7), constituted of road, rail, water and air-ways. The two study areas have similar transport network features: each has an important seaport and connections to the main rail and road networks of West-Flanders Province. As Belgium is a relatively small state, with relatively open borders, international connections are especially important, as are transport links within the country and the individual metropolitan areas.

Figure 3.7. Major features of West-Flanders transport network*



* Source: <http://www.investinwestflanders.org/>

3.3.1 Road connections

Brugge SA is connected to Ghent and Brussels via the A17/E40 motorway. Brugge is also connected to Oostende via three major highways, the A10, N3 and N9. Within the Brugge SA, the secondary roads, the N3 and N9, connect Brugge Municipality and its neighbouring communes. An extension of the E40 (E403) continues to Zeebrugge (E403), providing a fast connection between Zeebrugge – Blankenberge with Oostende and with Ghent/Brussels. Brugge historic centre is circled by the ring road R30/N9. With relatively few natural obstructions to transport routes, and relatively high population densities, there are well-developed road transport links within both metropolitan regions.

Table 3.7 gives an overview of road use intensity in the Brugge SA. Road use intensity has increased slightly between 2000 and 2005, with the highest increase being on the highways. Provincial roads in the region are used intensively, mostly because most people work within the region, as well as the usual access to urban services. Only a relatively small proportion of working people have jobs in other larger cities such as Ghent, Antwerp and Brussels.

The intensity of road use, represented by the number of km-travelled per kilometre of road per annum, is higher in the ring for highways and provincial roads than in the core, partly reflecting differences in the provision of public transport as well as the distribution of employment and services.

Table 3.7. Road use intensity (per km per annum)*

| Communes | 2000 | | | 2005 | | |
|-------------------|-------------------|----------------|----------------------|-------------------|----------------|----------------------|
| | Highway | Communal roads | Provincial roads | Highway | Communal roads | Provincial roads |
| Beernem | 27,051,888 | 125,151 | 2,051,230,110 | 29,654,797 | 138,278 | 2,148,478,398 |
| Blankenberge | | 230,324 | 4,681,263,377 | | 338,123 | 5,116,286,805 |
| Knokke-Heist | | 286,442 | 4,920,532,862 | | 335,634 | 4,888,006,351 |
| Zedelgem | 14,264,984 | 225,942 | 3,306,502,550 | 16,731,861 | 282,716 | 3,148,232,834 |
| Total RING | 20,658,436 | 216,965 | 3,739,882,225 | 23,193,329 | 273,688 | 3,825,251,097 |
| Brugge | 23,111,606 | 741,269 | 4,604,015,988 | 26,275,166 | 486,458 | 4,765,743,461 |
| Damme | | 179,489 | 4,717,893,669 | | 226,111 | 4,726,051,995 |
| Jabbeke | 15,891,252 | 149,013 | 2,044,665,342 | 17,517,970 | 204,100 | 2,483,401,372 |
| Oostkamp | 18,715,649 | 181,220 | 2,566,556,987 | 19,869,005 | 189,082 | 2,556,484,651 |
| Zuienkerke | | 89,055 | 2,578,060,884 | | 180,923 | 2,646,583,210 |
| Total CORE | 19,239,502 | 268,009 | 3,302,238,574 | 21,220,714 | 257,335 | 3,435,652,938 |

* Source: Lokale Statistieke (2010).

3.3.2 Rail connections

Brugge SA can be reached via train and coastal tram networks. The station is located at the southern border of the historic centre. There are two direct trains every hour between 6am till midnight connecting Brussels and Brugge, and the former is an important international railway hub. During the summer, additional services are in operation, with more trains coming to Brugge in the morning and back to Brussels in the afternoon, reflecting tourism flows.

3.3.3 Air travel

Brugge SA does not have a separate airport. Instead, air-passengers use the airport in Oostende, which is in fact called Oostende-Brugge Airport (see the Oostende case study for more information). There is also relatively easy access to Brussels airport, which is a major international hub.

3.3.4 Waterways

Brugge SA, as well as Oostende SA, is located within the Province of West-Flanders. There are 275.5 km of navigable waterways in the province, and many sections lie within the two SAs. The Oostende-Brugge-Ghent canal provides an important inland waterway connection to the Belgian and European network of waterways.

Brugge SA is connected to the sea through the Port of Zeebrugge, which is both a deep-sea container port as well as a passenger port, with connections to the UK and many short-sea connections to other different parts of Europe, such as Scandinavia, the Baltic region and the Southern European region. During the last 5 years, the Port of Zeebrugge has had a steady growth rate, with only one minor dip in 2007 (Table 3.8). During the economic crisis 2008-2009, the Port of Zeebrugge managed to maintain its growth, despite the decline observed in other ports in Flanders.

Table 3.8. Cargo and passengers evolution at the Port of Zeebrugge (West-Vlaanderen, 2008-2010)

| Categories | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|
| Goods (in 1000 ton) | | | | | | | |
| - General cargo | 7,191.7 | 6,684.8 | 7,209.8 | 9,242.9 | 8,754.4 | 9,007.3 | 10,457.7 |
| - Roro | 11,107.0 | 11,097.5 | 11,776.6 | 12,244.2 | 12,999.8 | 11,814.2 | 9,514.5 |
| - Containers | 12,271.3 | 14,012.2 | 15,604.3 | 17,985.7 | 20,323.0 | 21,203.0 | 24,894.6 |
| Total tonnage | 30,570.0 | 31,794.4 | 34,590.6 | 39,472.8 | 42,077.2 | 42,024.4 | 44,866.8 |
| Vehicles transport (in 1000 units) | | | | | | | |
| - Tourist vehicles | 102.41 | 103.19 | 106.98 | 89.59 | 88.51 | 78.96 | 64.56 |
| - Roro - trucks | 881.65 | 894.70 | 940.99 | 968.36 | 1,020.23 | 927.47 | 818.66 |
| - New vehicles | 1,577.62 | 1,710.49 | 1,734.71 | 1,933.91 | 2,208.91 | 2,126.14 | 1,286.12 |
| Total vehicles | 2,561.68 | 2,708.38 | 2,782.68 | 2,991.86 | 3,317.65 | 3,132.57 | 2,169.34 |
| Total containers (million TEU) (a) | 1.01 | 1.20 | 1.41 | 1.65 | 2.02 | 2.21 | 2.33 |
| Total passengers | 674,153 | 649,844 | 702,486 | 654,329 | 650,442 | 560,526 | 561,661 |
| (a) TEU=Twenty Foot Equivalent Unit. | | | | | | | |

3.3.5 Public transport

In the city, the public transport system is managed by De Lijn, which provides both bus and tram services. There are 22 bus lines (amongst these, five lines connect the city to the neighbouring towns). For longer distances, 14 tram lines connect Brugge municipality to its surrounding communes as well as the communes of the Oostende Arrondissement.

3.4 Temporary mobility

3.4.1 Home-work travel

Home-work travel is a particularly important element in the definition of Functional Urban Region. According to a survey in 2008 by the FOD Mobiliteit en Vervoer (Table 3.9), Brugge Municipality attracts workers from all the surrounding communes. The core zone of the Brugge SA constituted a labour market of 72,270 jobs in 2007, or 76% of the total job market in the Brugge SA (Lokale Statistieken 2010). Brugge Municipality single-handedly provides 85% of the total jobs in the core zone, mostly in the tertiary sector (commercial and services) and quaternary sector (information, education). The other jobs are distributed across the other communes in the core. More than 60% of the workers who live in Brugge Municipality work in the municipality. People from the Brugge SA also travel to work in the Oostende SA.

Table 3.9. *Home-work travel survey results: Brugge**

| FROM\TO | Brugge | Damme | Jabbeke | Oostkamp | Zuienkerke | Beernem | Blanken-berge | Knokke-Heist | Zedelgem |
|--------------|---------------|---------------|--------------|---------------|------------|---------|---------------|--------------|----------|
| Brugge | 61.00% | 1.00% | 1.70% | 2.00% | 0% | 1.00% | 0.90% | 2.90% | 1.70% |
| Damme | 36.10% | 18.00% | 1.70% | 2.50% | 0% | 2.50% | | 8.20% | 1.60% |
| Jabbeke | 32.10% | | 1.70% | 2.40% | 0% | | | 1.30% | 5.40% |
| Oostkamp | 31.80% | 0.70% | | 20.40% | 0% | 3.10% | | | 5.10% |
| Zuienkerke | 40.20% | | | 1.80% | 0% | | 5.00% | 5.60% | 2.70% |
| Beernem | 26.10% | 2.00% | | 5.00% | 0% | 24.60% | | 1.00% | 1.50% |
| Blankenberge | 26.70% | | | 1.30% | 0% | | 35.20% | 6.70% | 1.10% |
| Knokke-Heist | 17.40% | 0.70% | | 4.00% | 0% | | 1.30% | 48.70% | 6.00% |
| Zedelgem | 27.00% | | 2.00% | 4.40% | 0% | 1.00% | | | 23.80% |

* Source: FOD Mobiliteit and Vervoer (2008).

Table 3.10 shows the total number of movements for employment purposes for the Brugge SA, with the break-down between the core and the ring areas, for the average working day. The data comes from the home-work survey carried out in 2008 by the FOD Mobiliteit en Vervoer (Flemish Agency for Mobility and Transport). The data shows that three-fifth of the total journeys are within the core. One-fifth are generated within the ring and the rest are between the core and the ring. Movements from the ring to the core are two times greater than the movements from the core to the ring. This corresponds with the employment data whereby most of the employment is generated in the core, and most of the workers also live in the core (see Table 3.9). These data emphasize that, as is usual with metropolitan regions, employment remains far more centralized than the population.

Table 3.10. Average working-day home-work movement in Brugge SA, in 2008 (unit: number of journeys)

| FROM\TO | Ring | Core |
|---------|-----------------|-----------------|
| Ring | 30,429 (19.64%) | 21,726 (14.02%) |
| Core | 11,027 (7.12%) | 91,779 (59.23%) |

Private vehicles still account for a very large proportion of transport flows, with more than 60% of the working population of all communes, except Oostende Municipality and Blankenberge, using private car as the main mode of transport to work (Table 3.11). Brugge Municipality has the lowest proportion of workers using cars, mostly because most of the people working in Brugge also live in Brugge. Instead, cycling is relatively more popular in Brugge Municipality than in the other communes, accounting for 28% of the mode shared. The train is the third most popular mode of transport, but the use of trains is well below the 10% mark. Public transport in the Brugge SA takes up a small proportion of home-work travel.

Table 3.11. Share of transport modes in home-work travel, Brugge*

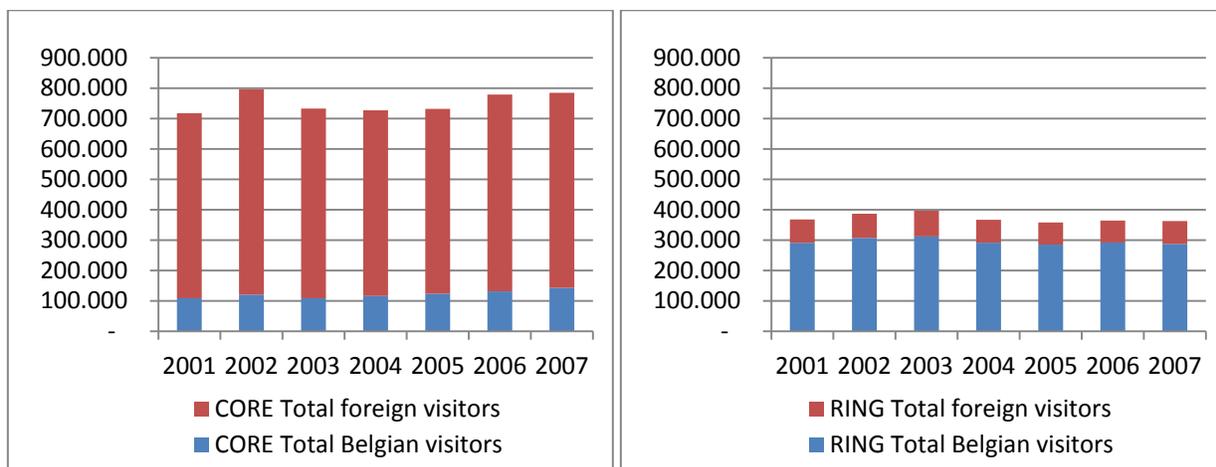
| Commune | Car | Carsharing | Train | Bus/Tram/ Metro | Private bus | Bike | Motor bike | Walking |
|-------------------------|--------------|-------------|-------------|--------------------|----------------|--------------|---------------|-------------|
| Beernem | 74.39 | 2.98 | 9.99 | 1.32 | 1.06 | 8.4 | 1.65 | 0.22 |
| Blankenberge | 54.23 | 3.3 | 8.47 | 1.23 | 0.4 | 24.42 | 0.36 | 7.59 |
| Knokke-Heist | 61.34 | 3.41 | 8.58 | 2.42 | 0.28 | 15.72 | 4.59 | 3.66 |
| Zedelgem | 78.11 | 2.75 | 6.77 | 2.52 | 1.26 | 6.74 | 1.13 | 0.72 |
| Average RING | 67.02 | 3.11 | 8.45 | 1.87 | 0.75 | 13.82 | 1.93 | 3.05 |
| Brugge | 53.58 | 1.99 | 8.33 | 2.58 | 0.44 | 28.09 | 3.57 | 1.41 |
| Damme | 70.41 | 2.71 | 7.42 | 1.52 | 0.43 | 14.3 | 1.93 | 1.27 |
| Jabbeke | 77.37 | 2.21 | 7.22 | 0.95 | 0.84 | 8.91 | 1.44 | 1.05 |
| Oostkamp | 69.07 | 3.04 | 8.92 | 0.97 | 0.98 | 14.7 | 1.7 | 0.62 |
| Zuienkerke | 75.52 | 1.78 | 7.53 | 2.61 | 0.74 | 9.08 | 2.52 | 0.2 |
| Average CORE | 69.19 | 2.35 | 7.88 | 1.73 | 0.69 | 15.02 | 2.23 | 0.91 |

* Source: FOD Mobiliteit end Vervoer (2008).

3.4.2 Tourism

Brugge city is considered one of the most attractive historic-cultural cities in Europe. In 2007, Brugge SA attracted a total of approximately 1,150,000 visitors, and 69% of these had visited the core area (mainly Brugge Municipality). There is an exceptionally high proportion of foreigners – 62.5% of the total, of these, 90% visited the core. 67% of Belgian visitors were more likely to visit the ring area, mainly Blankenberge (over 40%) and Knokke-Heist (over 20%). The pressures generated by tourism, particularly in context of the historic urban structures of Brugge, represent major challenges.

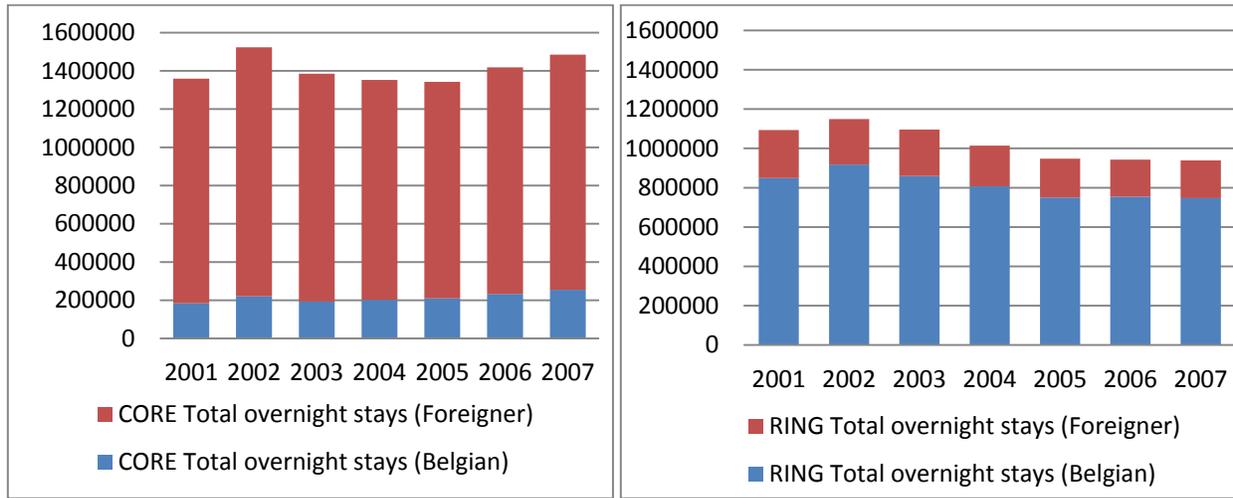
Figure 3.8. Evolution of visitors to the Brugge SA*



Overnights stays in Brugge SA are dominated by stays in the core area (over 60% of the total). The core and the ring attract different groups of tourists. While the core (with the dominance of Brugge Municipality) attracts mostly foreign tourists, Belgian tourists tend to opt for the ring locations.

* Source: data from Lokale Statistieken (2010).

Figure 3.9. Number of overnight stays in the core and the ring of Brugge SA*



A large number of visitors come to Brugge for business purposes, especially in recent years as Brugge is strongly promoted as a congress centre. In 2009, Brugge hosted 165 registered events, including 12 major conferences (with more than 200 participants). In total, 15,000 people visited Brugge in 2009 for meetings / conferences. Visitors to Brugge come year round, with the lowest number in January and highest in August: there is some seasonality, but it is relatively modest compared to the seasonality that is experienced, for example, by coastal resorts in Northern Europe.

* Source: Lokale Statistieken (2010).

Table 3.12 shows the number of visitors per month for the period 2005-9. In total, Brugge alone hosts around 1.4 million visitors annually.

Table 3.12. Number of overnight stays, 2005-2009, Brugge

| | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 |
|-----------------------------|-----------|-----------|-----------|-----------|
| November | 80,922 | 84,937 | 92,254 | 102,079 |
| December | 104,846 | 112,073 | 113,711 | 121,432 |
| January | 47,867 | 53,852 | 55,913 | 57,384 |
| February | 73,978 | 74,993 | 83,903 | 75,435 |
| March | 84,843 | 96,567 | 105,403 | 87,240 |
| April | 130,561 | 136,815 | 125,819 | 140,608 |
| May | 132,345 | 135,574 | 147,106 | 138,498 |
| June | 116,790 | 113,702 | 126,925 | 114,930 |
| July | 143,447 | 147,199 | 166,583 | 159,583 |
| August | 155,939 | 164,553 | 179,853 | 172,062 |
| September | 126,813 | 129,530 | 125,566 | 125,155 |
| October | 123,742 | 121,873 | 127,825 | 132,101 |
| Total year | 1,322,093 | 1,371,668 | 1,450,861 | 1,426,507 |
| Total winter (Nov-March) | 392,456 | 422,422 | 451,184 | 443,570 |

During the 5 years between 2005-2009, the number of lodging establishments remained stable in the central core (the Brugge Municipality).

*Table 3.13. Number of lodging establishments in the Brugge Municipality**

| Type of lodging | 2006 | 2007 | 2008 | 2009 |
|----------------------------|-------|-------|-------|-------|
| Number of hotels | 109 | 111 | 111 | 113 |
| Number of hotel rooms | 3,112 | 3,171 | 3,264 | 3,497 |
| Number of hotel beds | 6,998 | 7,118 | 7,180 | 7,693 |
| Number of guesthouses | 143 | 157 | 168 | 168 |
| Number of guesthouse rooms | 301 | 337 | 362 | 363 |

While Brugge municipality is one of the best known tourism destinations internationally, there are also significant flows from within the metropolitan area, as well as from elsewhere, to the coast. Brugge SA, Knokke-Heist, Blankenberge and Zeebrugge are the three coastal communes that are in the “most-popular” list for day-tourists. Knokke-Heist is in second place, right behind Oostende, with 3.2 million day visitors in 2009. Blankenberge is in fourth place with 1.9 million day visitors and Zeebrugge also attracted 0.2 million the same year.

During the summer, extended train services are operated with a larger train capacity. In June-August, there are eight more direct trains from Brussels to Brugge, which then continue on extended routes to Oostende and vice versa, during the weekends, as well as five more services during weekdays.

In the Brugge SA, Brugge Municipality is the principal cultural centre. Table 3.14 provides data on attendances at various cultural activities in the Brugge Municipality during the period 2003-2009. Although there are some fluctuations, numbers are generally increasing strongly providing evidence that the night time economy, as well as daily commuting, add significantly to the temporary population in the core of the metropolitan region.

* Source: Annual report of Brugge Municipality (2009).

*Table 3.14. Attendance at cultural activities, Brugge**

| Categories | Unit | 2003 | 2006 | 2009 |
|--|------------------------------|---------|---------|---------|
| Podium activities (theatre, music, concert, dance, etc.) | Number of events (1) | 461 | 457 | 527 |
| | Number of spectators | 122,756 | 114,410 | 126,918 |
| Exhibitions | Number of exhibitions | - | - | 38 |
| | Number of days (2) | 686 | 551 | 864 |
| | Number of visitors | - | 16,364 | 10,822 |
| Educational activities | Number of events (3) | 411 | 313 | 310 |
| | Number of spectators | 5,027 | 12,945 | 9,737 |
| TOTAL | Number of activities (1+2+3) | 1,458 | 1,321 | 1,635 |
| | Number of spectators | 127,783 | 143,719 | 145,767 |

Brugge Municipality is an active cultural centre with many cultural activities organized year-round, ranging from theatre to music, dance, cultural lessons and exhibitions. Annually, events in Brugge Municipality attract around 145,000 spectators: although many are from Brugge, there are also large numbers who travel in from surrounding communes, while many are tourists staying in the city overnight. However, there is insufficient data to provide further disaggregation.

'Museums Bruges' is an umbrella organisation representing 16 diverse museums. The locations are divided into three groups: the Greening Museum (Museum of Fine Arts), the Hospital Museum (historic hospitals including the Memling Collection) and the Historical Museum (history museum). All are located within Brugge Municipality. Annually, Museums Bruges receives nearly 800,000 domestic and foreign guests to its museums. Museums Bruges is also responsible for Interface (inter-municipal archaeological service for Bruges and surrounding area) and heritage sites (so called Bruges Heritages).

* Source: Brugge Municipality Annual Reports (2003-2009).

*Table 3.15. Number of visitors to different attractions in Brugge**

| Attractions | 2006 | 2007 | 2008 | 2009 |
|-------------------------|---------|---------|---------|---------|
| Museums | 736,029 | 703,883 | 763,123 | 898,463 |
| Boat trips participants | 934,889 | 948,848 | 907,960 | 974,038 |
| City Tour Brugge | 44,982 | 45,824 | 46,930 | 43,855 |
| City Tour Damme | 1,924 | 1,651 | 1,593 | 1,606 |

The most visited museums in Brugge in 2008 were the Bellford (232,147 visitors), the Groeningemuseum (129,413 visitors), Memling in Sint-Jan (88,548 visitors) and Bruggemuseum-City Hall (78,439 visitors).

* Source: Brugge Municipality Annual Reports (2009).

4. Oostende

4.1 Overview

The second study area in Belgium is the Oostende SA, which comprises five communes of the Oostende Arrondissement. They are Bredene, Gistel, Middelkerke, Oostende and Oudenburg. The whole of the Oostende SA lies within the designated coastal zone of Belgium. The study area comprises a core of three communes Bredene, Oostende and Oudenburg, while there is a ring of two communes, Gistel and Middelkerke. Oostende SA has a total surface area of 250 km² and a coastline of roughly 20 km, or nearly a third of the total Belgian coastline. Oostende commune (or Oostende Municipality) is the core of the region, where most of the socio-economic activities take place. The main activities are coastal tourism and port industries. The four other communes that form the Oostende SA have strategic locations around Oostende Municipality and are functionally linked to Oostende Municipality in terms of economic development and socio-economic coherence. They provide roughly 50% of the workers for Oostende Municipality. People from Oostende also work in the neighbouring communes, which means that the functional region is characterized by dense and extensive inter-relationships.

Historically, Oostende region is an old seaside resort, which developed from a small fishing village that had been established from the 8th century. From the 10th until the 14th centuries, the area gradually developed with the building of dykes and the filling in of ditches to protect homes and livelihoods against the North Sea. The turning point for the area was in the middle of the 15th century, when a harbour was built, which attracted traders and shipments from different parts of Europe, notably the Indies and China. At the same time, Oostende port had a strategic position in the religious wars in the 16th century. Until the end of the 17th century, the city was a battlefield between the Spanish Empire, the Dutch and the English. The city was comprehensively rebuilt at the beginning of the 18th century and started to flourish. During the 17th and 18th centuries, Oostende was under the management of the Eastern-Indian Company, and was then ruled by the Napoleonic monarchy before becoming a territory of Holland for a short period. In 1830, Oostende became a part of the new independent Belgium.

During the reign of King Leopold I, the first king of Belgium, Oostende was connected to Brussels in 1838. A ferry service between Oostende and Dover (in the UK) was set up in 1846. King Leopold II had a vision of transforming Oostende into 'the Queen of the Belgian Coast' and it became a belle-époque city, with an international reputation. At the turn of the century,

massive renovations took place in the harbour, but the two world wars put an end at the development of Oostende. After the Second World War, Oostende began to be transformed into a modern coastal city. Older buildings were demolished to make room for new apartment blocks, and new projects were created: the town hall, the postal office and the casino. The highway also reached the edge of the city centre. Meanwhile, the elite tourists from the past made way for mass tourism.

The Oostende Study Area (SA) accommodates a total of 124,209 people, distributed across a total area of around 20,500 ha. Table 3.16 gives details of the population of each commune in the study area, disaggregated by age groups (West Vlanderen 2008-2010).

Table 3.16. Population of the study area by end 2008, Oostende

| Commune | 0-17 y | 18-64 y | 65+ y | Total | Density |
|---------------------------|---------------|----------------|---------------|----------------|----------------|
| Gistel | 2,526 | 7,171 | 1,997 | 11,694 | 269 |
| Middelkerke | 2,832 | 10,876 | 4,911 | 18,619 | 243 |
| <i>Sub-total Ringzone</i> | <i>5,358</i> | <i>18,047</i> | <i>6,908</i> | <i>30,313</i> | <i>252</i> |
| Bredene | 3,123 | 10,049 | 2,695 | 15,867 | 1191 |
| Oostende | 10,631 | 40,602 | 17,812 | 69,045 | 1834 |
| Oudenburg | 1,764 | 5,484 | 1,736 | 8,984 | 253 |
| <i>Sub-total Corezone</i> | <i>15,518</i> | <i>56,135</i> | <i>22,243</i> | <i>93,896</i> | <i>1087</i> |
| Oostende Area | 41,752 | 148,364 | 58,302 | 248,418 | 605 |

The population has increased slowly in both the core and the ring of the Oostende SA with the growth rate of the ring being a little higher than that of the core: therefore, as in Brugge, there is relative population decentralization. Population growth has been faster during the period 2000-2008 than during the period 1991-1999. Although the population grows slowly, Oostende SA still has one of the fastest growth rates in the Province of West-Flanders. There is a high degree of concentration of population, and population growth mostly occurs in the core. The core area of Oostende SA accommodates two-third of the total population of the Study Area, with three-fourth of that population concentrated in Oostende Municipality.

Oostende Municipality, the city core, has the oldest age structure, with nearly 30% being aged over 65. Only Middelkerke in the ring has an older age profile.

The average density of the entire study area is 605 people per square kilometre. The core zone has a much higher density than the ring, with Oostende Municipality having a density 3 times higher than the regional average. Oostende Municipality has the highest population density in the Province of West-Flanders (West-Vlaanderen, 2010). Together, Oostende and Bredene Municipalities are the two most populated communes in West-Flanders. Both border the sea. The third most populated commune in West-Flanders is also a coastal commune, Blankenberge. In Oostende, there are many sub-areas with population densities of over 9000 people/km², and many of them are on the coast (see the Population Density map in the Brugge case study).

In contrast, coastal communes have lower household sizes, with the average household size in most such communes being below 2.3. In the Oostende SA, Gistel (in the ring) had the largest household size of 2.45 in 2008. Oostende Municipality has the lowest private household size in the Province of West-Flanders of just 1.97 (West-Vlaanderen, 2010). In both the core and the ring, the average size of private households has decreased during the last fifteen years. There has been no research into the reason for this decrease.

During the period 1997-2009, land-uses have changed significantly in some categories. In the ring (communes of Gistel and Middelkerke), the agricultural area has decreased by 30%, open spaces have been reduced by 43% and the office area has fallen by 77%. In contrast, there has been fast development of natural and semi natural areas (forest, swamps, bogs, etc.) (+98%), industrial development (+47%) and residential projects (+32%). In the core, in contrast, only natural and semi-natural areas reduced in size, while all other land-uses increased. The fastest increase was in industrial land use (+38%), followed by the agricultural area (+30%) and residential area (+24%).

Table 3.17. *Land-use changes in Oostende SA**

| Land-use categories | Ring | | | Core | | |
|---------------------------|-----------|----------|---------------|-----------|-----------|---------------|
| | 1997 | 2009 | Changes 97-09 | 1997 | 2009 | Changes 97-09 |
| Agriculture Area | 9585.3336 | 6683.551 | -30% | 7805.0339 | 10563.259 | 35% |
| Natural/Semi-natural Area | 147.8809 | 293.0456 | 98% | 619.2337 | 431.0591 | -30% |
| Open Space Area | 934.5392 | 529.1857 | -43% | 2264.7946 | 2542.2533 | 12% |
| Residential area | 700.4137 | 921.7879 | 32% | 1235.9753 | 1529.3779 | 24% |
| Industrial Area | 160.3638 | 235.4702 | 47% | 385.2598 | 531.065 | 38% |
| Commercial Area | 46.0781 | 44.562 | -3% | 94.168 | 111.0087 | 18% |
| Office Area | 214.6158 | 49.7515 | -77% | 389.7655 | 444.0923 | 14% |
| Government Area | 1.5167 | 1.5221 | 0% | 41.284 | 31.817 | -23% |

Urban spread (extension at the outer edge): as would be expected, expansion of residential and industrial area is much faster in the ring than in the core. Infilling (filling-up open space in already built-up areas) is a process that can be observed in both the ring and the core, although at a relatively slow pace.

Land-use changes: in the ring, the agricultural area has reduced while residential and industrial areas have increased, indicating an overall intensification of land use. There is little evidence of redevelopment (increase intensity through high-rise buildings) in the Oostende SA.

* Source: data from Lokale Statistieken.

4.2 Migration

4.2.1 In-migration

During the period 1997-2007, the Oostende SA has experienced a gradual increase in in-migration. Oostende is the most popular destination, followed by Middelkerke, then Bredene. All three are located at the coast. The core receives around three-fifth of the total in-migrants – slightly less than its share of total population, suggesting that migration is also contributing to the overall pattern of modest relative population decentralization.

Table 3.18. *In-migration in Oostende SA*

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Gistel | 630 | 630 | 508 | 491 | 539 | 482 | 540 | 458 | 469 | 551 | 630 |
| Middelkerke | 1144 | 1133 | 1111 | 1036 | 1182 | 1239 | 1273 | 1254 | 1270 | 1304 | 1380 |
| Bredene | 978 | 1070 | 1029 | 994 | 1077 | 1020 | 1063 | 1123 | 1063 | 1120 | 1133 |
| Oostende | 3113 | 3314 | 3364 | 3459 | 3663 | 3832 | 3704 | 3817 | 3991 | 4010 | 3773 |
| Oudenburg | 394 | 400 | 407 | 387 | 365 | 387 | 459 | 427 | 422 | 443 | 426 |
| | | | | | | | | | | | |
| Core | 4485 | 4784 | 4800 | 4840 | 5105 | 5239 | 5226 | 5367 | 5476 | 5573 | 5332 |
| Ring | 1774 | 1763 | 1619 | 1527 | 1721 | 1721 | 1813 | 1712 | 1739 | 1855 | 2010 |

4.2.2 Out-migration

Most of the people leaving the area were from Oostende Municipality, Middelkerke and Bredene. There were also far more people leaving the core than the ring. In the Oostende Municipality, the out-flux of population declined during the period 1999-2002 then picked up again in the period after 2002. Out-migration in the core accounts for around 76.5% of the total out-migration from the SA. The proportion remained quite stable during the period 1997-2007.

Table 3.19. Out-migration in Oostende SA

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Gistel | 441 | 472 | 485 | 449 | 493 | 522 | 514 | 475 | 491 | 522 | 449 |
| Middelkerke | 908 | 1068 | 937 | 889 | 888 | 906 | 931 | 983 | 1054 | 995 | 1046 |
| Bredene | 800 | 850 | 836 | 771 | 902 | 904 | 873 | 942 | 951 | 935 | 933 |
| Oostende | 3308 | 3314 | 3019 | 3039 | 3093 | 2976 | 3175 | 3200 | 3342 | 3533 | 3511 |
| Oudenburg | 369 | 389 | 363 | 400 | 373 | 413 | 409 | 373 | 397 | 430 | 438 |
| | | | | | | | | | | | |
| Core | 4477 | 4553 | 4218 | 4210 | 4368 | 4293 | 4457 | 4515 | 4690 | 4898 | 4882 |
| Ring | 1349 | 1540 | 1422 | 1338 | 1381 | 1428 | 1445 | 1458 | 1545 | 1517 | 1495 |

4.2.3 Internal migration

Internal migration reflects the movement of population amongst Belgian communes. In the Oostende SA, Oostende Municipality experienced positive internal migration between 1998 and 2006, with a peak in 2002. In 2007, Oostende Municipality had a negative figure, indicating that people moving out of the area outnumbered the number moving inwards. In general, more people moved into the ring than the core, even though the latter accounted for some two thirds of the total population of the metropolitan area. In the core, there is a declining trend in internal migration, with less and less people moving in – although the overall net internal migration continues to be positive.

Table 3.20. Internal migration in Oostende SA

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Gistel | 181 | 153 | 28 | 45 | 38 | -42 | 22 | -16 | -43 | 30 | 147 |
| Middelkerke | 226 | 89 | 173 | 154 | 302 | 329 | 311 | 226 | 250 | 244 | 330 |
| Bredene | 201 | 249 | 199 | 228 | 158 | 114 | 160 | 146 | 118 | 168 | 209 |
| Oostende | -136 | 5 | 280 | 478 | 515 | 649 | 367 | 384 | 237 | 160 | -57 |
| Oudenburg | 21 | 16 | 53 | -4 | -12 | -24 | 30 | 52 | 12 | 16 | -13 |
| | | | | | | | | | | | |
| Core | 86 | 270 | 532 | 702 | 661 | 739 | 557 | 582 | 367 | 344 | 139 |
| Ring | 407 | 242 | 201 | 199 | 340 | 287 | 333 | 210 | 207 | 274 | 477 |

4.2.4 External migration

External migration reflects international migration into and out of Belgium. Oostende Municipality is the main destination for international migrants in the metropolitan area, with positive international migration figures during the last 5 years. Most (more than 90 % in 2007) of the international migrants moved to the core.

Table 3.21. *External migration in Oostende SA*

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Gistel | 8 | 5 | -5 | -3 | 8 | 2 | 4 | -1 | 21 | -1 | 34 |
| Bredene | -23 | -29 | -6 | -5 | 17 | 2 | 30 | 35 | -6 | 17 | -9 |
| Middelkerke | 10 | -24 | 1 | -7 | -8 | 4 | 31 | 45 | -34 | 65 | 4 |
| Oostende | -59 | -5 | 65 | -58 | 55 | 207 | 162 | 233 | 412 | 317 | 319 |
| Oudenburg | 4 | -5 | -9 | -9 | 4 | -2 | 20 | 2 | 13 | -3 | 1 |
| | | | | | | | | | | | |
| Core | -45 | -34 | 57 | -74 | 51 | 209 | 213 | 280 | 391 | 379 | 324 |
| Ring | -15 | -24 | -11 | -8 | 25 | 4 | 34 | 34 | 15 | 16 | 25 |

4.2.5 Temporary residents

Oostende SA has two colleges, the Hogeschool West-Vlaanderen - Department Vesalius (HISS) and the Katholieke Hogeschool Brugge–Oostende (KHBO) Oostende campus. The KHBO Oostende has approximately 120 personnel and around 1100 students.

The coastal communes of the Oostende SA are a popular destination for second home owners, with Middelkerke being first ranked with more than 14,000 units, followed by Oostende with around 6,600 units. Bredene also has around 1000 second homes (Gunst *et al.*, 2008). The number of second homes in Oostende has increased from 5,220 units in 1989 to 6,600 in 1997 (Oostende Gemeentelijk) and has since been relatively stable.

4.3 Mobility

4.3.1 Road connections

The A10 motorway connects Oostende to Ghent, and then to Brussels via the E40. The A10 starts at the centre of the city providing very immediate access. Via the A17, the city is connected to Kortrijk, and from there to France. The Koninklijke Route, together with the Nieuwpoort and Torhout roads, are considered to be infrastructural keys for regional and inter-communal mobility. Oostende has accessibility problems mainly during the rush-hours in the morning and afternoon, and also during the tourism season. The most problematic areas are:

- The Torhout road (N33)
- The Coastal route (N34)
- The Nieuwpoort road (N318)
- The city centre

Table 3.22. *Road use intensity (per km)*

| | 2000 | | | 2005 | | |
|-------------|----------------|-----------------------|-------------------------|----------------|-----------------------|-------------------------|
| | <i>Highway</i> | <i>Communal roads</i> | <i>Provincial roads</i> | <i>Highway</i> | <i>Communal roads</i> | <i>Provincial roads</i> |
| Gistel | 12,030,990 | 158,470 | 2,514,500,114 | 13,953,950 | 260,617 | 2,655,707,047 |
| Middelkerke | 10,714,898 | 213,547 | 1,983,237,397 | 12,628,776 | 283,074 | 1,872,437,495 |
| Ring | 11,372,944 | 186,009 | 2,248,868,756 | 13,291,363 | 271,846 | 2,264,072,271 |
| Bredene | - | 224,586 | 3,024,922,873 | - | 361,624 | 3,061,386,506 |
| Oostende | 9,201,173 | 417,330 | 3,417,624,505 | 10,180,670 | 462,273 | 3,657,562,108 |
| Oudenburg | 10,825,804 | 128,685 | 1,954,603,689 | 11,917,354 | 196,711 | 1,967,336,653 |
| Core | 10,013,489 | 256,867 | 2,799,050,356 | 11,049,012 | 340,203 | 2,895,428,422 |

Table 3.22 shows that communal and provincial roads are used more intensively in Oostende Municipality than in other communes. The highway connecting Brussels to Oostende (A10/E40) has seen increased intensity of around 1%/year during the period 2001 – 2008.

4.3.2 Rail connections

Oostende can also be reached via train and coastal tram networks. The station is located with good access to the town, beach and dyke. The train station serves many day trips to the Oostende seaside during the summer days. Currently, there is no international train connecting Oostende to European destinations. However, there are three connecting trains every hour to Eupen (via Brussels and Liege), Kortrijk and Antwerpt. All connections go through Brugge and Ghent. The journey to Brussels takes about 1 hour. During the summer, extra train services are provided to connect Oostende to Brussels, via Brugge.

4.3.3 Air travel

The international airport at Oostende is a small airport, used mostly as a hub for charters to destinations in Europe. Oostende Airport is ranked among the 20 most important freight airports in Europe. The airport has a 3200 m runway and is accessible 24 hours a day. The airport is specialised in the transport of outsize cargo, perishables and live stock.

Table 3.23. *Cargo and passenger evolution at the Oostende Airport**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---------------------------------|---------|---------|---------|---------|---------|
| Passengers | | | | | |
| <i>Commercial transport</i> | | | | | |
| - Scheduled flights | 3,165 | 1,307 | 2,316 | 2,303 | 893 |
| - Business flights | 968 | 1,012 | 990 | 1,041 | 1,401 |
| - Chartered flights | 101,213 | 123,545 | 156,010 | 169,555 | 161,313 |
| - Freight / mixed flights | 80 | 258 | 171 | 169 | 52 |
| Total commercial transport | 105,426 | 126,122 | 159,487 | 173,068 | 163,659 |
| <i>Non-commercial transport</i> | | | | | |
| - Training flights | 6,417 | 6,514 | 8,117 | 13,904 | 16,350 |
| - Touring flights | 7,571 | 7,951 | 8,299 | 8,209 | 10,020 |
| - Local flights | 4,992 | 3,916 | 3,437 | 2,238 | 2,155 |
| - Miscellaneous | 1,738 | 1,852 | 723 | 2,539 | 592 |
| Total non-commercial transport | 20,718 | 20,233 | 20,576 | 26,890 | 29,117 |
| Total passengers | 126,144 | 146,355 | 180,063 | 199,958 | 192,776 |
| Freight in ton | 108,260 | 98,525 | 108,953 | 82,920 | 74,148 |
| Number of movements | 25,132 | 26,850 | 27,632 | 33,298 | 37,356 |

* Source: West-Vlaanderen (2009; 2010).

4.3.4 Waterways

Oostende has a seaport with a number of relatively short distance sea connections to destinations in Europe, as well as deep-sea transport links to other parts of the world. During the last 10 years, the port of Oostende has evolved from being a passenger port to an important economic hub. The number of tourist vehicles and passengers has dropped significantly while the amount of goods transported through the port has increased. Vehicle transport now focuses on RORO-truck transport. The port of Oostende is not of major importance for container traffic (see Table 3.24). Currently, Oostende remains the Ferry Port connecting to Ramsgate (UK) with 4 scheduled ferries a day.

Table 3.24. *Cargo and passengers evolution at the Port of Oostende**

| Categories | 1998 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Goods (in ton) | | | | | | | | |
| - General cargo (x1000) | 1,364.5 | 1,539.7 | 1,539.2 | 1,478.4 | 1,552.0 | 1,509.7 | 1,723.0 | 1,421.6 |
| - Roro | 2,364.6 | 5,607.0 | 5,925.1 | 6,145.8 | 6,207.5 | 6,431.1 | 6,726.6 | 3,926.9 |
| - Containers | | 72.2 | 78.9 | 44.3 | 24.1 | 14.0 | 0 | |
| Total tonnage | 3,937.3 | 7,218.9 | 7,543.2 | 7,668.3 | 7,783.7 | 7,954.7 | 8,449.6 | 5,348.5 |
| Vehicles transport (x1000 units) | | | | | | | | |
| - Tourist vehicles | 208.2 | | 3.4 | 12.8 | 28.7 | 28.7 | 27.7 | 21.9 |
| - Roro - Trucks | 102.6 | 284.5 | 301.0 | 301.5 | 297.1 | 301.3 | 283.1 | 158.8 |
| - New vehicles | | | | | 22.8 | 11.3 | 4.8 | |
| Total vehicles | 310.9 | 284.5 | 304.3 | 314.3 | 348.7 | 341.3 | 315.5 | 180.6 |
| Total containers (TEU) (a) | | 13.3 | 15.4 | 8.9 | 4.6 | 3.3 | 0 | |
| Total passengers (million people) | 1.15 | 0.15 | 0.16 | 0.21 | 0.23 | 0.25 | 0.23 | 0.18 |
| (a) TEU=Twenty Foot Equivalent Unit. | | | | | | | | |

* Source: GOM West-Vlaanderen (2001); West-Vlaanderen (2010).

Oostende is also at the end of an important canal, Oostende-Bruges-Ghent, which provides inland waterway connection to the European waterways network. In the port of Oostende, several industrial sites have been developed along the quays that provide industries with direct access to the inland waterway connections. Future development plan also includes modernizing the canal and the docks to accommodate bigger inland waterway barges.

4.3.5 Public transport

In the city, the public transport system is managed by De Lijn, who provide bus and tram services. There are 6 bus lines within the city and 5 lines connecting the city to neighbouring towns.

For longer distances, 10 tramlines connect Oostende with Koksijde and Veurne to the south and Knokke to the north. The tramlines also connect Oostende to Brugge. The main tram station is near the train station in Oostende. The tram runs every twenty minutes during the summer holidays and even every ten minutes between De Panne and Knokke.

Oostende is also served by the Coastal Tram, which is undoubtedly the fastest and easiest means of transport along the Belgian coast, particularly given congestion on the coastal roads in the summer. The Coastal Tram was built in 1885, initially to connect Oostende and Middelkerke. Nowadays, the Coastal Tram covers the entire Belgian coastline from De Panne (close to the French border) to Knokke-Heist (close to the border with the Netherlands). In summer time, a tram passes every 10 minutes. From September until the beginning of November, during the Christmas and Spring holidays, and from Easter until the end of June, the tram frequency is every 15 minutes. During the rest of the year, the tram passes every 20 minutes. It is estimated that, in 2009, Coastal Tram transported 12.5 million passengers, indicating the intensity of use of the coastal strip and the role of collective transport in this (De Lijn, 2010).

4.4 Temporary mobility

4.4.1 Home-Work Travel

Home-work travel is one of the key elements in defining Functional Urban Regions. According to the survey in 2008 by the FOD Mobiliteit en Vervoer (as shown in

Table 3.25), Oostende Municipality attracts workers from all the surrounding communes. Together with Bredene and Oudenburg, it constitutes a core zone, which provides approximately 90% of the total number of 36,000 jobs in the Oostende SA in 2007 (Lokale Statistieken). Half of the workers living in Oostende Municipality work in the municipality. People from the Oostende SA also travel to work in the Brugge SA.

Table 3.25. *Home-work travel survey results, Oostende SA**

| FROM\TO | Gistel | Middelkerke | Bredene | Oostende | Oudenburg |
|-------------|--------|-------------|---------|----------|-----------|
| Gistel | 17.90% | 2.20% | 1.00% | 30.40% | 3.30% |
| Middelkerke | | 31.20% | | 19.90% | 0.80% |
| Bredene | | 1.00% | 15.90% | 37.40% | 1.20% |
| Oostende | 1.20% | 1.90% | 1.30% | 56.70% | 1.00% |
| Oudenburg | 3.50% | 1.60% | 2.80% | 29.00% | 15.40% |

Table 3.26 shows the total movements for working purposes for the Oostende SA, broken-down between the core and the ring areas. Home-work travel in the core accounts for nearly three-fourth of the total number of travel to work journeys. There are very few core-ring movements in Oostende SA. In comparison to the Brugge SA, home-work movement in this region across the core-ring boundary is much less. Travel to work from the ring to the core is approximately three times greater than from core to ring which – bearing in mind that two thirds of the population live in the core – emphasizes the continuing centralization of jobs relative to population.

* Source: FOD Mobiliteit en Vervoer (2008).

Table 3.26. *Any-working-day home-work movement in Oostende SA*

| FROM\TO | Ring | Core |
|---------|-------|--------|
| Ring | 6,522 | 6,551 |
| Core | 2,188 | 42,647 |

Private vehicles still account for a very large proportion of travel by all transport modes, with this being the mode used by more than 60% of journeys to work originating in all the communes except Oostende Municipality (Table 3.27). Oostende Municipality has a lower proportion of workers using cars, mainly because most of the people working in Oostende also live in Oostende (

Table 3.25). For the same reason, the share of public transport (train, tram, bus) in Oostende Municipality is also the highest in the region, at 17% of the total share. The use of bikes is also more popular in Oostende than in other communes (at nearly 24%), largely due to the relatively short distance to work and the better road conditions (with good biking facilities such as separate lanes and signals).

Table 3.27. *Share of transport modes in home-work travel**

| Commune | Car | Car sharing | Train | Bus/Tram/ Metro | Private bus | Bike | Motorbike | Walking |
|-------------|-------|-------------|-------|--------------------|-------------|-------|-----------|---------|
| Gistel | 69.69 | 4.35 | 7.79 | 1.66 | 0.97 | 9.57 | 3.08 | 2.90 |
| Middelkerke | 60.43 | 3.61 | 7.85 | 2.70 | 0.85 | 15.10 | 3.49 | 5.97 |
| RING | 65.06 | 3.98 | 7.82 | 2.18 | 0.91 | 12.34 | 3.29 | 4.44 |
| Bredene | 61.37 | 3.13 | 10.03 | 5.20 | 0.20 | 15.36 | 3.36 | 1.36 |
| Oostende | 46.81 | 2.85 | 10.31 | 7.03 | 0.37 | 23.76 | 3.97 | 4.90 |
| Oudenburg | 65.95 | 3.17 | 9.00 | 1.33 | 0.85 | 17.32 | 1.35 | 1.02 |
| CORE | 58.04 | 3.05 | 9.78 | 4.52 | 0.47 | 18.81 | 2.89 | 2.43 |

* Source: FOD Mobiliteit and Vervoer (2008).

4.4.2 Tourism

Oostende SA is one of the most popular tourist destinations in Belgium. The total number of visitors to the region has been relatively stable during the last decade. The core area has seen a decreasing trend in the number of foreign visitors while the number of Belgian visitors has increased, resulting in a small increase in the total number of visitors. Meanwhile, the ring has experienced a slight decrease in the number of visitors.

The core attracts most of the visitors (around 80%), especially foreign visitors. While the core is popular with foreigners, Belgian tourists tend to go to the ring area. Amongst the communes in the region, Oostende Municipality single-handedly accounts for around 88% of the visitors to the core areas and 70% of the visitors to the whole region.

Table 3.28 shows that Oostende Municipality is the most popular destination for overnight stays. It accounts for nearly 60% of the total number of overnight stays in the SA and more than 80% of the total number of overnight stays in the core. This is higher than its share of total population in both cases. In 2001, around 60% of Belgian overnight-stays were spent in the core. By 2007, this figure was around 70%. Amongst foreigners, most of the overnight stays were spent in the core (around 80%).

Table 3.28. *Total number of overnight-stays in the Oostende SA**

| | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-------------|------------------------|---------|---------|---------|---------|---------|---------|---------|
| Gistel | Total Belgian visitors | | | | 2,543 | 3,933 | 2,543 | |
| | Total foreign visitors | | | | 1,020 | 1,147 | 2,198 | |
| | Total visitors | | | | 3,563 | 5,080 | 4,741 | |
| Middelkerke | Total Belgian visitors | 516,716 | 465,374 | 465,374 | 446,721 | 421,683 | 446,143 | 385,920 |
| | Total foreign visitors | 162,000 | 161,396 | 161,396 | 161,333 | 138,081 | 132,486 | 101,948 |
| | Total visitors | 678,716 | 626,770 | 626,770 | 608,054 | 559,764 | 578,629 | 487,868 |

* Source: Lokale Statistieke (2010).

| | | | | | | | | |
|-----------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Bredene | Total Belgian visitors | 132,158 | 160,199 | 160,199 | 139,610 | 139,313 | 153,473 | 166,724 |
| | Total foreign visitors | 83,868 | 82,220 | 82,220 | 75,607 | 65,398 | 69,657 | 80,039 |
| | Total visitors | 216,026 | 242,419 | 242,419 | 215,217 | 204,711 | 223,130 | 246,763 |
| Oostende | Total Belgian visitors | 646,146 | 676,518 | 676,518 | 648,890 | 698,168 | 691,190 | 681,332 |
| | Total foreign visitors | 461,060 | 459,204 | 459,204 | 421,245 | 414,139 | 373,989 | 361,816 |
| | Total visitors | 1,107,206 | 1,135,722 | 1,135,722 | 1,070,135 | 1,112,307 | 1,065,179 | 1,043,148 |
| Oudenburg | Total Belgian visitors | 9,185 | 7,526 | 7,526 | 6,544 | 8,005 | | 8,167 |
| | Total foreign visitors | 6,195 | 6,053 | 6,053 | 3,474 | 4,555 | | 5,080 |
| | Total visitors | 15,380 | 13,579 | 13,579 | 10,018 | 12,560 | | 13,247 |
| | | | | | | | | |
| CORE | Total Belgian visitors | 787,489 | 844,243 | 844,243 | 795,044 | 845,486 | 844,663 | 856,223 |
| | Total foreign visitors | 551,123 | 547,477 | 547,477 | 500,326 | 484,092 | 443,646 | 446,935 |
| | Total visitors | 1,338,612 | 1,391,720 | 1,391,720 | 1,295,370 | 1,329,578 | 1,288,309 | 1,303,158 |
| RING | Total Belgian visitors | 516,716 | 465,374 | 465,374 | 449,264 | 425,616 | 2,543 | 385,920 |
| | Total foreign visitors | 162,000 | 161,396 | 161,396 | 162,353 | 139,228 | 2,198 | 101,948 |
| | Total visitors | 678,716 | 626,770 | 626,770 | 611,617 | 564,844 | 4,741 | 487,868 |

Overall, the number of overnight stays in the ring has decreased during the period 2001-2007 while the figure for the core remain stable – indicating a tendency to greater centralization of tourism flows.

By 2002, Oostende had 45,678 beds, accounting for 9% of the total beds in the coastal area of Belgium. Three fourths of these are from individual rental of vacation premises and second homes. The rest come from hotels and campsites. Although the number of tourists has increased year on year, the number of hotel beds has decreased year on year. This has

important implications in terms of economic impacts, and patterns of visits – although data is lacking for both these aspects.

*Table 3.1. Evolution of number of hotels in Oostende Municipality and the Coast 1997 – 2002**

| Year | Oostende | | The Coast | |
|------------------------|----------------------|-------------|----------------------|-------------|
| | Total establishments | Total rooms | Total establishments | Total rooms |
| 1997 | 70 | 2,360 | 418 | 8,972 |
| 2000 | 68 | 2,388 | 387 | 8,443 |
| 2002 | 65 | 2,387 | 367 | 8,062 |
| % difference 1997-2002 | -7,1 | 1,1 | -12,2 | -10,1 |

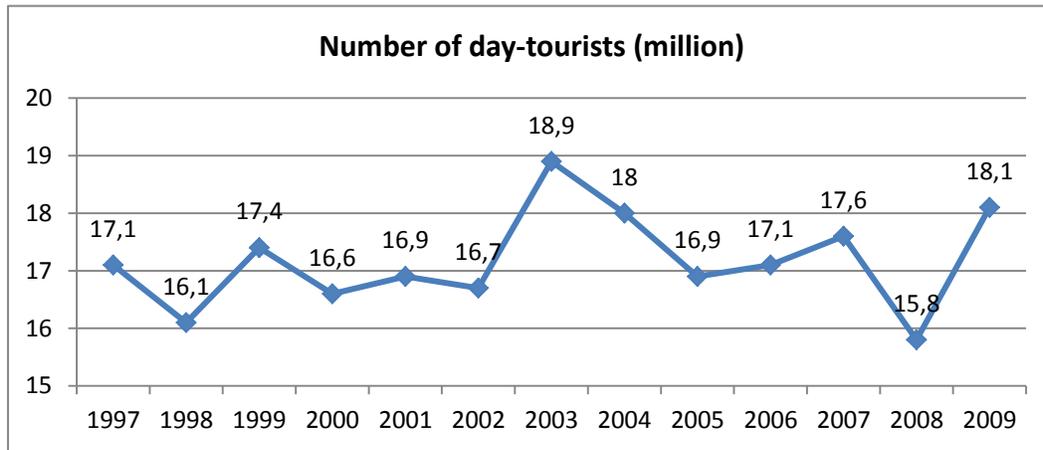
Oostende is also a popular destination for day tourism to the coast. During the summer, extended train services are operated with larger train capacities. In this season, there are 6 more direct trains from Brussels to Oostende in the morning during the weekends and three more during the weekdays. Returning from Oostende to Brussels, there are 5 extra direct trains in the late afternoon during the weekends and three extra trains during the weekdays.

According to a survey in 2007, Oostende is the most popular destination for day-tourism amongst Belgians, being a chosen destination of 24% of Belgian day-tourists (Vanden Brouck 2008) both in the summer and in the winter. Middelkerke and Bredene in the Oostende SA are also amongst the most popular sites. Middelkerke attracts 5% of day-tourists during summer and 6% of day-tourists during the winter. Bredene attracts around 5% of day-tourists during the summer but around 1% during the winter. In total, Oostende SA accounts for 35% of total day-tourists to the Belgian coast during summer and approximately 30% of the total to the Belgian coast during the winter. These represent significant flows of people into the coastal regions.

It is estimated that around a third of the Flemish population goes at least once to the coast during the summer. This number in wintertime is one fifth. The coast is a less popular area for the population of Brussels and Wallonia, with 10.5% and 15.9% respectively in summer and 7.2% and 8.9% respectively in winter (Vanden Brouck 2008). It is estimated that around 18,1 million day-tourists visited the coast in 2009. The peak estimate was in 2003 with 18,9 million visitors (Figure 3.10) (Vandaele and Callens 2010).

* Source: Toerisme Vlanderen (2005).

Figure 3.10. Evolution of day-tourists 1997-2009*



On the busiest day at the coast, there were around 250,000 day-visitors and around 350,000 visitors that stayed overnight (Vandaele and Callens, 2010). Around one third of the total day-tourists visit the coast during the summer (July-August). The rest are spread throughout the year. Most of the day-tourists come to the coast in private cars. Only 12% of the visitors come with the trains (Vandaele and Callens, 2010). They generate considerable congestion on particular routes to and within the coastal region, especially in summer.

* Source: Vandaele and Callens (2010).

5. Conclusions

The two Belgian case studies (Brugge SA and Oostende SA) have many similar features. They have both passed their fast growth period, which was few decades ago. During the 1990s and the first decade of the 21st century, both SAs have general stability in term of growth, with some minor dips corresponding to economic recessions.

The two study areas have similar features in term of development history and current situation. They both possess similar transport network and mobility patterns with similar industrialization processes, with the two ports being at the core of most of the industrial activities. Both are popular tourist destinations and cultural hubs of the region. Both study areas have a larger core than ring.

The most notable difference is that Brugge is much larger in size and population with the central core extending much further inland than Oostende. This creates further differences in term of the tourism industry: Oostende is more dependent on beach tourism while Brugge is more a cultural destination.

The two study areas have experienced their most rapid urbanization processes in much earlier time periods. Trends during the last ten to fifteen years show a relatively stable picture. Land-use changes occur relatively slowly and the industrial structure is relatively established.

In term of human mobility, both study areas have a balanced migration rate. Internal migration in both areas have similar features, with the rings increasingly becoming the main destination while the cores are less and less popular. Demographic aging is seen in both areas, both due to the natural aging process and the net migration.

Home-work travel patterns in both area are similar, with Brugge Municipality and Oostende Municipality, the two core centres, creating most of the jobs and attracting working people from the surrounding communes.

Human mobility for tourism purposes is dominated by the flux of tourists coming to the two areas. Day tourism plays a very important role in defining mobility in the region.

In terms of urbanisation, extensification is slow and mostly happening in the ring. On the contrary, residential and industrial areas in the core have decreased. Infilling (filling-up open space in already built-up areas) is a process that can be observed in both the ring and the core, although at a slow pace. There is a shift in land-use in the ring where the agricultural area is being reduced, giving space for residential and industrial areas, and also increasingly to nature areas.

In term of mobility, migration is more dynamic in the core than in the ring, especially in Brugge and Oostende municipalities. These two municipalities are the destinations of foreign migrants as well. However, in general the migration rate is not high, with coastal communes (especially Blankenberge and Knokke-Heist in Brugge SA) having the highest in-migration rates.

Seasonal mobility is noteworthy as the two SAs are famous tourism destinations in Belgium. During the summer months, day-tourists rush to the seaside and beaches.

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Annex 1. Categorisation of land-uses in Belgium

| Categories | Description |
|----------------------------------|--|
| Agriculture | Arable land, not otherwise specified (farmland nowhere else mentioned as the country's arable agricultural land including proposals for vegetables, etc.), grassland, gardens and parks, orchards (including meadows and pastures). |
| Natural and Semi-Natural Habitat | Forests, un-used land (swamps, bogs, meadows, rocks, dunes, dikes, slag heaps, etc.). |
| Open Space | Recreation spaces (sports arenas, race tracks, playgrounds, campsites); inventoried water (ponds, lakes, ponds, ditches, fish farms, canals, reservoirs); inventoried roads; non-built others (building land, car parks, airports, military sites, cemeteries and promenades); other non-standard and non-inventoried areas. |
| Residential | Apartments, buildings, houses and farms (barns, garages, porches and toilets). |
| Industrial | Outbuildings including greenhouses; craft and industrial buildings (laundries, dairies, bakeries, pork butchers, abattoirs, beverages and tobacco factories, textile mills, furniture and toy factories, paper mills, cement factories, saw mills, coke and chemical plants, glass factories, gas plants, power stations, ...); storage (sheds and warehouses); utility buildings (phone booths, airports, water towers, water treatment and waste treatment plants); other built-up areas. |
| Offices | Office (office buildings, banks, stock exchanges, offices); buildings for social care and health care (orphanages, nurseries, nursing homes, hospital buildings and buildings used for social welfare); buildings for education, research and culture (schools, universities, museums, libraries); buildings for worship (churches, chapels, monasteries, synagogues, temples, mosques); buildings for recreation and sports (banquet halls, youth clubs, theatres, cultural centres, cinemas, casinos). |
| Commercial | Buildings with commercial purposes (restaurants, supermarkets, gas stations, exhibition halls, parking garages, kiosks). |
| Government | Public buildings (town halls, royal palaces, courthouses and prisons, military and administrative buildings, gendarmerie barracks). |

CHAPTER IV.

Urbanization, Human Mobility and Environmental Conflicts in Mumbai and Chennai Metropolitan Regions, India

Vishwas S. Kale

Veena U. Joshi

1. Introduction

One of the most dramatic changes occurring in the countries of Asia in general, and South Asia in particular, has been the unprecedented scale of urban growth during the last few decades (Bhagat and Mohanty 2009). According to the 2001 census, about 28% of the population lived in urban areas. Provisional figures available for 2011 census indicate that the urban population in India has increased to nearly 32%. The shift has been most pronounced in large urban agglomerations, such as Mumbai, Delhi, Kolkata and Chennai. This chapter provides an overview of the urbanization, human mobility and associated environmental problems in two large coastal metropolitan cities of India, namely, Mumbai Metropolitan Region (MMR) and Chennai Metropolitan Region (CMR) (Figure 4.1).

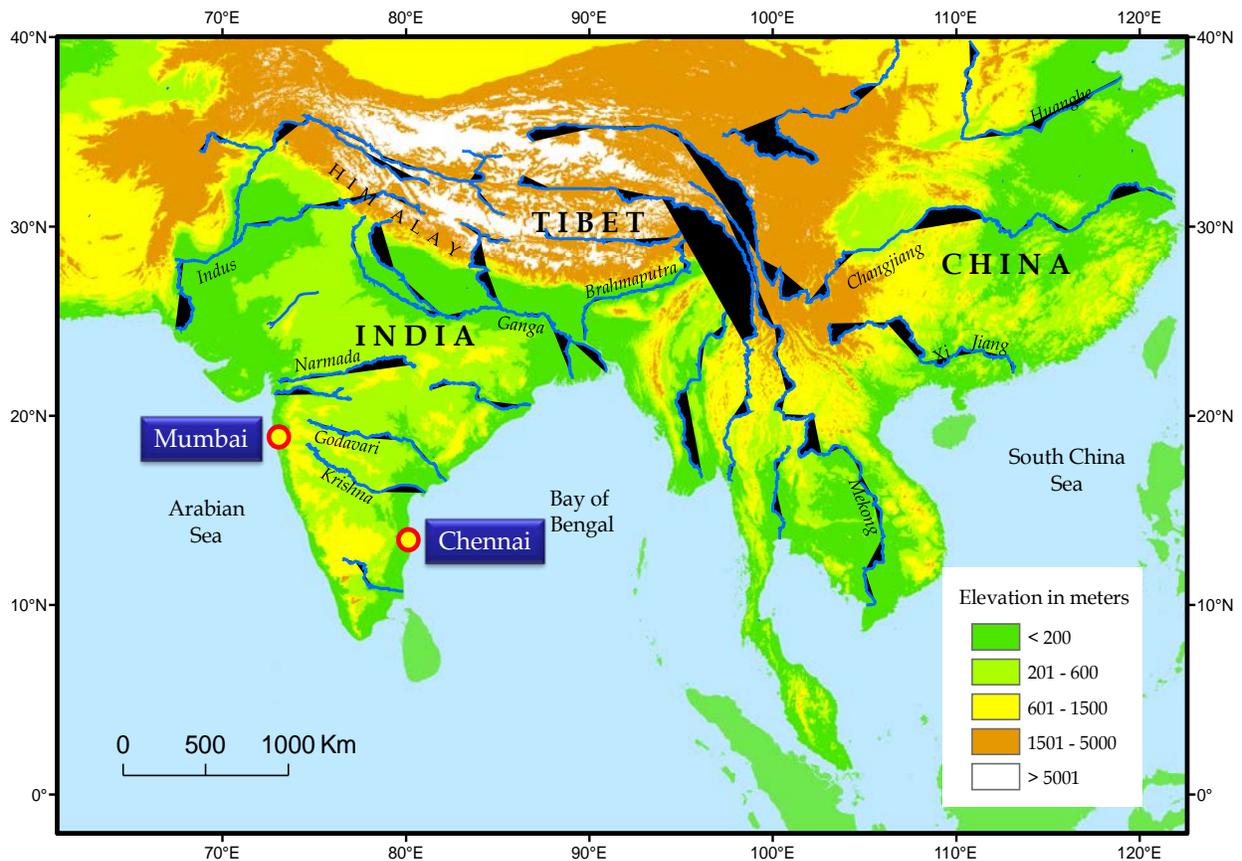
Like most Asian cities, the two Indian metro cities are hot spots of demographic and socio-economic dynamics and are growing at a rapid pace with respect to population and economy, but are facing massive environmental problems due to urbanization, industrialization, commercialization and, above all, large-scale in-migration. These two cities are unique in several respects but, at the same time, there are also striking similarities with other large coastal cities of the world. Both cities are dynamic and vibrant. Major catastrophes (tsunami in Chennai in 2004 and unprecedented rains in Mumbai in 2005) have not been able to arrest the rising economic prosperity of these two metropolitan cities.

Mumbai (formerly, *Bombay*) has been described as the gateway of India and the economic, commercial and entertainment capital of the country. With a total population of 19.36 million (2001), it is the sixth largest city in the world after Tokyo, New York, Seoul, Mexico City and Sao Paulo, and the largest city in India. Mumbai is the capital of Maharashtra State in western India. It is located on the west coast of India. Mumbai city rose from being a small fishing hamlet in the 13th century to a modern mega city after the cession of the Mumbai group of islands to the Portuguese in 1534, and possession of the island by the British in 1661. In the 19th century, economic and educational development in the first half of the century, the beginning of the first-ever Indian railway line in 1853 and the opening of the Suez Canal in 1869, established Mumbai as the most important international port and commercial capital of India. In the 20th century, economic development and diversification, and the associated growth of employment opportunities, resulted in a large-scale influx of migrants and, consequently, very rapid population growth in the city. Mumbai, therefore, is one of most socially and

ethnically diverse cities in India. Mumbai, has been – and will continue to be – shaped by diverse human mobility flows.

Chennai (formerly, *Madras*), with a total population of 7.18 million (2001), is ranked as the fourth largest urban agglomeration in India and is the capital of Tamil Nadu State in southern India. The city of Madras was a small fishing village, known as *Chennaiapatnam*, before the British East India Company acquired it in 1639. The laying down of a railway line in 1864, and the completion of the harbour in 1896, converted the small and little known settlement into a flourishing trade and commercial center in the late 19th century. The Corporation of Chennai (or Madras) is one of the oldest municipal bodies in India. It was established in 1687. During British rule, Madras was the capital of the Madras Presidency. Today Chennai is recognized as a major export hub in South East Asia, and a major automobile manufacturing center in India. These types of developments have attracted a large number of people from the neighbouring states.

Figure 4.1. Location of Mumbai and Chennai Metropolitan Regions in India



2. Methodology

The present report is entirely based on secondary data. The primary source of data for the two metropolitan areas was the published and unpublished reports of the central (federal) and state governments. The primary demographic data used in this chapter are from the Census of India reports for 1991 and 2001. The 2011 census is underway, at the time of writing, and the data are not presently available. Therefore, the population of MMR and CMR has been described using the 1991 and 2001 data given in the Primary Census Abstracts (PCA) for different districts of the metropolitan regions. District handbooks of different districts falling within the MMR and CMR have also been used in this report. These handbooks provide a summary of PCA as well as statistical information about migrants, age, sex and education, distribution of languages and religion, etc.

In, addition, other information about transportation, tourists, etc. was obtained from the Regional Plan for MMR 1996-2011 prepared by the Mumbai Metropolitan Development Authority (MMRDA) and the Second Master Plan for Chennai Metropolitan Areas, 2026, formulated by the Chennai Metropolitan Development Authority (CMDA). These were supplemented by various reports prepared by MMRDA, CMDA and other central and state government departments.

The smallest administrative unit used was based on the smallest unit defined by the Census of India. These are 'wards' in the urban areas and 'villages' in the rural areas. Standard geographical methods were employed to analyze and present the data. Similarly, for the preparation of thematic layers in GIS, well-established procedures have been followed.

2.1 Definition of core, ring and coastal zone

Considering the nature and availability of demographic, occupational, land use and other types of data, only two spatial zones were identified for this study (Table 4.1):

- a) The metropolitan core. A very simple approach has been used to define the "core" of the metropolitan administrative area. In the case of Mumbai Metropolitan Region (MMR), Greater Mumbai has been defined as the core. And in the case of Chennai Metropolitan Region (CMR), the Chennai City District has been classified as the core. This is because a very high proportion of the total population and working population is confined to these parts of the metropolitan regions (Table 4.1). The lowest administrative or statistical unit is a 'ward'.

- b) The surrounding outer metropolitan ring. This zone includes the rest of the metropolitan region and is functionally linked to the core. Ideally, the definition should be in terms of journey to work flows. Although quantitative data on this aspect are not available, based on key informant commentaries, there is little doubt that over 15% of the workforce travel to work to the metropolitan core. The lowest administrative unit is a ward in the urban areas and village in rural areas.

*Table 4.1. Details of the core area and outer ring in MMR and CMR (2001 Census)**

| | Core | Outer Ring |
|---|----------------|----------------|
| Mumbai Metropolitan Region | | |
| Name | Greater Mumbai | Rest of MMR** |
| Area in km ² (% of the total of MMR) | 466 (10.7%) | 3,889 (89.3%) |
| Population in million (% of the total of MMR) | 11.9 (61.86%) | 7.38 (38.14%) |
| Working population in the metro (of the MMR) | 62.05% | 37.94% |
| Chennai Metropolitan Region | | |
| Name | Chennai City | Rest of CMR*** |
| Area in km ² (% of the total of CMR) | 174 (14.6%) | 1015 (85.4%) |
| Population in million (% of the total of CMR) | 4.3 (59.6%) | 2.9 (40.4%) |
| Working population in the metro (of the CMR) | 60.62% | 39.38% |

The area up to 500 m from the High Tide Line is defined as the coastal strip, under the Coastal Regulation Zone (CRZ) Notification, 1991/2011, issued by the Ministry of Environment and Forests (MoEF), Government of India. However, no demographic or socio-economic data are available for the coastal zone separately, because the zone only partly falls within the smallest administrative units of the metropolitan region.

* Source: MMRDA and CMDA and 2001 District Handbooks.

** Includes parts of Thane and Raigad Districts.

*** includes parts Kancheepuram and Tiruvallur Districts. Values in parenthesis are % to metropolitan region.

3. Mumbai Metropolitan Region

3.1 Overview of Urban Development

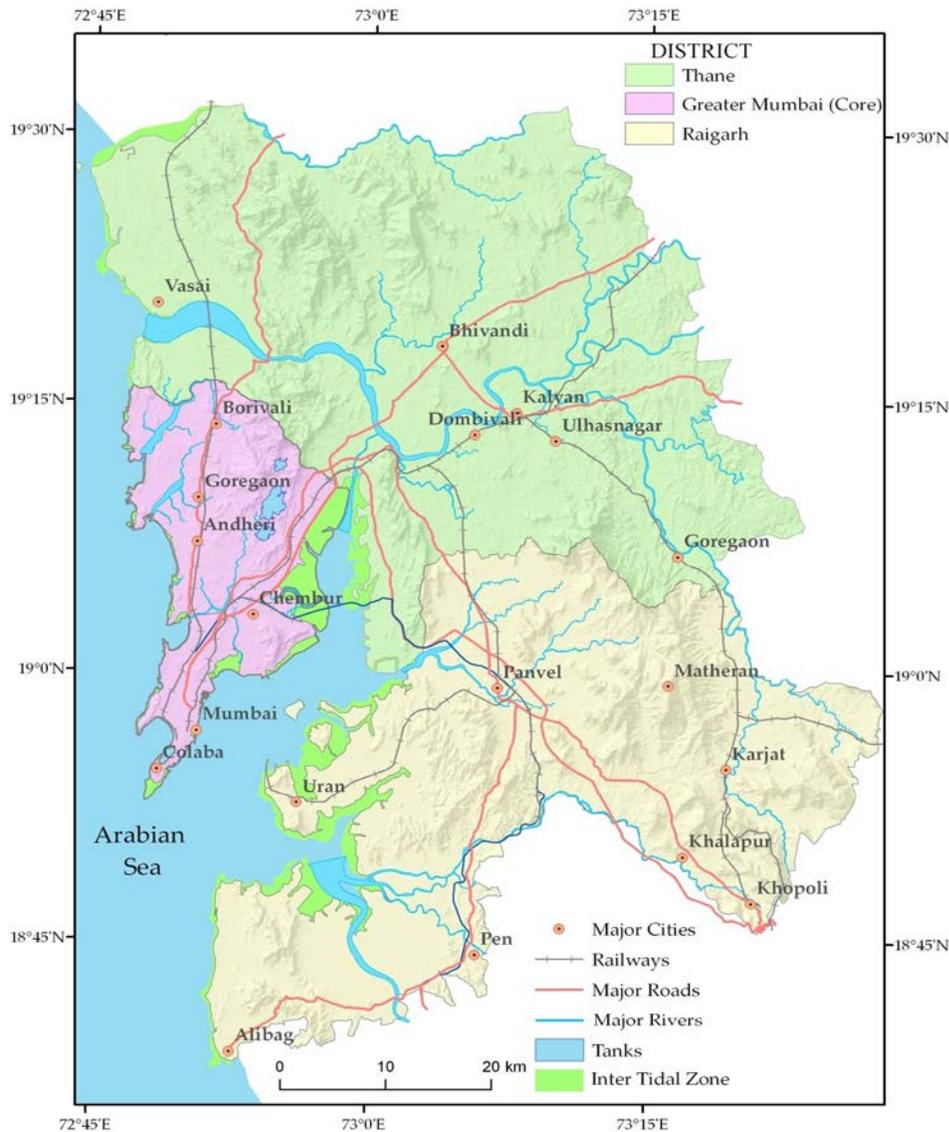
Sprawling over an area of 4,355 km², the Mumbai Metropolitan Region (MMR) is home to more than 19 million inhabitants. The MMR consists of Greater Mumbai (core) and parts of Thane and Raigad Districts (Figure 4.2). The region consists of seven municipal corporations (Greater Mumbai, Thane, Kalyan, Navi Mumbai, Ulhasnagar, etc.), 15 municipal towns, seven non-municipal urban centers, and 995 villages. The uniqueness of the Mumbai megacity lies in its huge population, its substantial slum population, its very high population density and its phenomenal economic and cultural development in the last few decades.

The *Kolis*, the fishermen community, are considered to be original inhabitants of the Mumbai area. Therefore, Bombay was renamed as Mumbai in 1996, after 'Mumbadevi', the patron Hindu goddess of the *Kolis*. Bombay (now Mumbai) was a group of seven separate islands before 19th century. By the year 1862, the seven islands were coupled together by reclamation. But parts of present Greater Mumbai remained as islands until the beginning of the 20th century (Fig. 4.3). The Kanheri Buddhist Caves in Mumbai suburban area are evidence of the introduction of Buddhism in the region during the reign of Ashoka the Great (3rd century BCE). The Konkan region, including Mumbai, was ruled by Satavahanas, Kalachuri, Mauryas, Chalukyas and the Rashtrakutas and Yadavas of Devgiri until Muslim rule came in the early 14th century. In 1534, the Portuguese captured the Bombay islands. Within a few years, these islands were gifted to Charles II of England, in the dowry of Catherine de Braganza, the sister of the Portuguese king. The islands were then leased by Charles II to the East India Company in 1668. This company built the docks, trading posts and the fort realizing the strategic importance of these islands. As a result, Bombay very soon emerged as an important trading post. In 1708, Bombay became the headquarters of the East India Company.

Land reclamation was started due the efforts of the then Governor of Bombay, and many businessmen from different parts of the country came and settled in Bombay. The growing city particularly attracted enterprising and business communities like the Parsis, Gujaratis and Marwaris from western India. These entrepreneurs and businessmen established trading companies and factories. Bombay thus developed into a major commercial centre in western India. During the following period, Bombay witnessed construction of offices, railway stations, educational institutes, banks, hospitals, etc. During British rule, Bombay was the capital of the Bombay Presidency, encompassing much of the western India (including Karachi, Pakistan), and parts of central India.

Bombay emerged as the chief commercial and industrial center in India after the advent of the Great Indian Peninsular Railways in 1853 and the opening of the Suez Canal in 1869. The first textile mill was established in Mumbai in 1850. Until the 1980s, the textile industry was the leading and biggest employer in the mega city. In the early 20th century, Bombay emerged as the main center of the India film industry. Bombay was declared the capital of Bombay State, once India became independent in 1947. In 1961, the State of Maharashtra came into existence and Bombay was made its capital.

Figure 4.2. Map of the Mumbai Metropolitan Region showing the core and the ring



The population of Greater Mumbai (core) was 11.9 million in 2001. In the same year, there were 7.4 million inhabitants in the outer ring. Like most Indian cities, Mumbai has registered a dramatic increase in population during the last four decades. Between 1971 and 2001, the population of MMR increased by a factor of 2.5. Within the MMR, the rise in the population has continued unabated at the compound annual growth rate (CGAR) of 3.09% during the period 1971 and 2001. Apart from natural growth, large-scale migration has been primarily responsible for this phenomenal increase in the population. Slightly more than half of the inhabitants are males. The male: female ratio is almost same for the core and the outer ring, and has declined slightly between 1991 and 2001. In 1991, the urban and rural population of MMR was 13.4 million (92%) and 1.1 million (8%) respectively. The respective values for 2001 were 18.0 million (93.5%) and 1.3 million (6.5%).

The average population density in MMR is about 4445 persons/km². The density is 14 times higher than the national average (324 persons/km²). Fig. 4.4 illustrates that the core area, as expected, is much more densely populated than the outer rural areas of the metropolitan region. Some wards in the Greater Mumbai area have density exceeding >150,000 persons per square km, implying exceptionally high population pressure on the available land.

3.2 Migration

3.2.1 In-migration

Mumbai is a very socially diverse city, primarily due to the attraction of migrants from all over India, and from the north Indian states in particular. As per the Census of India definition, the ratio of total migrants to the total population, multiplied by 1000, is the migration rate, and is a strong indicator of 'population mobility'.

In 2001, a little less than one half of the total population of Greater Mumbai was classified as migrants, i.e. the migration rate was 433. This proportion was almost two-third in 1961 (Table 4.2). In 1991, there was a noteworthy decline in migrant population in Greater Mumbai. The reasons for this are not very clear. The migrants are primarily from rural areas. Migration is the root of cultural and economic progress in the city.

Table 4.2. Migrant population in Greater Mumbai from 1961 to 2001*

| Metro Region | Unit | 1961 | 1971 | 1981 | 1991 | 2001 |
|----------------|----------------|------|------|------|------|------|
| Greater Mumbai | in million | 2.66 | 3.37 | 4.23 | 3.69 | 5.18 |
| | Migration rate | 641 | 564 | 512 | 372 | 433 |

It is not possible to map the distribution of net migration and in-migration within the core and outer ring, because migration data are available only at the district level and not at the ward or village level.

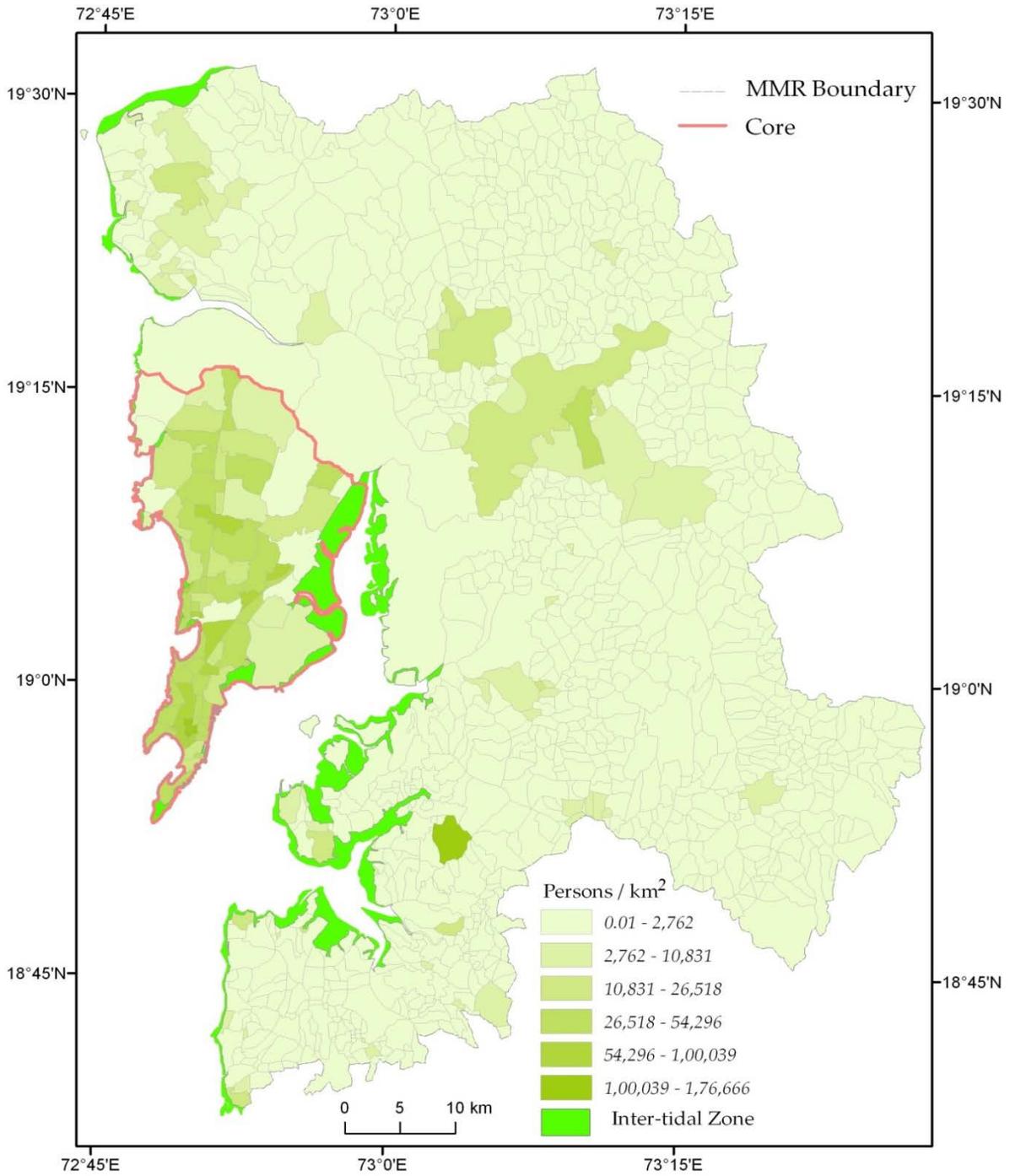
3.2.2 Out-migration and temporary migrants

No information is available regarding out-migration for the two cities. The census of India and the District Handbooks do not even mention out-migration. But there is little doubt that there is some out-migration and there is sizable population of temporary migrants in MMR.

There are a large number of central (federal) and state government offices and institutes as well as defense establishments in Mumbai. The government employees working in these offices and institutes have transferable jobs. Therefore, a sizeable number of persons working in Mumbai have been transferred from other parts of the state or country. Some of them may settle in the city after retirement, but many may be transferred elsewhere. Furthermore, in recent years a large number of students from other parts of the country have moved to Mumbai for higher education, constituting an important source of temporary migration, although a large part of this may become permanent in due course.

* Source: Greater Mumbai Municipal Corporation webpage.

Figure 4.4. Population density (persons/km²) map of Mumbai Metropolitan Region (2001)*



* Density classes are based on natural breaks.

3.2.3 Origins and ethnicity of in-migrants

Of the total in-migrants in Greater Mumbai (core), 61% are from other Indian states, such as Gujarat, Uttar Pradesh, Bihar and Karnatak. However, in the rest of MMR (the ring), the proportion of migrants from other states is lower (34%) and there are relatively more migrants from within Maharashtra State (Table 4.3). The proportion of international migrants is relatively low in both the core and ring of Mumbai.

Table 4.3. Total migrants in the core and the outer ring of the MMR (2001)*

| Type of Migrants | | Mumbai Metropolitan Region | |
|-------------------------|---|----------------------------|-------------------------------|
| | | Core (Greater Mumbai) | Outer Ring (Rest of MMR**) |
| Total Migrants % | | 43.7 | 56.6 |
| Beyond the outrigger | Migrants born within the state of Maharashtra % | 37.5 | 65.4 |
| | Migrants born in other states of India % | 61.0 | 33.6 |
| | Migrants born in other countries % | 1.4 | 0.9 |

Some statistics available for Mumbai reveal that the majority of migrants are from rural areas, and migrate to cities because of both economic and social reasons. The most prominent reasons for other-state and within-state migration are: work and employment, business, education, marriage and others.

Although Mumbai is overwhelmingly dominated by Hindus (60 to 90%), including migrants, the people of Maharashtra (Mumbai) belong to a different ethnic group. Mumbai is the capital of Maharashtra State. The Maharashtrians belong to the Indo-Aryan ethnic group of western India, and the Marathi language is an Indo-Aryan language of the larger Indo-European language family.

The multi-lingual nature of Greater Mumbai is primarily the outcome of migrants coming from the Hindi speaking belt of north India and Gujarat State in western India. Partition

* Source: 2001 District Handbooks.

** Estimated on the basis of proportion to total population.

of India in 1947 also brought many Hindus from Pakistan's Sindh Province. Marathi is the main language of the Maharashtra State and hence the official language of Greater Mumbai and MMR. Slightly more than one-third of Mumbai's population speaks Marathi. However, in the MMR the percentage of Marathi speakers is 50 to 80%. Hindi is spoken by 16-18% of the population in Greater Mumbai. Other important languages spoken in Mumbai are Urdu and Gujarati.

3.3 Journey to Work

Travel to work is distinctive in Mumbai, compared to the European case studies in this volume. According to the estimates of the MUTP (2001), circa 15 million population generate total peak hour passenger trips of 2,154,860 in Mumbai. Out of this, 88% of the commuters use public transport (buses and local trains), while about 7% use private vehicles and the remainder travel by taxis and other vehicles.

With increasing prosperity and/or increasing distance between work places and residences, the number of motor vehicles has grown several fold since the 1980s. Table 4.4 shows that, in Mumbai, the number of vehicles has increased by a factor of 2.7 between 1991 and 2008. The Motorization Rate (MR), which is the number of vehicles per 1000 population, was 117 in 2006 in Greater Mumbai. The rate is higher than the national average (82/1000), but lower than other cities. The relatively low MR in Greater Mumbai is because the availability and use of suburban trains and public buses is far greater than is reliance on private vehicles. However, the MR is not a meaningful measure in India because of the dominance of two-wheelers rather than four-wheelers, as is common in Western cities.

*Table 4.4. Total Registered Motor Vehicles in Greater Mumbai (in 000s)**

| Year → | 1991 | 2001 | 2006 | 2008** | CGR %*** |
|----------------|------|------|------|--------|----------|
| Greater Mumbai | 629 | 1030 | 1394 | 1715 | 6.24 |

The estimated number of trips per person per day, or the per capita daily trip rate, for Mumbai (1.67) is significantly higher than in the other metropolitan cities in India (Table 4.5). This probably implies that people in Mumbai have to take more trips for work/education and other purposes (such as shopping, visiting hospitals, religious places, relative, etc.).

*Table 4.5. Modal share of trips and per capita trip rates in selected metropolitan cities*****

| Metro cities | Mumbai | Delhi | Kolkata | Chennai |
|-----------------------------------|--------|-------|---------|---------|
| Modal share of trips by buses (%) | 45 | 43 | 54 | 31 |
| Per capita trip rate | 1.67 | 1.56 | 1.55 | 1.50 |

Public or corporation buses constitute a very small percentage of the total vehicle population, but they are one of the most popular modes of transport. The Public Bus Service is run by `Brihanmumbai Electric Supply and Transport (BEST) in Mumbai. The BEST operates a fleet of 4037 buses, and carries 4.5 million passengers trips a day (in 2008-09), of which approximately 60% are connected with rail journeys. The buses are overcrowded during the peak hours.

* Source: Road Transport Year Book (2009), MSRTH, New Delhi.

** BMC (2008-09).

*** CGR = Compound Growth Rate.

**** Source: Study on Traffic & Transportation Policies and Strategies in Urban Areas in India (MoUD, 2008).

3.3.1 The Mumbai suburban railway – A special feature

The lifeline of Mumbai is the Suburban Electric Train (aka '*local*'). The suburban railway provides the most efficient, punctual and speedy service for commuters every day. Table 4.6 reveals that, in 2006-07, circa 6.5 million commuters travelled one-way every day. According to one estimate, the actual occupancy in a rake (or train compartment) is in excess of 4000 passengers, against its maximum capacity of 2600 passengers per rake.

Table 4.6. Total Suburban rail passenger traffic in MMR (in millions)*

| Year | 1950-51 | 1960-61 | 1970-71 | 1980-81 | 1990-91 | 2000-01 | 2007-08 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|
| Total Rail Passengers | 0.78 | 1.17 | 2.33 | 3.87 | 4.45 | 5.57 | 6.79 |

A very high percentage of the population commutes daily from town and cities within the MMR such as Navi Mumbai, Thane, Dombivali, Kalyan, Mira Road, Vasai, Virar and even distant places (>100 km away) such as Nashik, Surat, Pune, etc.

3.4 Tourists in Mumbai

Mumbai, like many other cities in India, displays a rich cultural and historical heritage. There are a number of exquisite and magnificent historical and colonial period structures. The city also has many places of worship, such as temples, churches and mosques. These religious places attract thousands of devotees and tourists. Over the last few decades, the increasing number of tourists, businesspeople and traders has made the tourism and allied industries very lucrative in Mumbai as well as other cities of India. One of the main reasons is that travel has become affordable, particularly air travel.

The limited available information indicates that Mumbai was the destination of nearly 1.66% of total domestic tourism in India in 2003. The Elephanta Caves in Mumbai is the most popular tourist destinations. The number of tourists visiting ticketed monuments gives some idea of the scale of the tourist populations in the metropolitan city (Table 4.7). Needless to say, the figures are under-estimates of the total number of domestic and foreign tourists, but they do

* Source: Basic Transport and Communications Statistics for MMR (2008), MMRDA, Mumbai.

give an impression of the ratio of domestic to international tourism at such major tourist sites. Although domestic tourism is dominant, international tourism is not insignificant.

Mumbai is the main international entry points in India, after New Delhi. In 2008, nearly 1.14 million foreign tourists (~ 3200 tourists/day) visited Mumbai. According to the Ministry of Tourism, (MoT) Government of India, Mumbai is the destination of about 21%, of all international tourists visiting India.

*Table 4.7. Number of visitors to the protected and ticketed monuments in Mumbai**

| Metropolitan city | Ticketed Monuments | 2008 | |
|-------------------|--------------------|----------|---------------|
| | | Domestic | International |
| Mumbai | Elephanta Caves | 240,042 | 16,924 |
| | Kanheri Caves | 103,844 | 3,252 |

There are number of beaches in Mumbai, such as, Chowpatti (Girgao), Dadar Chowpatti, Juhu, Versova, Gorai, etc. Most of the beaches in Mumbai are frequently visited by locals and tourists. Numerous food stalls and joints are located on the beaches. Thousands of people flock to the beaches in the evening and on holidays – representing an important inflow of population into a potentially fragile environmental zone. In Mumbai most of the beaches are polluted and are unfit for swimming. Furthermore, sun bathing is not acceptable in Hindu or Muslim societies. Sun bathing in scanty cloths is only permitted in the premises of star hotels and seaside resorts.

3.5 Nightlife and cinema in Mumbai

Mumbai is the glamour city and the entertainment capital of India. It is also home to large numbers of bars, pubs, night clubs and discotheques. Mumbai nightlife is the most vibrant and also the most popular amongst the competing nightlife scenes in India. There are literally dozens of nightspots in the city, including large numbers of renowned discotheques.

Mumbai nightlife also includes large number of cinemas. Indian Cinema has become a uniquely important icon of culture, as well as entertainment. The Indian film industry is the largest in the world, releasing more than one thousand movies every year. Mumbai is the prime

* Source: India Tourism Statistics (2008). Ministry of Tourism, New Delhi.

centre of the Hindi Film Industry, *aka* Bollywood. There are over 100 cinema halls/multiplexes within Greater Mumbai and the city has some of the highest cinema attendance rates in the world.

Mumbai also has tourist attractions for those interested in live dance, drama, and music. Regular performances and shows are held in various parts of the city, particularly during the main festivals.

3.6 Urban Sprawl

The core area of MMR is already crowded and there is hardly any space for further expansion. In the last decade or so, new buildings are being constructed, either by pulling down existing buildings or by occupying some sensitive ecological areas (frequently illegally), such as forestry land, mangrove areas or wetlands. Only in a few cases, have such sites previously been open spaces. This is because most open spaces are occupied by slums and it is very difficult to move people from these slums. Most of the new buildings that are coming up are multistoried, leading to a remarkable increase in population density. The cost of even a small apartment is prohibitive and so only the rich can afford to own them. People from other strata have no choice but to move to the peri-urban areas. But then they have to travel long distance for work, education, shopping, etc.

Slums are major living sites of the urban poor. A very large proportion of the slum population is concentrated in the city proper, rather than the peri-urban areas. This is partly due to the fact that the slum dwellers cannot afford the high travel costs from the ring to where the jobs are concentrated in the core. As per the 2001 census, the total slum population in MMR was about 38.2%. In Greater Mumbai (core), there are nearly 1959 slum settlements with a population of 6.47 million (or 54% of the total population of Greater Mumbai). *Dharavi* Slum is the biggest slum in Asia. It is predominantly situated over a low-lying marshy land.

Urban sprawl or suburbs, the unchecked spread of cities into adjacent lands, is a common feature of all Indian cities. Navi (new) Mumbai, Vasai-Virar and Thane city in MMR are the result of the urban sprawl of Mumbai. The suburbs are mostly residential areas and hence most people who reside here go into the city (core) for work. Since these places are far from their residence, people travel hours every day by different transport modes to get to work. Students also travel long distances to attend schools and colleges. All this results in excessive use of different modes of transportation.

4. Chennai Metropolitan Region

4.1 Overview of Urban Development

The Chennai Metropolitan Region (CMR) encompasses a total area of 1,189 km² and consists of Chennai City District (core) and parts of Kancheepuram and Tiruvallur Districts (Figure 4.5). The CMR comprises the Chennai Municipal Corporation, 16 municipalities, 20 town panchayats and 214 villages.

It is believed that St. Thomas, an apostle of Jesus Christ, was martyred in Chennai (Mylapore) in the first century. The growth of the city bears the influence of all the popular dynasties of South India, such as the Pallavas, the Cholas, the Pandyas and the Vijaynagar Empire. The seventh century Pallava Port, Kapalesvara and Parthasarathi Temples are evidence of the long history of the city. Like Mumbai, Chennai also has been – and continues to be – shaped by diverse human mobility flows.

The origins of the present metropolitan city date from 1639, when the East India Company established a trading post here. A settlement was built in 1640 and was named as St Georgès Fort. In 1746, Chennai, along with Fort St George, came under the control of France. Within three years, the British again secured control over Chennai. By the late 18th century, they were able to annex most of the region around Tamil Nadu, Andhra Pradesh and Karnataka, and founded the Madras Presidency. Figure 4.6 shows the growth of Chennai City between 1633 and 1857. When India became independent in 1947, Chennai City was designated the capital of Madras State, which was later renamed as Tamil Nadu in 1968. In 1996, the Government of Tamil Nadu officially changed the name of Madras to Chennai.

The total population of Chennai City was about 4.3 million in 2001, and about 2.9 million inhabitants lived in the metropolitan ring. The city has registered a significant increase in population during the last four decades. Between 1971 and 2001, the population of CMR doubled. Within the CMR, the rise in the population has continued unabated at the compound annual growth rate (CGAR) of 2.42% during the period 1971 and 2001. Apart from natural growth, migration has been primarily responsible for this. The urban population of CMR increased from 86.3% in 1991 to 92.5% in 2001. The urban population of Chennai city (core) has been 100% since 1991. The ring has posted a significant increase in urban population from 52.9% in 1991 to 80.9% in 2001.

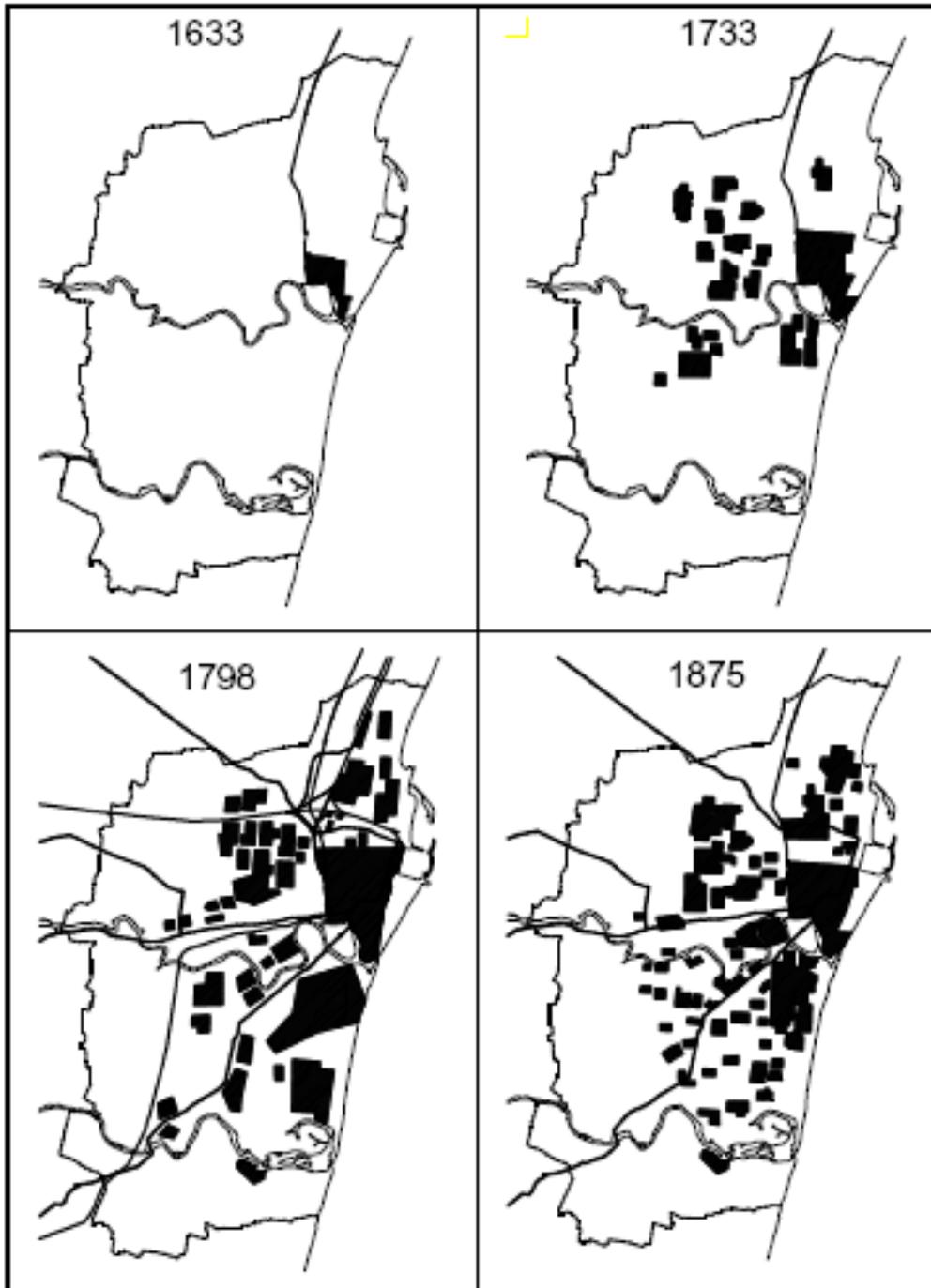
The average population density in CMR is approximately 6042 persons/km². The density is 19 times higher than the national average (324 persons/km²), even higher than Greater

Mumbai. Figure 4.7 shows the spatial variation in the population density in the city in 2001. The map shows that the core area, as expected, is more densely populated than the outer more rural area of the metropolitan region. Some wards in the city area (core) have densities exceeding 100,000 persons per square km, implying very high population pressure on land.

Figure 4.5. Map of the Chennai Metropolitan Region showing the core and the ring



Figure 4.6. Growth of Madras (Chennai) between 1633 and 1875*



* Source: 2nd Master Plan CMA

4.2 Migration

4.2.1 In-migration

In Chennai, 21.6% of the population were migrants in 2001. Most of the migrants in Chennai are from within the state or adjoining states. The migrants are primarily from rural areas. Migration is considered the root of cultural and economic progress in the city.

As per the census definition, the ratio of total migrants to the total population multiplied by 1000 is the migration rate, and is considered to be synonymous with the term population mobility. In 2001, about one-fifth of the total population of Chennai City (core) was classified as migrants, that is, the migration rate was 216. This proportion was almost one-third in 1961 (Table 4.8).

Table 4.8. Migrant population in Chennai City, 1961-2001*

| Metro Region | Unit | 1961 | 1971 | 1981 | 1991 | 2001 |
|--------------|----------------|------|------|------|------|------|
| Chennai | Millions | 0.64 | 0.78 | 1.01 | 0.92 | 0.94 |
| | Migration rate | 372 | 316 | 307 | 239 | 216 |

It is not possible to map the distribution of net migration and in-migration within the core and outer ring, because migration data are only available at the district level and not at the ward or village level.

4.2.2 Out-migration and temporary migrants

No information is available for out-migration from the city. The census of India and the District Handbooks do not even mention out-migration. However, there is little doubt that there is a considerable population of temporary migrants in Chennai.

There are a large number of central (federal) and state government offices and institutes, as well as defence establishments in Chennai. Government employees working in these offices and institutes have transferable jobs. Therefore, thousands of persons working in Chennai have been transferred from other areas. Some of these may settle in the city after retirement or may be transferred elsewhere. In recent years a large number of students from other parts of country

* Source: CMDA 2nd Master Plan for CMR, 2026

have moved to Chennai for higher education, constituting an important source of temporary migration, although a large proportion may become permanent in due course.

4.2.3 Origins and ethnicity of in-migrants

In Chennai City (core), about 24% of the migrants are from within the state of Tamil Nadu and the remainder are from other parts of India (primarily neighbouring southern states) while less than 2% are from other countries (Table 4.9). In the metropolitan ring of Chennai, the proportion born in the state of Tamil Nadu is even greater, being 93.7%.

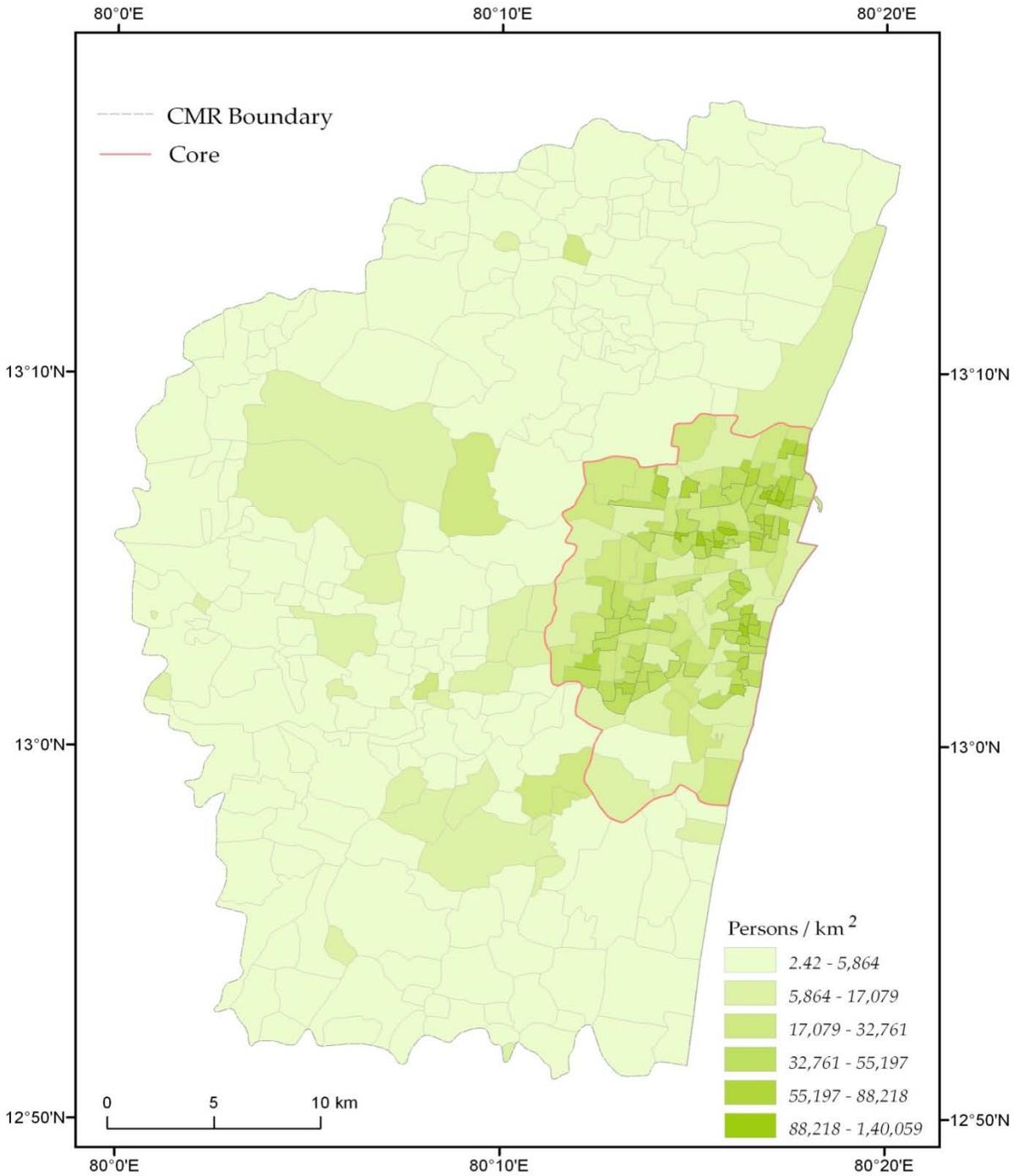
Table 4.9. Total migrants in the core and the outer ring of the CMR, based on the 2001 census*

| Type of Migrants | | Chennai Metropolitan Region | |
|--------------------------|--|-----------------------------|-------------------------------|
| | | Core (Chennai District) | Outer Ring (Rest of CMR**) |
| Total Migrants % | | 21.6 | 39.3 |
| Beyond the outer ring | Migrants born within the state of Tamil Nadu % | 23.8 | 93.7 |
| | Migrants born in other states of India % | 74.5 | 5.8 |
| | Migrants born in other countries % | 1.6 | 0.7 |

* Source: 2001 District Handbooks

** Estimated on the basis of proportion to total population.

Figure 4.7. Population density (persons/km²) map of Chennai Metropolitan Region. (2001)*



* Classes are based on natural breaks

The majority of migrants are from rural areas, and migrate for both economic and social reasons. The most prominent reasons for other-state and within-state migration include: work and employment, business, education, and marriage.

This southern Indian city is characterized by religious, linguistic and ethnic plurality. Various religious and ethnic groups co-exist, giving rise to the highly socially and ethnically diverse nature of the city. Like Mumbai, CMR is also overwhelmingly dominated by Hindus (80-90%), including migrants. Chennai is located in Tamil Nadu, which is the home of Tamil people. Tamilians belong to the Dravidian ethnic group, who speak languages belonging to the Dravidian language family. Unlike Mumbai, there is less linguistic diversity in Chennai. Tamil, the official language of Tamil Nadu State and Chennai City, is spoken by overwhelmingly large numbers of people (80-90%) in CMR.

4.3 Journey to Work

Travel to work is distinctive in Chennai, compared to the European case studies. In Chennai, the RCTI (2008) estimates that 25.8% of commuters use public buses, 19.1% use 2-wheelers, nearly 12.8% travel on bicycles and 32.7% walk to work. Suburban trains are not a very popular mode of transport, unlike in Mumbai. Inter-modal transfers from bus to rail and vice versa are generally absent in Chennai.

With increasing prosperity and/or increasing distance between work places and residences, the number of motor vehicles has grown several fold since the 1980s. Table 4.10 shows that, in Chennai, vehicle numbers have increased by a factor of 4.3 between 1991 and 2006. The Motorization Rate (MR), which is the number of vehicles per 1000 population, was 545. The rate is several times higher than the national average (82/1000). The higher MR implies that commuters prefer private vehicles. However, as stated earlier, the MR is not a meaningful measure in India because of the dominance of two-wheelers rather than four-wheelers, as is common in Western cities.

Table 4.10. Total Registered Motor Vehicles in Chennai City (in '000s)*

| Year | 1991 | 2001 | 2006 | CGR%** |
|---------|------|------|------|--------|
| Chennai | 544 | 1257 | 2338 | 13.21 |

The per capita daily trip rate for Chennai (1.50) is significantly lower than in the other metropolitan cities in India (Table 4.11). This implies that people have to undertake relatively less trips for work and other activities.

Table 4.11. Modal share of trips and per capita trip rates in selected metropolitan cities in India***

| Metro cities | Mumbai | Delhi | Kolkata | Chennai |
|-----------------------------------|--------|-------|---------|---------|
| Modal share of trips by buses (%) | 45 | 43 | 54 | 31 |
| Per capita trip rate | 1.67 | 1.56 | 1.55 | 1.50 |

Public or corporation buses constitute a very small percentage of the total vehicle population, but they are one of the most popular modes of transport. The Chennai Metropolitan Transport Corporation (CMTC), with a fleet of about 2,800 buses, undertakes 3.5 million journeys per day. Overcrowding is as high as 150% at peak hours. A survey of CMTC passengers reveals that about 80% of passengers belong to the low-income category.

Suburban trains are not a very important mode of transport in Chennai, Only about 2% of commuters travel by trains in the city. In view of the growing traffic volume, the Tamil Nadu Government is implementing the Chennai Metro Rail Project, which is scheduled to become fully operational by 2013-14. The 45-km elevated and partly underground network is likely to increase the city's public transport usage by 15%, and at least 600,000 people will be able to travel on this every day.

* Source: Road Transport Year Book (2009), MSRTH, New Delhi.

** CGR = Compound Growth Rate.

*** Source: Study on Traffic & Transportation Policies and Strategies in Urban Areas in India (MoUD 2008).

4.4 Tourists in Chennai

Being an old city, Chennai also displays a rich cultural and historical heritage. There are a number of exquisite and magnificent historical and colonial period structures. The city also has many places of worship, such as temples, churches and mosques. These religious places attract thousands of devotees and tourists. Over the last few decades the increasing number of tourists, businesspeople and traders has made the tourism and allied industries very lucrative in Chennai, as in other cities in India. One of the main reasons is that travel has become more affordable, particularly air travel.

The available information indicates that Chennai was the destination of nearly 1.66% of total domestic tourism in India in 2003. The Mamallapuram temple complex near Chennai, is the most popular tourist destination (Table 4.12).

Chennai is the third most important international entry point in India, after New Delhi and Mumbai. In 2008, nearly 0.76 million (~ 2090 tourists/day) visited Chennai. According to the Ministry of Tourism, (MoT) Government of India, Chennai is the destination of about 12%, of all international tourists visiting India. Table 4.12 gives the data regarding the number of tourists arriving in Chennai and the two nearby, extremely popular, religious/historical places in Southern India. The table clearly brings out the fact that domestic tourists overwhelmingly dominate the tourist population in Chennai. But, at the same time, it is also clear that international tourism is not insignificant, especially at Mamallapuram and Kancheepuram.

Table 4.12. Total number of tourist arrivals in 2008, Chennai*

| Destination | Domestic | Foreign | Total |
|--------------|------------|----------|-------------|
| Chennai | 11,033,027 | 762,630 | 111,092,900 |
| | 99.31% | 0.68% | 100.00% |
| Mamallapuram | 1,714,179 | 2,05,552 | 1,919,731 |
| | 89.29% | 10.70% | 100.00% |
| Kancheepuram | 1,758,970 | 1,10,156 | 1,869,126 |
| | 94.11% | 5.89% | 100.00% |

* Source: Statistical Hand Book 2010, Department of Economics and Statistics, Government of Tamil Nadu, <http://www.tn.gov.in/deptst/preface.htm>

Most of the beaches in and around Chennai are frequently visited by locals and tourists. Thousands of people flock to the beaches in the evenings and on holidays – representing an important inflow of population into a potentially fragile environmental zone. The Marina Beach is the most well known beach in the CMR, with a length about 5.6 km and a width varying from 150 to 600 m. The present Marina Beach is not a natural beach. The beach was created after the construction of Chennai Harbour at the end of 19th century. The beach is relatively clean and well maintained. Furthermore, sun bathing is not acceptable in Hindu or Muslim societies. Swimming is popular in designated areas, but sun bathing is permitted only within the premises of resorts and star hotels.

4.5 Nightlife and Cinema in Chennai

Like most large Indian megacities, Chennai has a number of bars, pubs, night clubs and discotheques. Chennai is the hub for the filmmaking industries working in the south Indian languages. There are over 100 cinema halls/multiplexes in Chennai City and the city also has some of the highest cinema attendance rates in the world. The city also has tourist attractions for those interested in live dance, drama, and music. Regular performances are held in various parts of the city, particularly during the main festivals.

4.6 Urban Sprawl

The core area of the CMR is already crowded and there is hardly any space for further expansion. In the last decade or so, new buildings are being constructed, either by pulling down existing buildings or by occupying some sensitive ecological areas (frequently illegally), such as forestry land or wetlands. Only in a few cases, have such sites previously been open spaces. Most of the new buildings that are being constructed are multistoried, leading to a remarkable increase in population density. The cost of even a small apartment is prohibitive, so that only the rich can afford to own them. People from other strata have no choice but to move to peri-urban areas.

Slums are major living sites for the urban poor. A very large proportion of the slum population is concentrated in the city proper, rather than the peri-urban areas. As per the 2001 census, the total number of slum inhabitants in CMR was 13.2% and Chennai City (core) had a slum population of ~19% of the total population. This is partly due to the fact that the slum

dwellers cannot afford even the cheapest mode of transport from the ring to where the jobs are concentrated in the core.

Urban sprawl or suburbs, the unchecked spread of cities into adjacent lands, is a common feature of all Indian cities. The suburbs (such as Velachery, Tambaram and Pallavaram) are mostly residential areas and hence most people who live here travel into the city (core) for work. Since these workplaces are far from their residences, people travel hours every day to get to work. Students also travel long distances to get to schools and colleges. All this results in excessive use of different modes of transportation.

5. Conclusions

5.1 Human-Environmental Conflicts Resulting from Human Mobility

Mumbai and Chennai have proved to be magnets attracting investments as well as entrepreneurs. Both the cities house many central (federal) and state government offices and institutes. As a result, the cities have attracted large numbers of migrants not only from the surrounding rural countryside but also from other parts of the state and the country. The unabated influx of migrants during the last four or five decades has been responsible for large-scale changes in the land use and a host of environmental and social problems. Because of overcrowding, both the cities in general and Mumbai in particular are now facing acute problem of traffic jams, air pollution, disposal of sewage, management of solid wastes and depletion as well as contamination of the surface and groundwater.

5.2 Environmental Consequence of Migration

There are a number of major environmental consequences of migration, six of which are highlighted below:

- a) Greater Mumbai is growing into an 'over-sized city' because of migration. It is turning into a slum city because of the inability of the city to absorb large numbers of migrants from low income group. According to a recent report of the Greater Mumbai Municipal Corporation (GMMC), nearly 60% of the total population of Greater Mumbai now live in slums.
- b) Overcrowding due to rural-urban migration has put enormous pressure on the existing social and physical infrastructure in the urban areas of Mumbai and Chennai. Civic

amenities such as water supply, drainage, sewerage, sanitation, solid waste disposal, roads, electricity etc. are under enormous stress. The suburban trains are dangerously overcrowded in Mumbai. In Chennai, the public buses carry 1.5 times more passengers than their maximum capacity. Municipal hospitals and dispensaries are similarly overcrowded and overburdened. In Mumbai the population per bed ratio is 1:3000 according to GMMC. In Chennai, the population per bed is 383. The same applies to schools, colleges and universities in the two cities.

- c) Poor regulations, the profit-motives of private builders and high land prices have ultimately led to unplanned growth of urban settlements in India and the formation of large slums or shanty colonies. Mumbai and Chennai are no exceptions to this. Furthermore, because of skyrocketing real estate prices in the core areas of Mumbai and Chennai Metropolitan Regions, the peri-urban areas have become an affordable option for low- and middle-income groups.
- d) Most of the slums in Mumbai have occupied (illegally) environmentally sensitive areas such as wetlands, mangrove covered areas, forest land, and river banks. *Dharavi* Slum, the biggest slum in Asia, is predominantly sited over low-lying marshy land. This is creating various types of environmental and health problems. Poor waste disposal systems have further exacerbated the problem. River pollution is widespread due to human excreta, sewage and oxygen loss. The Mitthi River in Greater Mumbai, and the Adyar and Cooum Rivers in Chennai, are examples of over-polluted waterways.
- e) Due to poor sanitation and unhygienic conditions, as well as limited access to clean drinking water, the slum areas are breeding grounds for diseases. There is considerable evidence that the incidence of malaria, cholera, tuberculosis, polio, hepatitis and gastro-enteritis are increasing. A review of health services in Greater Mumbai, on behalf of the Bombay Community Public Trust (BCPT), reveals that malaria, tuberculosis and polio are some of the diseases that have made a comeback in the city in recent years. The rate of chronic sickness, such as diabetes, hypertension and coronary artery disease (CAD), has also increased in Mumbai in recent years.
- f) Mumbai and Chennai are amongst the six most polluted cities in India, with significantly high levels of Particulate Matter and SO_x and NO_x in the ambient air, according to the Central Pollution Control Board (CPCB), New Delhi. This is evident from the data collected by the state pollution control boards of the respective states. As a

result, chronic respiratory problems due to vehicular and industrial pollution, are becoming endemic. A study found that the inhabitants of Manali in Chennai and surrounding villages were affected by respiratory problems, asthma and premature deaths (Jayanthi and Krishnamoorthy 2006).

5.3 Insiders-versus-Outsiders Conflicts

Mumbai has witnessed tension between the local Marathi population and outsiders (out of state migrants) in recent years. There is a strong feeling amongst the native population of Mumbai that they have been deprived of access to job opportunities and other civic amenities. The locals feel that their culture is also being threatened by outsiders, who are not ready to adopt the local culture. The situation has sometimes turned violent. A few years ago, the association of fisherwomen passed a resolution to revive their earlier agitation against north Indian fishermen. In Thane (within MMR), north Indian fishermen were beaten up in the fish market. In another incident, candidates from other states applying for government jobs were assaulted. In Chennai, the local versus outsiders problem is less severe, but nonetheless exists. Some political groups have suggested restrictions on further influxes of population to Mumbai city from other states. However, under the Indian Constitution, all Indians have the right to free movement and to take up residence at the places of their choice.

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CHAPTER V.

Israel: Human Mobility and Urban Development in an Emerging Metropolitan State

Gidon Jakar

Eran Razin

1. Introduction

Israel can be increasingly regarded as a metropolitan state. Its non-metropolitan areas are shrinking if existing at all, and nearly all the country lies within the sphere of influence of four metropolitan areas. These metropolitan areas are highly unequal in economic dominance, as reflected in both temporary and permanent (migration) human mobility. The Tel Aviv metropolitan area predominates whereas the other metropolitan centers increasingly perform as secondary nodes in the broader Tel Aviv metropolitan region. Commuting and migration flows reflect core-periphery structures, increasingly gravitating towards the affluent Tel Aviv area. The outer rings of the secondary metropolitan centers are particularly affected, through being increasingly connected directly to the Tel Aviv area, bypassing their (secondary) metropolitan cores of Haifa, Jerusalem and Beer Sheva. Within the Tel Aviv metropolitan area, human mobility largely reflects a substantial process of suburbanization and deconcentration, although the metropolitan core does retain its economic and cultural strength, despite losing population and jobs to the outer ring of the metropolitan area.

This chapter presents some evidence on metropolitan dynamics and human mobility in the Tel Aviv metropolitan area and in one of the secondary metropolitan areas - Haifa. It emphasizes the place of the coastal zone in these dynamics, hence the other metropolitan areas - Jerusalem and Berr Sheva - are not included, lacking a Mediterranean coastline. The chapter indeed emphasizes the dominance of the Tel Aviv metropolitan area, and of its metropolitan core city of Tel Aviv, despite the shrinking share of the city in terms of population and number of jobs. It thus emphasizes substantial suburbanization and spatial deconcentration processes that characterizes Israel, partly due to its rapid population growth compared to other developed countries.

The coastal zone attracts substantial development pressures, but paradoxically is not a prime location for retailing, entertainment, office, wholesale or manufacturing activities. In fact, the coastal zone offers inferior accessibility in comparison with inland locations that are adjacent to major transportation arteries. Israel's transportation network is not centered around the coastal zone – the major routes and intersections are inland. The market areas of coastline locations also suffer because much of the surrounding circle, based on the range of good or

service of the particular function, falls within the sea. Strict regulation has also limited construction since 2004 along the coastline (300 meters ribbon from the shore), further reducing its appeal to new business activities.

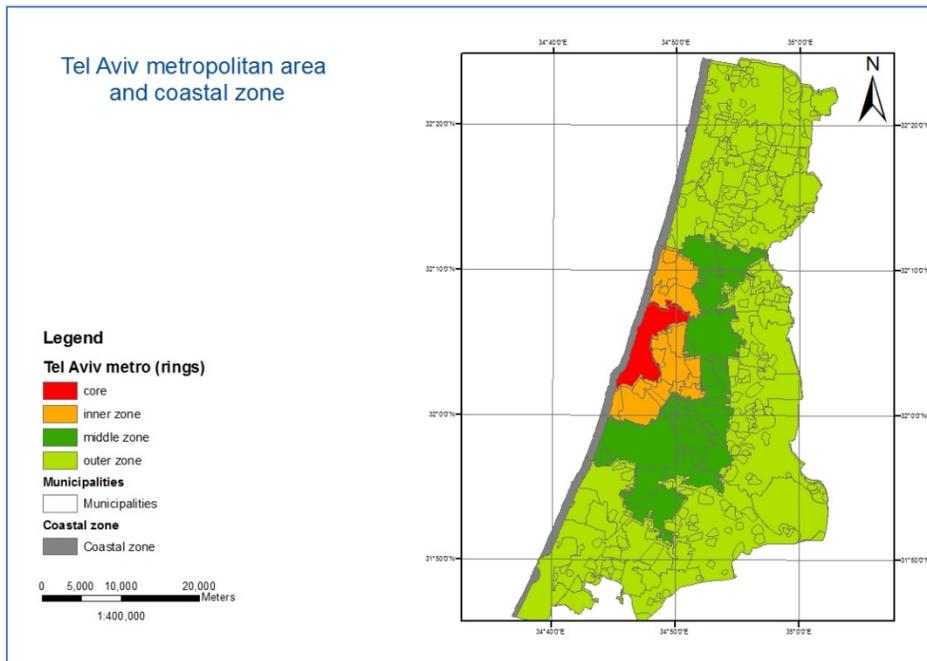
The major friction in the coastal zone thus refers to infrastructural facilities (including the army), tourism development, luxury residential demand and the desire to protect coastal ecosystems and public access to the coastline. Whereas coastal conflicts between tourism development initiatives and the environmental-conservation lobby abound, the pressures of tourism are not strongly dominant in the Tel Aviv and Haifa metropolitan areas. Prime tourist sites in Israel are located away from the Mediterranean coast: Jerusalem, Elat, the Dead Sea and Galilee and, in fact, an emerging problem since the 1990s has been the promotion of coastal tourism-related projects that were residential projects disguised as tourism.

This chapters sheds some light on human mobility in the Tel Aviv and Haifa metropolitan areas, serving as a background to the subsequent analysis of coastal conflicts and methods for their resolution.

2. Methodology

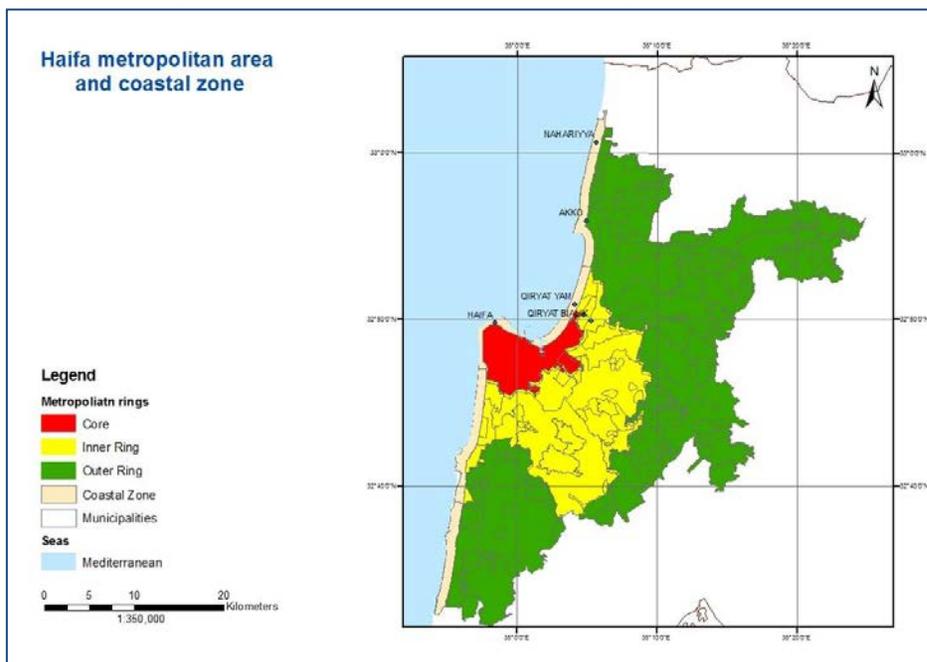
The delineation of the core and rings of the Tel Aviv metropolitan area is based on the latest (1995) definition of the Central Bureau of Statistics (CBS). The Tel Aviv metropolitan area is divided into four subsections: core, inner ring, middle ring and outer ring. The core of the metropolitan area includes the city of Tel Aviv. The inner ring includes the rest of Tel Aviv district (an administrative division used by the Ministry of Interior and several other government Ministries). The middle ring includes the inner parts of the Central district, and the outer ring includes the rest of the Central district and the city of Ashdod (located in the Southern district). The core, inner ring and outer ring have fairly large coastal strips, while the middle ring only features coastal area in its southern part (Figure 5.1). The coastal zone has been defined as a one km buffer from the coast line, but some data refer to a 3 km buffer.

Figure 5.1. Tel Aviv metropolitan area: division into rings and coastal zone



The delineation of the core and rings of the Haifa metropolitan area is also based on the definition of the Central Bureau of Statistics (CBS). The Haifa metropolitan area is divided into three subsections: core, inner ring and outer ring. The core includes the city of Haifa, including the port. All three subsections include a coastal zone (Figure 5.2).

Figure 5.2. Haifa metropolitan area: division into rings and coastal zone



3. Tel Aviv

3.1 Overview of urban development and migration trends

The Tel Aviv metropolitan area is Israel's dominant economic and cultural heart, Israel's "global city-region", the prime setting for metropolitan processes that resemble those taking place in global cities outside Israel, and the focus of most debates over metropolitan reforms. The Tel Aviv metropolis is the core region in a clear core-periphery structure characterizing Israel's space economy (Mossek, 2002).

Tel Aviv has not always been such a dominant economic force as it is today in Israel's economy. During the British mandate prior to the establishment of the State of Israel in 1948, the three major urban centers – Tel Aviv (and its neighbor Jaffa), Jerusalem and Haifa – were more balanced in terms of population size and economic power, although Tel Aviv gradually emerged as the core of the Jewish economy of Palestine. The dominance of the Tel Aviv metropolis in Israel's space economy has become evident more than ever before since the 1990s, with the metropolis attracting the young, professional, highly qualified labor, seemingly draining other parts of the country of leading talent and creativity in business services, high-technology, entertainment and culture. The share of the Tel Aviv metropolis within constant 1995

Central Bureau of Statistics (CBS) boundaries (excluding Ashdod) declined steadily, from 47% of Israel's population in 1970 to around 41% in 2000, but remained stable in the first decade of the 2000s, indicating growing dominance of the metropolitan area if taking into account that, in practice, its boundaries have expanded. More remarkably, the share of the metropolis in Israel's employment (1995 constant boundaries) declined slightly in the 1970s, but has gradually increased since 1980, reaching 49.5% in 2008 – a similar figure to that of 1970, when a large part of the area within the 1995 boundaries was not part of the metropolitan area. Including Ashdod, over 50% of the places of work in Israel are in the Tel Aviv metropolis, and the growing gap between the share of the metropolis in Israel's population and its share in employment indicates high rates of participation in the labor force, low unemployment and increased commuting to the metropolis from beyond its formal statistical boundaries.

A broad consensus exists among geographers and economists as to the emergence of only one metropolitan region that includes the majority of the country, labelling it the "State of Tel Aviv". This term reflects the economic pull exerted by Tel Aviv and its suburbs. Areas that

were once associated with other metropolitan regions are showing increased attraction to the Tel Aviv metropolitan area specifically for work purposes.

As mentioned above, the Tel Aviv region (specifically its core area) has recently become a destination for young migrants. Larger families, or families with kids, have tended to move out of the core towards the outer rings of the metropolis. The major aspect of human mobility in the metropolis consists of commuter flows, mainly to the core of the metropolitan area with hundreds of thousands commuting to Tel Aviv daily (Kipnis, 1998a). The development of the rail system in the early 2000s, adding new suburban lines and improving the lines that connect Tel Aviv to the other metropolitan centers (Haifa in the north and Beer-Sheva in the south), have contributed to the preservation of a radial commuting pattern, although suburb to suburb commuting flows and even flows outwards from the inner parts of the metropolis have also increased. Suburban commuting patterns have also been influenced by growing suburban hi-tech centres, heavily dependent on the private car and on the prevalent norm in Israeli high-tech enterprises to give a leased private car to their employees (fuel included) as part of their employment benefits.

Since the 1980s, a new wave of suburbanization has created an overspill of development beyond the middle ring of the Tel Aviv metropolitan area, into a new outer ring, including publicly planned new cities or large extensions of existing cities, such as Rosh HaAyin, Yavne, Shoham and Modiin. The large port city of Ashdod, located at the southern fringe of the metropolitan area, also became part of the labor market of the Tel Aviv region in that period. Another part of this overspill has been spontaneous suburbanization of rural settlements. The fast growth of the outer ring was enhanced by the growing number of private vehicles and the continuous decline of the agricultural base of many of the rural settlements in this area. Mass immigration from the former Soviet Union had a major role in setting in motion the evolution of this outer ring of rapid metropolitan growth in the 1990s.

3.2 Temporary mobility

The commuting matrix of the Tel Aviv metropolitan area (Table 5.1) reveals the following: First, the core of the Tel Aviv metropolitan area has retained its dominant position as the major employment node in the metropolis, being the location of far more places of work of residents living in the Tel Aviv metropolitan area than the number of employed persons residing in the core, in both 1995 and 2008. However, this gap has narrowed somewhat. The core had a very positive “commuting balance” with all rings of the metropolis in both years.

Table 5.1. The Tel Aviv metropolitan area – commuting matrix, 1995 and 2008*

| Origin | Core | Inner ring | Central ring | Outer ring | Total | Coastal zone |
|---------------------|---------|------------|--------------|------------|-----------|--------------|
| 1995 | | | | | | |
| Core | 94,630 | 21,370 | 7,870 | 1,760 | 125,630 | 28,135 |
| Inner ring | 104,735 | 124,630 | 26,425 | 4,480 | 260,270 | 42,595 |
| Central ring | 51,420 | 39,280 | 151,790 | 11,125 | 253,615 | 15,695 |
| Outer ring | 18,620 | 15,180 | 25,165 | 107,565 | 166,530 | 24,950 |
| Total | 269,405 | 200,460 | 211,250 | 124,930 | 806,045 | 111,375 |
| Coastal zone | 48,675 | 22,360 | 7,230 | 28,635 | 106,900 | 36,055 |
| 2008 | | | | | | |
| Core | 140,719 | 36,042 | 21,239 | 7,165 | 205,164 | 32,907 |
| Inner ring | 115,687 | 174,043 | 57,007 | 15,165 | 361,902 | 36,167 |
| Central ring | 72,206 | 64,878 | 266,629 | 37,534 | 441,246 | 17,048 |
| Outer ring | 35,367 | 31,176 | 61,328 | 212,259 | 340,130 | 45,689 |
| Total | 363,979 | 306,138 | 406,203 | 272,122 | 1,348,442 | 131,810 |
| Coastal zone | 57,719 | 29,068 | 15,420 | 41,982 | 144,188 | 41,465 |

All the rings of the metropolis were net exporters of employees, that is they had a larger number of employed residents than places of work. The gap was narrowest in the central ring,

* Source: Censuses of Population and Housing (1995, 2008).

being the location of major suburban employment nodes, such as Petah Tikva and Rishon LeTzion. As to the position of the coastal zone, the number of employed persons residing in the coastal zone has been rather similar to the number of employed persons working at the coastal zone. In fact, whereas in 1995 the coastal zone had a small net outflow of commuters, by 2008 this has changed and the coast has become characterized by a positive net inflow of commuters.

As expected, the coastal zone in the metropolitan core had a very high net inflow of commuters reflecting its substantial role as a metropolitan employment node. The coastal zones in the inner and central rings had a very high net outflow of commuters in 1995, but this net outflow became less striking in 2008 due to a substantial increase in the number of places of work in the coastal zone in these rings. The opposite has happened at the coastal zone of the outer ring. The number of places of work located in this zone has grown considerably, but the number of employees residing in this zone grew even more rapidly, so that it moved from a positive net inflow to a net outflow of commuters.

There are no available data on travel for shopping purposes. Such data could become available when the results of the national travel behavior survey, to be held in 2012, will be released. The last travel behavior survey took place in 1996 and is outdated. Table 5.2 provides indications for the evolving spatial distribution of retail in the Tel Aviv metropolis, mainly indicating the proliferation of planned shopping centers in the outer ring of the Tel Aviv metropolis.

Table 5.2. Retail floor space in the Tel Aviv metropolitan area by type, 2003 ***

| | Core and inner ring | Middle and outer ring (excluding Ashdod) | Total |
|--|---------------------|---|-----------|
| Planned shopping centres | 350,000 | 640,000 | 990,000 |
| Out of planned centers (in traditional street locations, including industrial zones) | 750,000 | 800,000 | 1,550,000 |
| In the rural sector | 0 | 130,000 | 130,000 |
| Total | 1,100,000 | 1,570,000 | 2,670,000 |

Table 5.3 demonstrates the substantial deconcentration of economic land uses, mainly from the core of Tel Aviv to the central and outer rings. Such deconcentration has been most marked in retailing. The proportion of employed persons in wholesale, retail trade and automobile repair shops in the city of Tel Aviv declined from 60% in 1970, to 35% in 1995 and to 22% in 2005 of employed persons in wholesale, retailing and automobile repair shops in all parts of the metropolis (excluding Ashdod). In contrast, the proportion of employed person in the same economic branch in the middle and outer rings grew from 21.7% in 1970, to 35% in 1995 and 53% in 2005. Deconcentration was also relatively rapid in accommodation services and restaurants, but more to the inner ring of the metropolis. Deconcentration of retailing largely followed residential suburbanization, thus potentially reducing radial shopping-related travel patterns to the metropolitan cores, but increasing car-dependent suburb-to-suburb travel.

* Source: Czamanski Ben Shachar and Co. Ltd., Haifa.

** The table presents estimates of net retail floor space (square meters).

Table 5.3. *Employed persons in the Tel Aviv metropolitan area by place of work and selected economic branches, 1995-2005**

| | Manufacturing | | | Wholesale, retail trade, automobile repairs | | | Accommodation services and restaurants | | |
|----------------------------|--|------|------|--|------|------|--|------|------|
| | 1995 | 2000 | 2005 | 1995 | 2000 | 2005 | 1995 | 2000 | 2005 |
| <u>% of the metro area</u> | | | | | | | | | |
| The city of Tel Aviv | 26.5 | 20.6 | 18.1 | 35.1 | 28.5 | 22.2 | 45.7 | 38.7 | 33.6 |
| Inner ring | 26.3 | 23.8 | 19.8 | 30.1 | 24.1 | 24.7 | 19.6 | 22.6 | 26.1 |
| Middle and outer rings | 47.2 | 55.6 | 62.1 | 34.8 | 47.4 | 53.2 | 34.7 | 38.7 | 40.3 |
| Tel Aviv metro – total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| <u>% of Israel – total</u> | | | | | | | | | |
| Tel Aviv metro – total | 46.8 | 44.1 | 43.5 | 57.3 | 54.1 | 53.1 | 44.6 | 41.7 | 47.0 |
| | Transport, storage and Communication | | | Banking, insurance, financial institutions | | | Business services | | |
| | 1995 | 2000 | 2005 | 1995 | 2000 | 2005 | 1995 | 2000 | 2005 |
| <u>% of the metro area</u> | | | | | | | | | |
| The city of Tel Aviv | 39.9 | 33.5 | 26.0 | 61.1 | 59.8 | 53.9 | 51.2 | 42.4 | 38.3 |
| Inner ring | 19.2 | 17.9 | 16.8 | 20.2 | 21.2 | 21.1 | 23.3 | 23.8 | 19.8 |
| Middle and outer rings | 40.9 | 48.6 | 57.3 | 18.7 | 19.0 | 25.0 | 25.5 | 33.8 | 41.9 |
| Tel Aviv metro – total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| <u>% of Israel – total</u> | | | | | | | | | |
| Tel Aviv metro – total | 50.8 | 52.4 | 51.7 | 68.6 | 69.1 | 75.0 | 58.9 | 61.1 | 62.1 |
| | Public administration | | | Education | | | | | |
| | 1995 | 2000 | 2005 | 1995 | 2000 | 2005 | | | |

* Source: Razin (2012), based on Labor Force Surveys, Central Bureau of Statistics.

| <u>% of the metro area</u> | | | | | | |
|----------------------------|------|------|------|------|------|------|
| The city of Tel Aviv | 38.3 | 44.4 | 38.5 | 22.6 | 21.8 | 19.9 |
| Inner ring | 19.3 | 15.1 | 16.8 | 28.1 | 27.7 | 27.3 |
| Middle and outer rings | 42.4 | 40.5 | 44.7 | 49.2 | 50.5 | 52.8 |
| Tel Aviv metro – total | 100 | 100 | 100 | 100 | 100 | 100 |
| <u>% of Israel – total</u> | | | | | | |
| Tel Aviv metro – total | 39.0 | 38.1 | 40.5 | 39.5 | 40.6 | 39.1 |

| | Health, welfare, social Services | | | Community, social & personal services | | |
|----------------------------|----------------------------------|------|------|---------------------------------------|------|------|
| | 1995 | 2000 | 2005 | 1995 | 2000 | 2005 |
| <u>% of the metro area</u> | | | | | | |
| The city of Tel Aviv | 22.2 | 21.7 | 22.6 | 43.4 | 42.0 | 36.8 |
| Inner ring | 27.5 | 24.7 | 26.4 | 25.1 | 21.4 | 26.7 |
| Middle and outer rings | 50.3 | 53.6 | 51.0 | 31.6 | 36.6 | 36.6 |
| Tel Aviv metro – total | 100 | 100 | 100 | 100 | 100 | 100 |
| <u>% of Israel – total</u> | | | | | | |
| Tel Aviv metro – total | 48.3 | 48.3 | 46.0 | 51.3 | 49.7 | 46.6 |

The coastal zone in this aspect is less functional, specifically the areas closer to the coastline. The 1 km stretch defined as the coastal zone does attract retailing and shoppers. However, most of the retail activity in the 1 km coastal buffer is located near the eastern edge of the buffer, and not along the coast. Shopping centres located in coastal cities in the Tel Aviv metropolis are not located along the coastline, with the one exception of a large – but rather unsuccessful – shopping mall in the Herzeliyya marina.

Indeed, the location of retail and office complexes on the coastline has proved unsuccessful in the Tel Aviv metropolis. Commercial centers on the coastline suffer from constrained market area, because one half of the area of the circle defined by their practical “range of good” (the maximal time customers would be willing to travel for such a function) falls within the sea. The sole planned shopping mall established in the late 1990s on the coastline – in the Herzeliyya marina – is indeed not considered to be a success, having a number of potential customers residing nearby, and unable to compete with shopping malls located near major inland intersections, particularly with another shopping mall located a few kilometres to the east, at the intersection of two major motorways. This has also proved to be the case with a shopping mall established near the coastline in the city of Ashdod. It failed to compete with better located shopping malls and power centres (automobile-oriented single-storey shopping centers, dominated by big-box retail and uncovered parking lots) established inland.

The city of Tel Aviv opted in the 1960s and 1970s to develop its new CBD on the coastline north of Jaffa, but despite all efforts, and the establishment of several office towers, the initiative failed because of inferior accessibility of the coastline. Office functions preferred to locate a few kilometres to the east, close to the major motorway that crosses Tel Aviv from North to South (Netivei Ayalon). Thus they either located in low-rise office buildings disguised as industrial structures in the neighbourhood of Nachlat Itshak near the motorway or in the adjacent inner suburban city of Ramat Gan (Felsenstein & Shachar 2002). Only decades later has this has been understood by city leaders, who revised the city’s policy, now encouraging the development of a new metropolitan CBD along the Netivei Ayalon motorway rather than along the coastline. The construction of the Azrieli Towers near the motorway in the 1990s most clearly marked this policy shift.

Recreational activities, including restaurants, hotels and associated retail activities are attracted to the coastline cities of Ashdod, Rishon Letzion, Bat Yam, Tel Aviv, Herzeliyya and Nethanya, but none of their central business districts (CBDs) are oriented towards the coastline.

While prominent in the landscape – high-rise hotels, restaurants, marinas – their roles in the respective urban economies is rather modest, and indeed some mayors complain that having a coastline within their jurisdictional area entails far more costs than the municipal tax revenues that it generates.

3.3 Tourism and culture in the coastal strip

Foreign day-tourists who arrive on cruise ships disembark in the port of Ashdod at the southern edge of the metropolitan area: there are an estimated average of 558 passengers per day. These usually travel by buses to Jerusalem and other holy sites – none of which are located in the coastal plain.

According to Israel's Ministry of the Environment, the average number of users of the beach for recreation per day in summer stands at around 305,000. No estimates are available only for the Tel Aviv areas. Estimates of the night-time economy of pubs, clubs and restaurants are also unavailable. During the week, both the metropolitan core and its coastal zone do serve locals and others, mainly from the core and inner rings. During the weekends a flow of people in the evening and night hours to the core and coastal zone from more remote locations is evident. Many restaurants are located near the promenades of Tel Aviv, Jaffa and Bat Yam, and sea views (Shoval, 2009). Some are located in hotels throughout the coastal zone. Pubs and clubs are also located throughout the core, serving locals during the week and being particularly active in the weekends. However, the coastline is not the location of major night time entertainment.

The city of Tel Aviv is the prime hub of restaurants in Israel, with perhaps around 50 percent of the industry and most of the top class ones. Some are situated on the coastline but, similarly to clubs and retail activities, the coastline is not a prime location for eating establishments, perhaps because of inferior accessibility or high land prices in this extremely competitive business. Tel Aviv is Israel's prime hub of theatres and cinemas, but not of these activities takes place near the coast, for similar reasons. Major new cinema complexes follow the location patterns of shopping malls, accessibility being the prime consideration, given the need of large multi-screen facilities to obtain a large market area.

3.4 Mobility and urbanization

Since the 1980s, a new wave of suburbanization created an overspill of development beyond the middle ring, represented also by publicly planned establishment and extensions to towns and cities. The large port city of Ashdod, located at the southern fringe of the metropolitan area, has become part of the labor market of the Tel Aviv region. Another part of this overspill has been the spontaneous suburbanization of rural settlements. The fast growth of the outer ring was enhanced by the growing number of private vehicles and the continuous decline of the agricultural base of many of the rural settlements in this area. Mass immigration from the former Soviet Union played a major role in setting in motion the evolution of this outer ring of rapid metropolitan growth in the 1990s.

An analysis of converted open spaces in the metropolitan area between 1995 and 2009 shows that while the core and inner rings were generally characterised by infilling of built-up areas, the outer core shows the spread of settlements, mentioned above, at the expense of open space, including along the coastal strip. Changed uses between commercial\industrial and residential land use have been common phenomena in the years 1995-2009, significantly in the core zone where land is scarce. Such transformations are evident in the outer rings but on a smaller scale due to the availability of land for development. Throughout the metropolis, the most significant changes were from Residential to Commercial land use (Figure 5.3).

The only significant intensification along the coastal strip was in the core area; the changes between commercial land use to residential and vice-versa are fairly even, with the new residential areas being clustered and new commercial uses being dispersed along the coast (Figure 5.4).

Figure 5.3. Increased intensification in the Tel Aviv metropolitan area: Rezoning of economic/commercial and residential land uses between 1995 and 2008

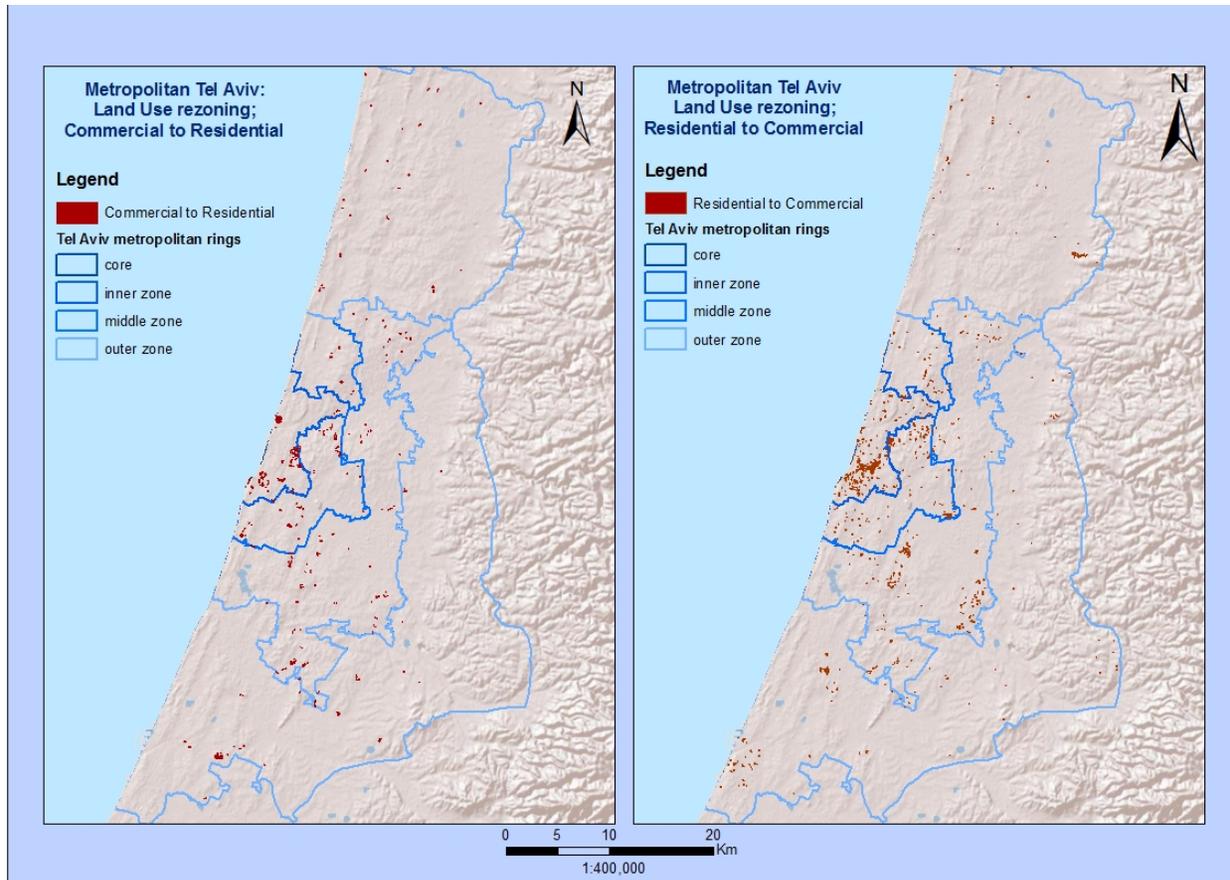
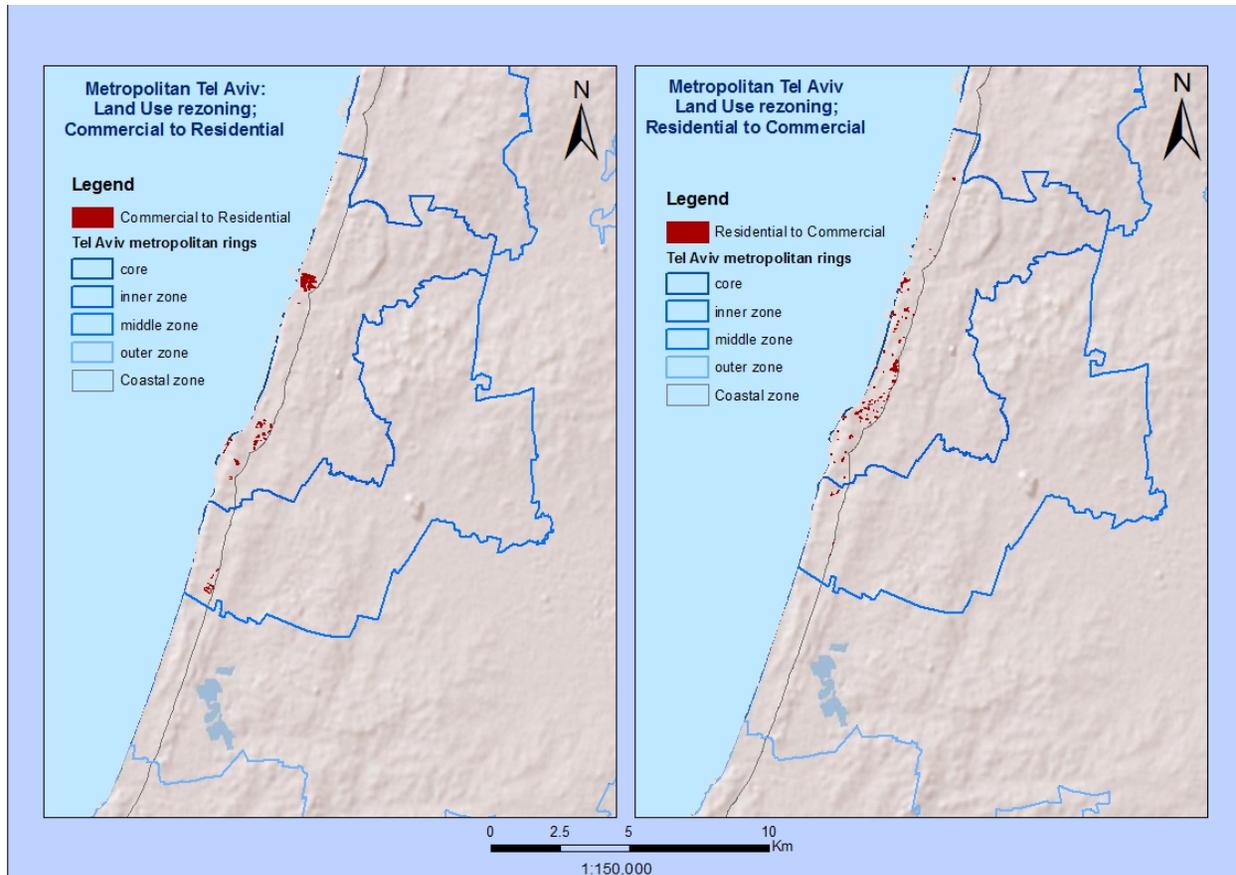


Figure 5.4. Increased intensification in the coastal ribbon (3 km) of Tel Aviv metropolitan area: Rezoning of economic/commercial and residential land uses, 1995-2008

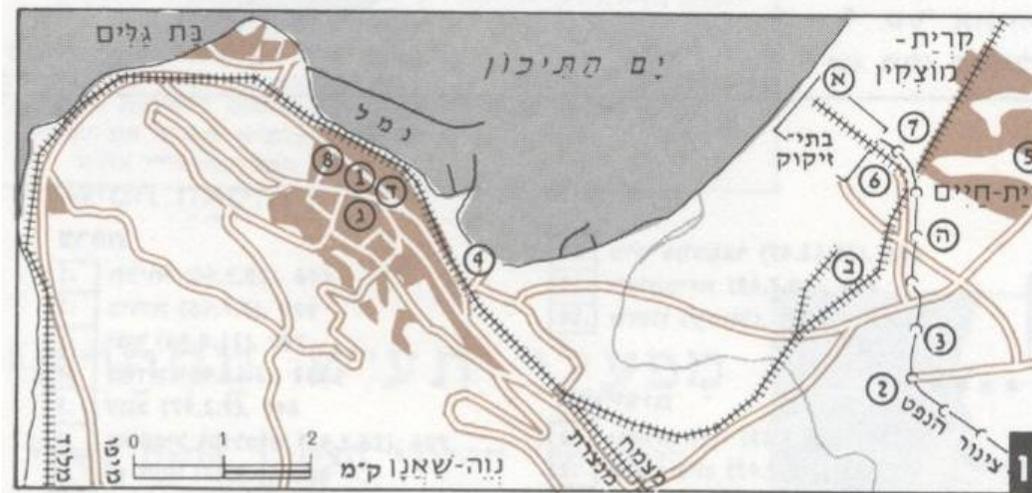


3. Haifa

3.1 Overview of urban development and migration trends

Haifa is an emerging secondary metropolitan region in Israel. Its boundaries were roughly delineated by planners to include a core urban area and three suburban/peripheral areas: the Arab-Jewish greater Nazareth area to the east (most of which was not formally defined as part of the metropolitan area in the 1995 definition of the Central Bureau of Statistics), the Jewish-Arab Karmiel-Sakhnin area to the northeast (partly included in the "official" metropolitan area), and the Northern coastal plain area of Akko-Nahariya. The Haifa metropolitan area has no clear ring structure, and suburban nodes of business activities, beyond manufacturing, are weak. The suburban centers of Nazareth, Karmiel and Nahariya are locally oriented, their role as regional centers is modest, but their ties with the Haifa metropolitan areas and to the central city of Haifa are characterized by relatively weak ties (being overshadowed by the dominant metropolitan center of Tel Aviv). Despite feelings of belonging to the Haifa-Northern region, some of them argue that – especially since the opening of the no. 6 toll road linking Galilee directly with the Tel Aviv area – that their ties with the Tel Aviv area have intensified (Heinelt *et al.* 2011). Figure 5.5 shows the city of Haifa in 1947 when the British Mandate regime expected Haifa to become a major economic centre in the Middle East, further developing its port. Development at the time concentrated near the port with further industrial and residential development on the south-eastern shore of the Haifa bay.

Figure 5.5. Haifa in 1947*



* Source: Herbert, Gilbert & Sosnovsky, Silvina (1993).

Although the Haifa region experienced vast growth after the establishment of the state of Israel, being a consequence of the demographic and economic growth of the State of Israel as a whole, it has experienced a gradual process of peri-pheralization, compared to the Tel Aviv metropolitan area (Kipnis, 1998b). Rapid demographic growth resumed in the early 1990s, thanks to mass-immigration from the former Soviet Union. A large number of these immigrants moved to Haifa due to the availability of relatively inexpensive housing in a major urban area with good access to employment – a crucial parameter in immigrant housing patterns (Mesch, 2002). Since the mid- 1990s, population growth has slowed down, even becoming negative in some years. In recent years there has been no growth in the city of Haifa's population, due to suburbanization and migration to the Tel Aviv metropolitan area.

Having been a major economic center promoted by the British Mandate government in the 1930s and 1940s, Haifa is now overshadowed by the Tel Aviv metropolitan area. Improved transportation links between the northern part of Israel and the Haifa area to the Tel Aviv core and outer areas by car and train is constantly increasing the direct mobility flows between northern localities and Tel Aviv. The majority of trips between the regions are from the north towards the Tel Aviv metropolis in the morning, and return journeys in the evening.

Unlike Tel Aviv, mobility from the outer rings towards the metropolitan core city of Haifa for work purposes is not such a dominant trend. The core does serve its surrounding hinterland, and offers for example a broad array of high threshold retail activities, but is being overshadowed by the attraction of the not-so-distant Tel Aviv metropolitan area in business services, wholesale trade, restaurants and entertainment and even in high-end-retail.

The core of the Haifa metropolitan area is the location of the Haifa port, housing civilian activities and the navy. The location of the port led to the development of transport corridors, in order to support different industries and port activities. Access to the coast-line is limited in the core by the infrastructural facilities, thus attracting leisure activities and recreation only on a small scale. North and south of the core, the coastal zone is accessible. However, apart from a few cases of tourist development, the majority of development and activity is for recreational use by local residents. Human mobility towards the coastal zone is a more minor aspect than in Tel Aviv.

3.2 Temporary mobility

The commuting matrix (Table 5.4) reveals that Haifa is a monocentric metropolitan area, to a greater extent than the Tel Aviv metropolitan area. The dominance of the metropolitan core – Haifa – declined somewhat between 1995 and 2008 but it retained a larger number of workplaces than either the inner or the outer rings. Employment in the city of Haifa is dominant among residents of the inner ring, and the inner ring has a very negative commuting balance with the core city of Haifa. The outer ring also has a negative commuting balance with Haifa, but employment within the outer ring is dominant among its residents, hence the ties of localities within the outer ring with Haifa are not very strong.

Table 5.4. *The Haifa metropolitan area – commuting matrix, 1995 and 2008**

| Origin | Core | Inner ring | Outer ring | Total | Coastal zone |
|---------------------|-------------|------------|------------|---------|--------------|
| | 1995 | | | | |
| Core | 74,170 | 8,880 | 3,100 | 86,150 | 15,530 |
| Inner ring | 38,075 | 31,060 | 4,785 | 73,920 | 10,370 |
| Outer ring | 12,300 | 6,025 | 50,455 | 68,780 | 9,695 |
| Total | 124,545 | 45,965 | 58,340 | 228,850 | 35,595 |
| Coastal zone | 25,110 | 7,560 | 13,480 | 46,150 | 13,480 |
| | 2008 | | | | |
| Core | 86,896 | 13,401 | 6,908 | 107,205 | 25,537 |
| Inner ring | 44,533 | 45,489 | 10,608 | 100,629 | 18,516 |
| Outer ring | 18,566 | 11,090 | 96,427 | 126,083 | 19,951 |
| Total | 149,995 | 69,979 | 113,943 | 333,917 | 64,003 |
| Coastal zone | 28,549 | 11,019 | 21,006 | 60,574 | 20,703 |

* Source: Censuses of Population and Housing (1995, 2008).

The coastal zone has become a substantial magnet for places of work and, in 2008, had more places of work than employees residing in the coastal zone. Places of work in the coastal zone are located in the core as well as in both rings, whereas among residents the core coastal zone is more dominant.

Major CBDs and planned shopping centers are not located in the coastal zone, and the location factors of those situated relatively close to the coast are not related to the coastline. The shift in retailing from ordinary commercial streets to planned shopping centers is associated with moving further away from the coast. Planned shopping centers would not be established on the coastal zone, because the prime locations that provide maximal market areas are located at major intersections away from the coast, whereas location near the coast reduces the market area. Moreover, it is unlikely that planning permits would be given to large car-oriented retail centers on the coastline.

3.3 Tourism and culture in the coastal strip

Similar to the Tel Aviv metropolitan area, Haifa is not viewed as a particular attraction for day foreign tourists. Its only site of a "global" reputation is the Baha'i Gardens, on the slopes of Mount Carmel, overlooking the Bay but not actually sited on the coastline. Haifa offers some spectacular Bay views and sea views, but these are all from Mount Carmel. The coastline facing the central part of Haifa is blocked for public access by the port and other infrastructural facilities, and the two existing coastal promenades are peripheral to Haifa's center.

The port of Haifa is used as a base for numerous cruise ships, from which day tourists make their way to Christian sites such as Nazareth and Jerusalem, with an average of 404 daily passengers per day.

Several clusters of restaurants and bars exist within the city of Haifa. Night-time activities hardly exist at the rings, thus the city of Haifa is the main destination for night-time entertainment. The coastal zone in this respect is more marginal than in the Tel Aviv metropolitan area. Efforts are being made to change this especially in the core city. However, such efforts are nearly impossible due to the dominant port activities that separate the city from its coastline. Two major cinema complexes are located in the city of Haifa. One of these is a major multi-screen entertainment complex. None are sited along the coast.

In 2007 the Caesarea port, an archaeological site dating back to the year 90 BC, located on the coast just beyond the southern tip of the Haifa metropolitan area, according to its formal boundaries, had an annual attendance of 713,648 visitors, being the second most visited site in Israel (with records on the number of visitors). The Baha'i gardens within the city of Haifa have over half a million visitors per year. A major coastal tourist attraction located to the North of Haifa, within the metropolitan area, is the ancient city of Acre.

3.4 Mobility and urbanization

The Haifa district, similarly to the Tel Aviv district, is highly urbanized and rather dense, except for the area designated as the Mount Carmel National Park. A major reason for the growth in the population of Haifa and its suburban rings in the 1990s was immigration from the former Soviet Union. However, growth has ceased in the first decade of the 21st century, particularly in the inner parts of the metropolis. Nevertheless, the metropolitan area continued to display substantial urban sprawl at the expense of open space between 1995 and 2009 (Figure 5.6). Intensification in the Haifa metropolitan area is less significant than in Tel Aviv. Some rezoning has occurred in the core and along the coast, but not to a substantial extent (Figure 5.7). Haifa, unlike Tel Aviv, is not characterised by increased intensification via redevelopment and increases in the average heights of buildings. Some high-rise buildings are being developed but are not a major feature in the area.

Figure 5.6. *Open space in the Haifa metro, converted between 1995 and 2009*

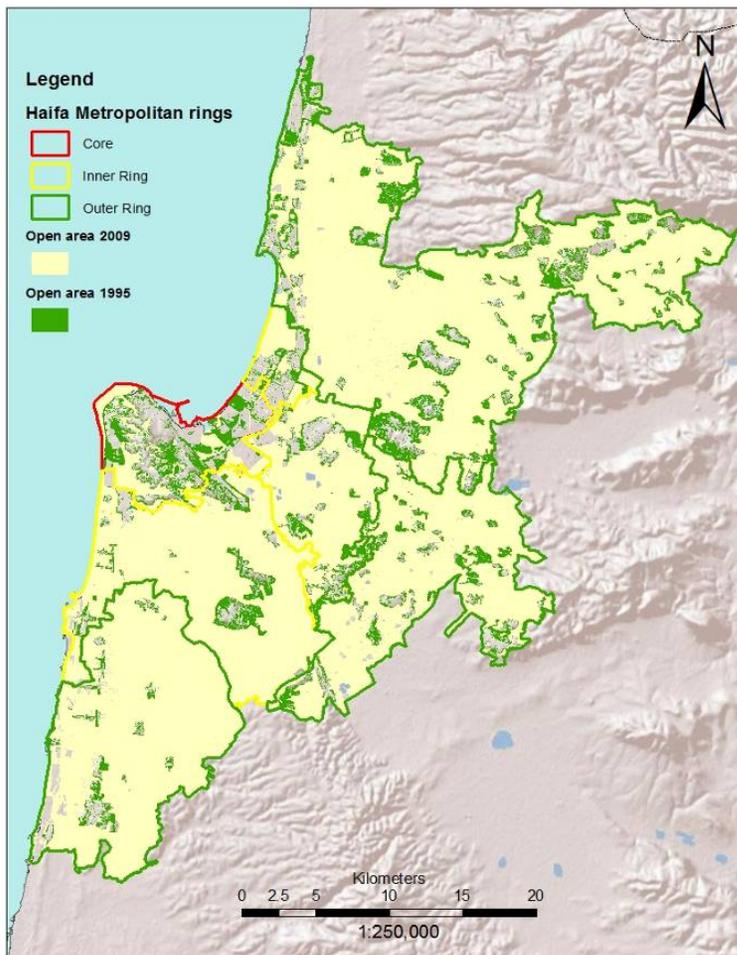
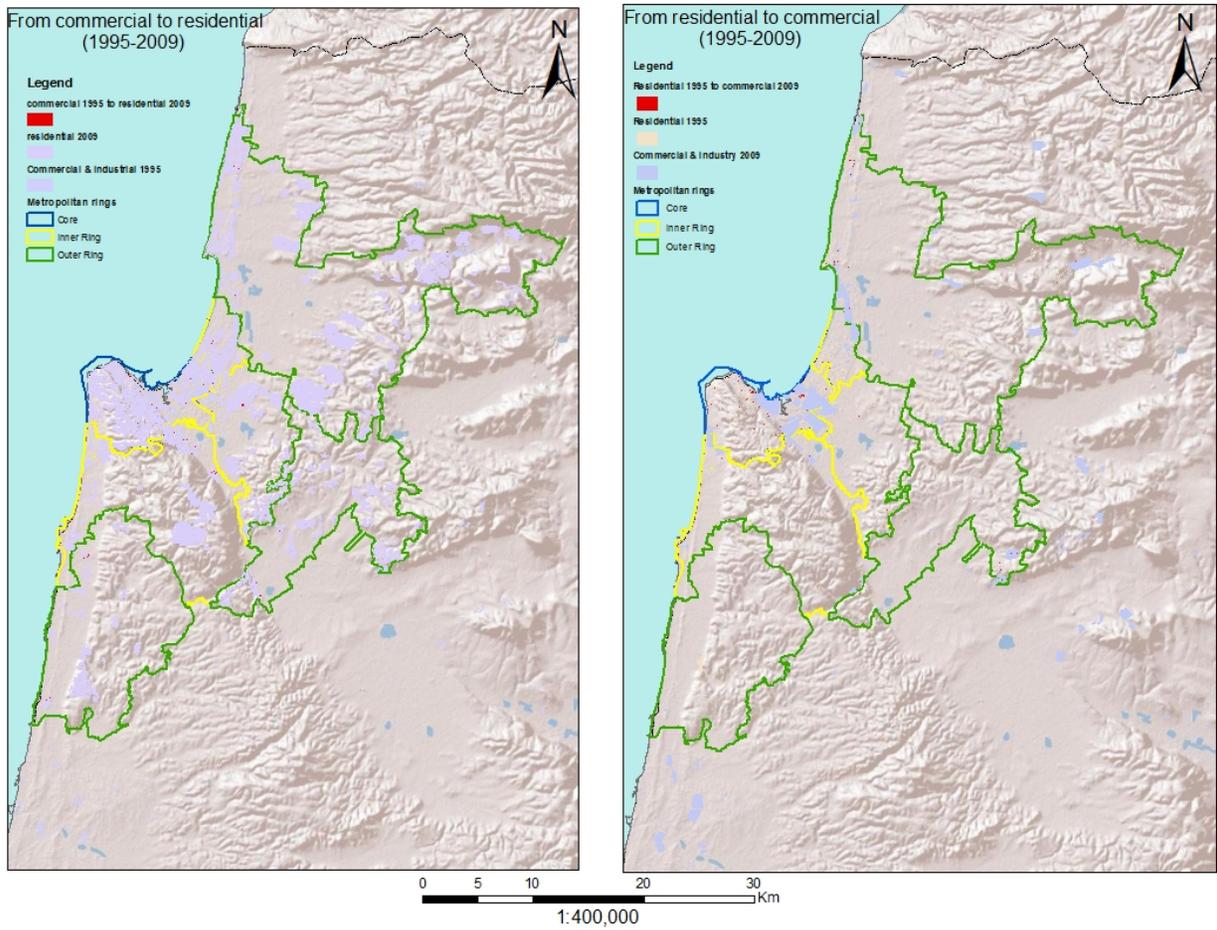


Figure 5.7. Increased intensification in the Haifa metropolitan area: Rezoning of Economic/ commercial and residential land uses between 1995 and 2009



4. Conclusion: Human Mobility and Environmental Conflicts

Both metropolitan areas exhibit major growth in the outer rings with high levels of spatial deconcentration (Table 5.5). Both cores have only increased by a small percentage and the further away from the core the higher the population growth rate.

Table 5.5. *Population growth in the Tel Aviv and Haifa metropolitan areas by rings, 1995-2008*

| | | Population | | | | | | | | |
|-------------------|------|------------|------------|--------------|------------|--------------|---------|------------|------------|--------------|
| | | Tel Aviv | | | | | Haifa | | | |
| | | Core | Inner ring | Central ring | Outer ring | Coastal zone | Core | Inner ring | Outer ring | Coastal zone |
| Total Population | 1995 | 348,245 | 787,086 | 754,454 | 570,478 | 1,054,890 | 255,914 | 238,544 | 291,473 | 453,135 |
| | 2008 | 387,464 | 810,627 | 960,076 | 938,331 | 1,467,800 | 259,239 | 270,578 | 474,639 | 595,800 |
| Percentage change | | 11.26 | 2.99 | 27.25 | 64.48 | 39.14 | 1.30 | 13.43 | 62.84 | 31.48 |

Potential human-environmental conflicts at the metropolitan scale are largely associated with the urban sprawl versus compact development discourse; that is, market preferences versus the need to preserve open space and agricultural land in the name of sustainable development. These conflicts reflect changing paradigms concerning the preservation of open space in Israel. The major concern, until 1990, was the preservation of agricultural land, and this policy was strictly implemented by requiring the approval of the statutory Commission for the Preservation of Agricultural Land for each rezoning of open space. Since the 1990s, the power of this commission has been substantially eroded and the emphasis has gradually shifted to environmental concerns. These have emphasized the scarcity of open space in Israel and the need to conserve open space for future generations. The emphasis was on protected open spaces (nature reserves, landscape reserves and protected woodland) and on non-protected greenbelts and other similar zones – the latter being the source of major conflicts. The main tools utilized were the approval of statutory land use plans at the district and national levels that have been effectively enforced since the late 1990s. In the early 2000s, the environmental lobby has pressed to recognize a new paradigm that acknowledges not only unique ecosystems, but also extensive ecological corridors that practically encompass most open spaces, pressing even more strongly for urban redevelopment, the recycling and densification of urban built up

areas. These transformations influence intra-metropolitan migration patterns and the nature of environmental conflicts associated with migration pressures.

Whereas open spaces in the Haifa metropolitan region are generally of greater value and uniqueness than those in the Tel Aviv metropolitan area (varied topography and abundance of protected land in the Haifa region versus more monotonous agricultural land in Tel Aviv's coastal plain), development pressures and public policies towards these pressures differ even more between the two metropolitan areas. Major real estate pressures are evident in the Tel Aviv region, being the core of Israel's space economy. These development pressures confront the contradictory pressures of the planning establishment and environmental lobby, to curb urban sprawl and protect open space, and the additional pressures of the population dispersal lobby, calling for increased migration from Israel's crowded center to its peripheral regions, also for geopolitical motives. Nevertheless, the success of the policy to curb sprawl has contributed to a steep hike in housing prices, creating pressures on the planning systems and conflicts over the formulation of programs for affordable housing.

The nature of conflicts in the Haifa region is substantially different. Real estate development pressures are considerably weaker, confronting the same planning policy and an environmental lobby that seeks to promote compact development and preserve open space. However, public policy is more ambivalent, because encouraging population dispersal implies promoting (Jewish) immigration into suburban and exurban metropolitan Haifa. A substantial number of suburban localities in the Haifa region are Arab, thus Jewish-Arab tensions impact on both central state policy and on the attitudes and positions of local actors.

A further migration-associated conflict concerns the challenges of residential concentrations of illegal labor migrants, particularly from African countries. These immigrants concentrate in large numbers in particular areas of southern Tel Aviv and in some other poor neighborhoods in the metropolitan area (Kemp & Rajman, 2004).

Environmental conflicts at the metropolitan scale associated with commuting patterns are mainly related to priorities in transportation investment and to the ability of the state to influence the location of economic activities. As for transportation infrastructure and policy, the following major issues are on the agenda:

1. Investment in roads versus investment in public transportation.
2. Investment in bus infrastructure versus investment in rail transportation.
3. Congestion charges (at the Tel Aviv points of access) and parking policies.
4. Public policy to encourage industrial investment in peripheral regions versus laissez faire policies.
5. Public policy that encourages concentration of economic activities in CBDs and a relatively small number of large industrial/employment estates versus pressures on local authorities to establish numerous business parks, motivated by tax base considerations.

The coastal zone is a major arena for conflicts over tourism and recreation. At the non-coastal metropolitan scale, conflicts mainly revolve around the following issues:

1. Tourism development versus urban conservation and environmental protection. Whereas, until the recent past, tourism and recreation were viewed as a means to promote preservation of valuable open spaces and unique urban neighborhoods, attitudes have changed, and both environmental and grassroots organizations frequently oppose tourism projects such as large hotels and low-rise (but land consuming) recreational villages.
2. The operation of commercial activities on Saturdays (the Jewish Sabbath).
3. Admission fees to prime tourist sites, particularly charging admission fees for entering natural attractions (directly or through high parking fees) and natural water attractions (springs and small water bodies).

4.1 The coastal zone

A major evolving conflict in the first decade of the 21st century involves limiting residential construction on the coastal zone. Whereas a house/apartment with a seaview has become a very lucrative real estate asset, the growing pressures of the environmental lobby aim to limit construction, and particularly residential construction, on the coastal zone. Several legal battles took place over hotels and residential hotels that turned out to be residential apartments in disguise; the ground-breaking case took place at the new Herzeliya marina. The 2004 coastal law that restricted construction on the coastal zone even led to far reaching conflicts, in which

the environmental lobby aims to freeze development along the coastline in existing villages, aiming in extreme cases eventually to demolish long-standing houses near the coastline.

A second emerging conflict involves population change as a result of rising real estate profits that bring the wealthy to the coastal "frontline" while driving the poor inland. This is evident more than anywhere else in southern Tel Aviv (Jaffa) in the poor Arab neighborhood of Ajami. The coastal frontline – houses with a view of the sea and the seaside park – has been taken over and rebuilt by the extremely wealthy (including one gated community), whereas the poor and social malaise are driven back to the inland alleys, and further inland to poor residential blocks.

Commuting associated with coastal conflicts seems to be of marginal significance. The coastline attracts tourism and large infrastructural facilities, but otherwise is not a prime location for retail, office activities and manufacturing, because it offers less than optimal accessibility in relation to land prices.

The prime emerging conflict in the coastal zone concerns changing planning paradigms. Whereas tourism has been considered to be a prime component of coastal development in recent decades, perceived to assure the role of the coast as a front-yard rather than as a backyard for polluting facilities and roads, such views have been increasingly challenged in recent years. Not only have new environmental approaches aimed to limit new construction of any type in the coastal zone, but it has further aimed to reverse some planning decisions. These include already approved recreational villages and hotels, despite the need to compensate those who already possess development rights. Such cases exist both in the Tel Aviv and Haifa metropolitan areas. The prime motive in some cases is to preserve the remaining undisturbed coastal zone in its natural state and to assure free public access to the coastline. Whereas in these cases the conflicts mainly involve the developers, the environmental lobby, the planning establishment and politicians, in the case of the coastal cliff of the city of Netanya, a clear conflict has emerged between the environmental lobby and the municipality. The latter views the coastal zone as a prime asset for tourism-oriented economic development, whereas the former aims to restrict construction on the cliff, in order to slow down its erosion and reduce pressure for creating artificial sea defenses.

Another conflict concerns public coastal access: assuring public access to private or semi-privatized parts of the coast, and also limiting fees for beach access. Attempts are also being made to obtain public access to those parts of the coastline held by the army.

5. References

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CHAPTER VI.

Italy: Human Mobility, Urban Changes, Environmental Conflicts

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1. Introduction

The phenomena of urban changes and human mobility in the cases of Rome Metropolitan Area (MA) and Chieti-Pescara Urban Area (UA) will be investigated in this chapter focussing on the last twenty years. The analysis of data obtained in the recent years was made despite the fact that there were numerous difficulties relating to the scarcity of information. The reason for this was the need to capture the changes that have characterized the areas in the recent past. Those changes have been so significant that the authors decided to prioritize their understanding, sometimes sacrificing the completeness of the data.

The most recent, and relatively complete, data concerning the Italian territory, date back to the year 2001 (Census year). The latest "scan" was implemented during the year 2011 (last Census) but the results had not been released at the time of writing. During the period of ten years bridging the two Census years, intermediate data were available from several, different sources, but none of these provided the precision and the accuracy of the Census data. As a consequence of this temporal choice, the coastal area had to be defined based on administrative boundaries. Since data are available only at municipal level at the time of going to press, the definition has been constrained by this limitation. The coastal zone of Rome MA, as a consequence, is overweighed.

This chapter is divided into two parts: in the first part the case of Rome MA will be discussed, while the case of Chieti-Pescara UA will be considered in the second part. In both cases the following issues will be analyzed: the processes of urbanization and the dynamics of population, permanent migration and temporary mobility, mobility and urbanization. In the case of Chieti-Pescara UA the topic of temporary housing has not been included since it has negligible importance in that urban context.

2. Methodology

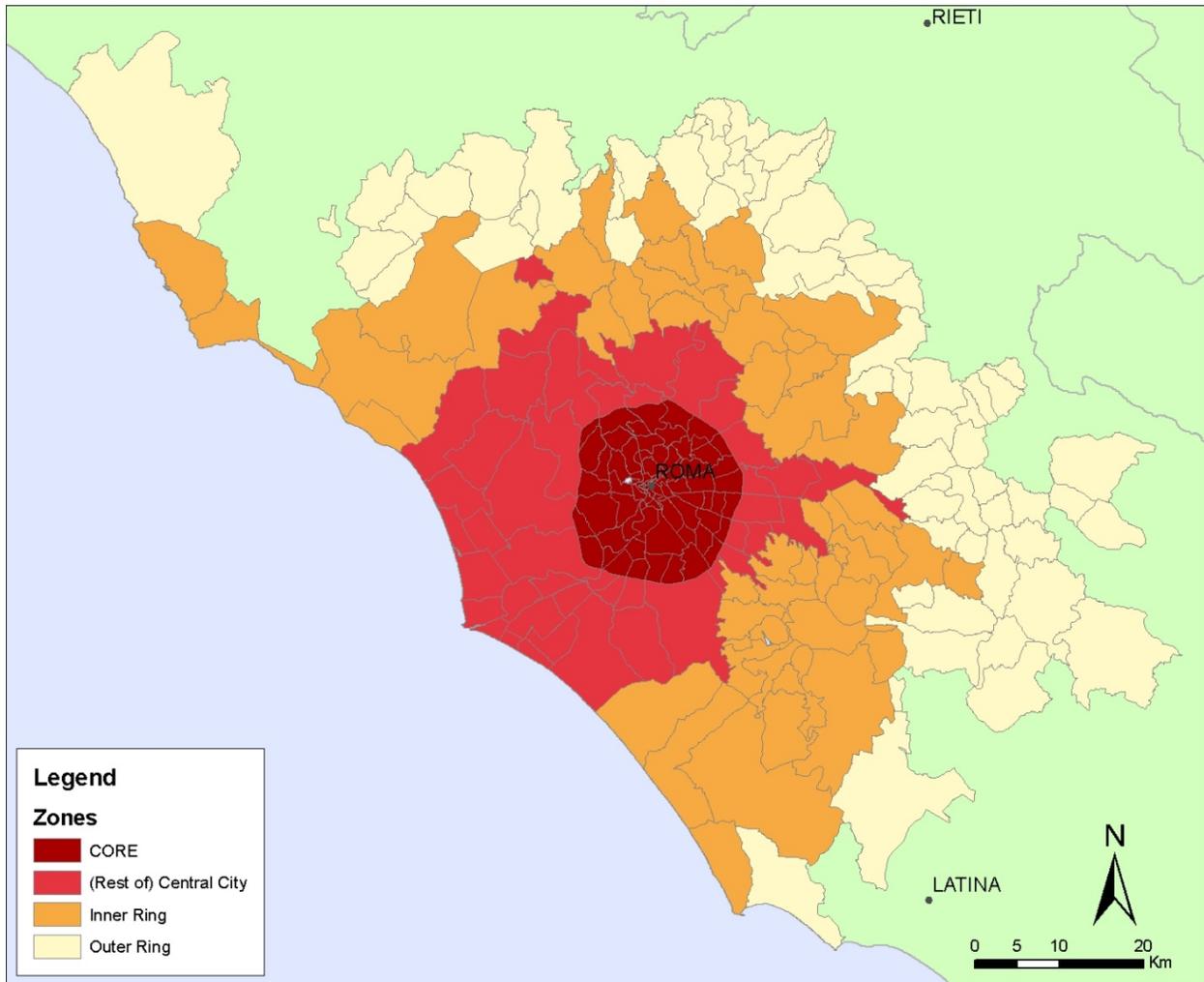
The Metropolitan Areas (MA) in Italy are defined by Law 142/1990. This law does not provide general criteria for the determination of the MA; it just provides a list of 12 municipalities (Turin, Milan, Venice, Genoa, Bologna, Florence, Rome, Naples, Bari, Cagliari, Catania, Palermo) that are considered as the main cities for the 12 MAs which have been so defined in Italy.

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 includes those of the 12 MA, without defining strict criteria for 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.

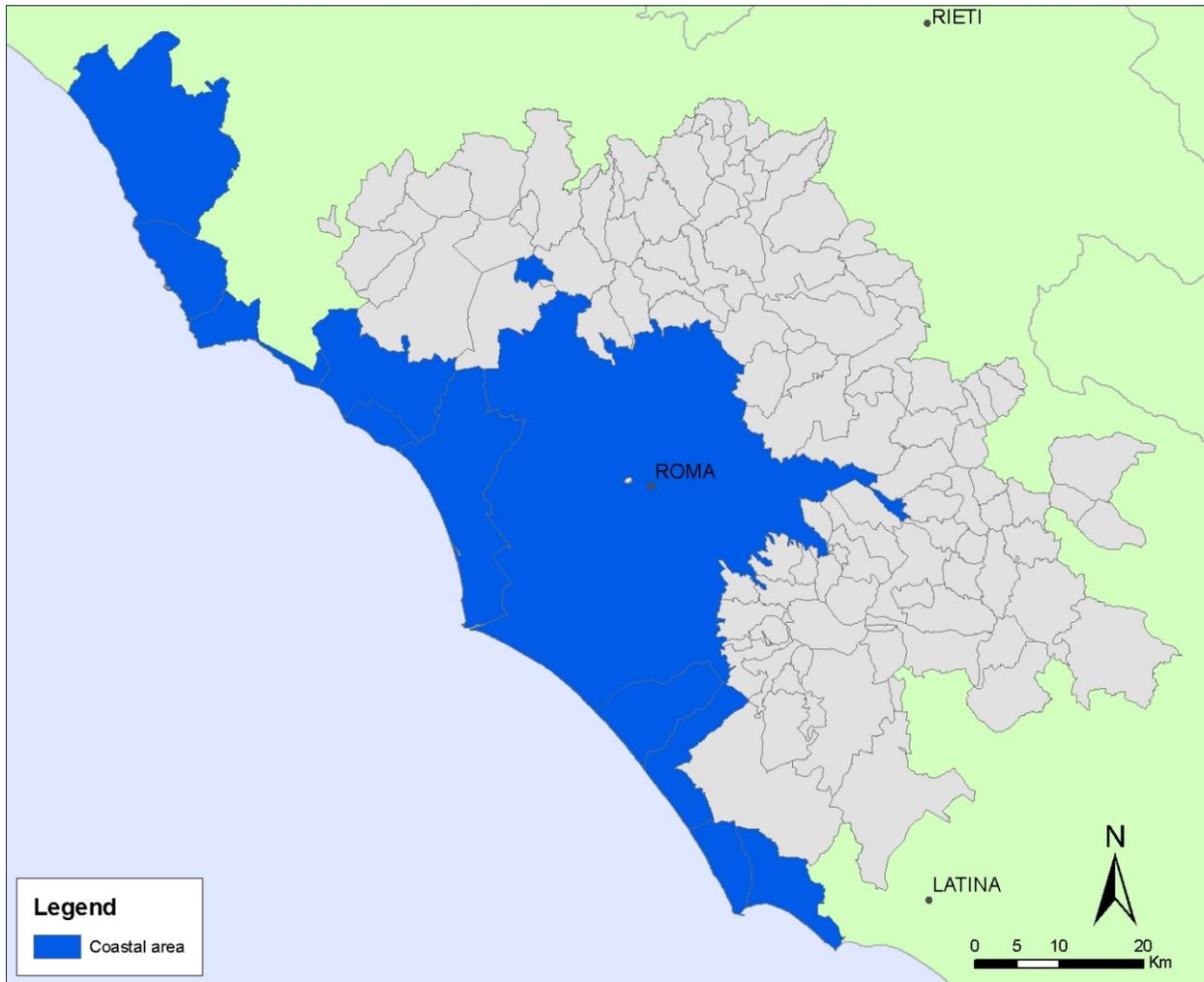
In this research, the definition provided by IRSPEL (1991, p. 17), the Regional Institute of Research for the Territorial and Economic Planning in the Latium region, was adopted for the Rome MA. This means the following variables were taken into account: Economic activities: daily average flow of people 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 Rome hospitals. Cultural links: number of second houses occupied by the residents in the municipality of Rome; changes in residence from/to Rome in the period 1976/1981; changes in residence from/to Rome in the period 1987/1988. Territorial characteristics: accessibility level to Rome, measured by transportation costs.

In order to attain the objectives of our analysis, the Rome MA has been divided into three parts, defined as "core and rest of the central city", "inner suburban ring", and "outer suburban ring" (Montanari and Staniscia 2003b) (see Figure 6.1 and 6.2).

Figure 6.1. Rome Metropolitan Area, sub-divisions*



* Source: authors' own elaboration.

Figure 6.2. *Rome Metropolitan Area, coastal zone**

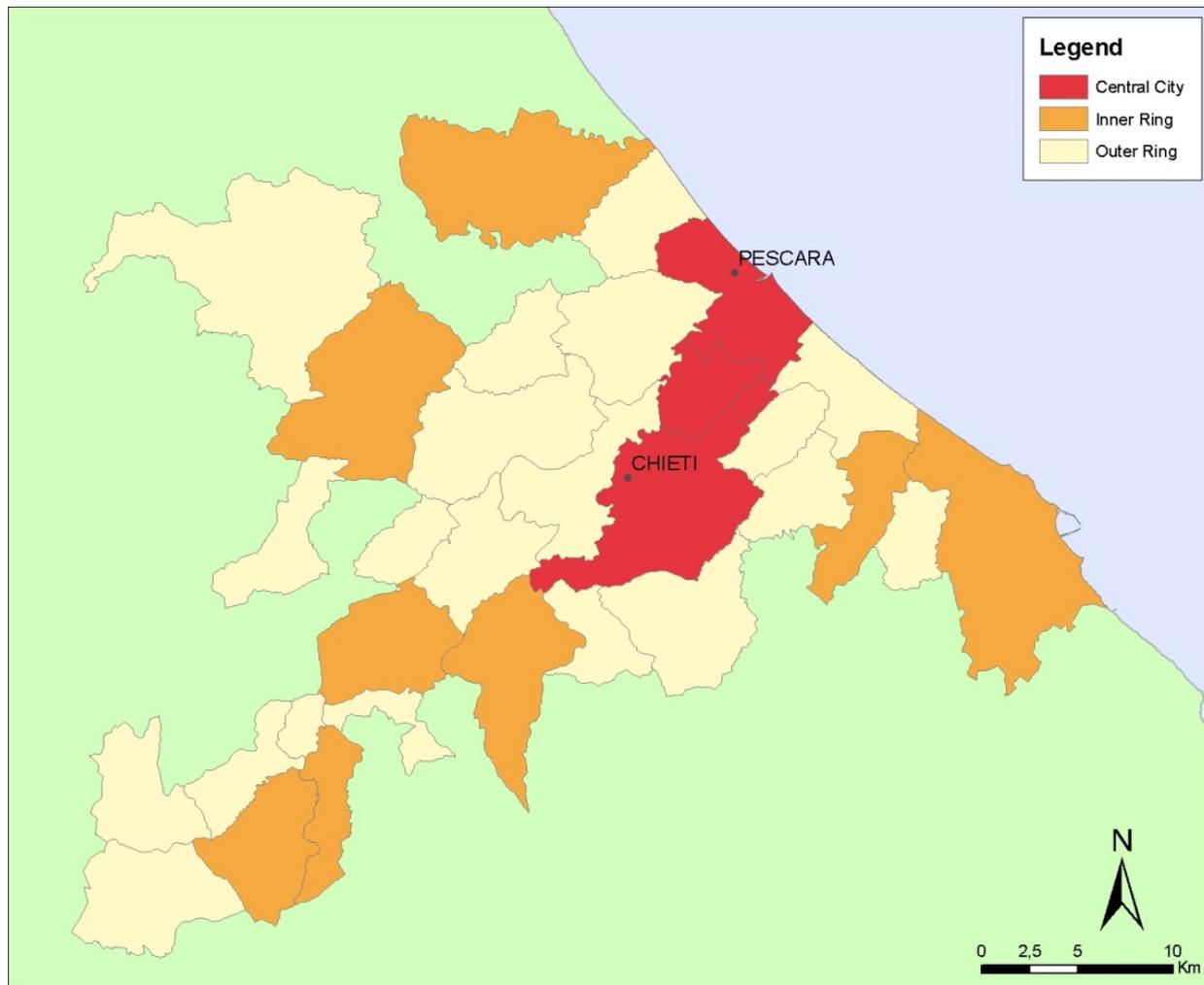
The Law 142/1990 did not include the cities of Chieti and Pescara. Thus, our research had to adopt a "*functional*" approach, based on socio-economic parameters. Given the aim of our study was to study human activities – both residential and economic – in the coastal area, the choice was an Urban Area 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 UA has been divided, for our purposes, into three parts: "core-central city", "inner suburban ring", and "outer suburban ring" (Figure 6.3 and 6.4). The rings have been

* Source: authors' own elaboration.

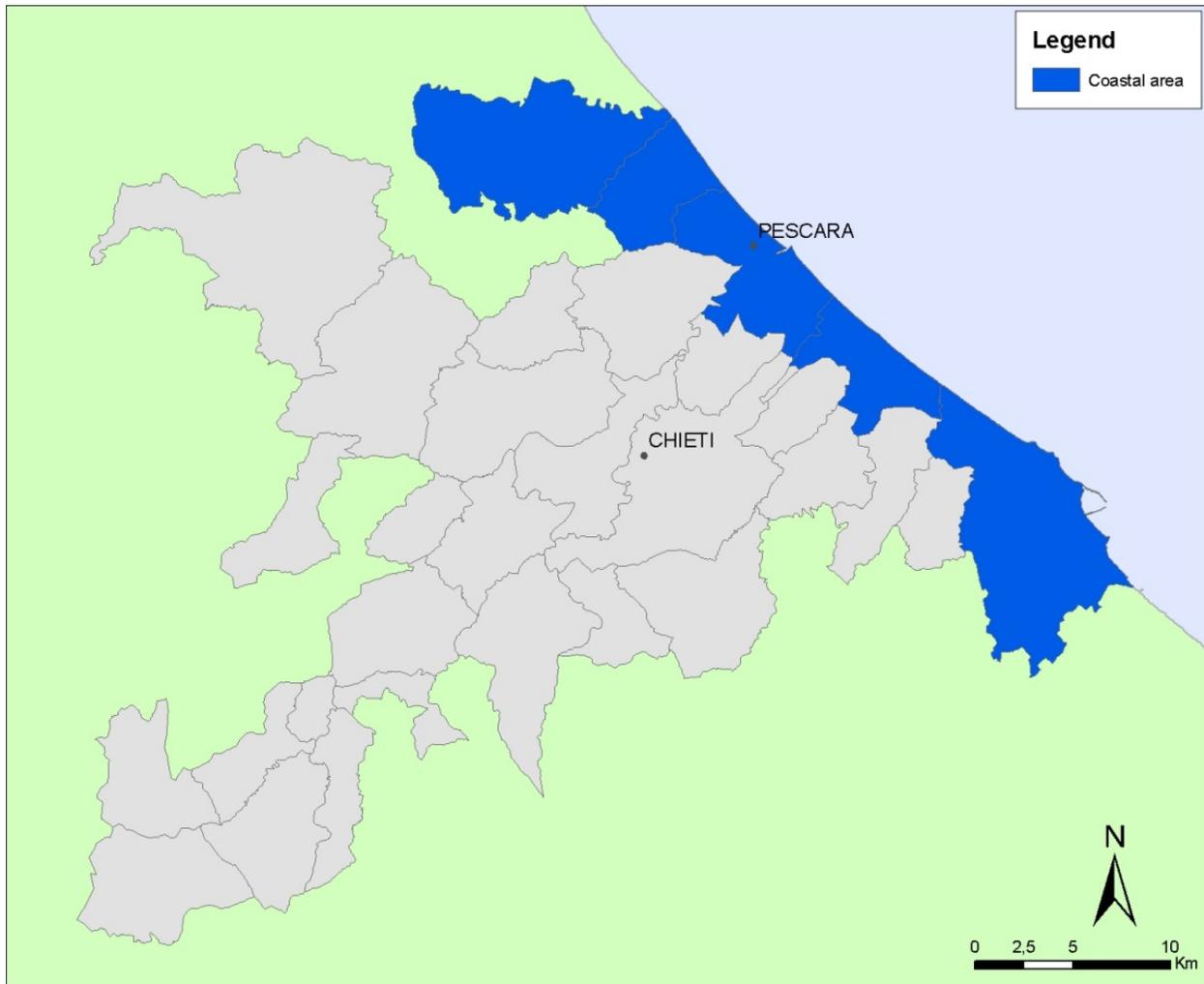
defined following a network logic, without necessarily respecting the criterion of spatial contiguity.

Figure 6.3. *Chieti-Pescara Urban Area, sub-divisions**



* Source: authors' own elaboration.

Figure 6.4. *Chieti-Pescara Urban Area, coastal zone**



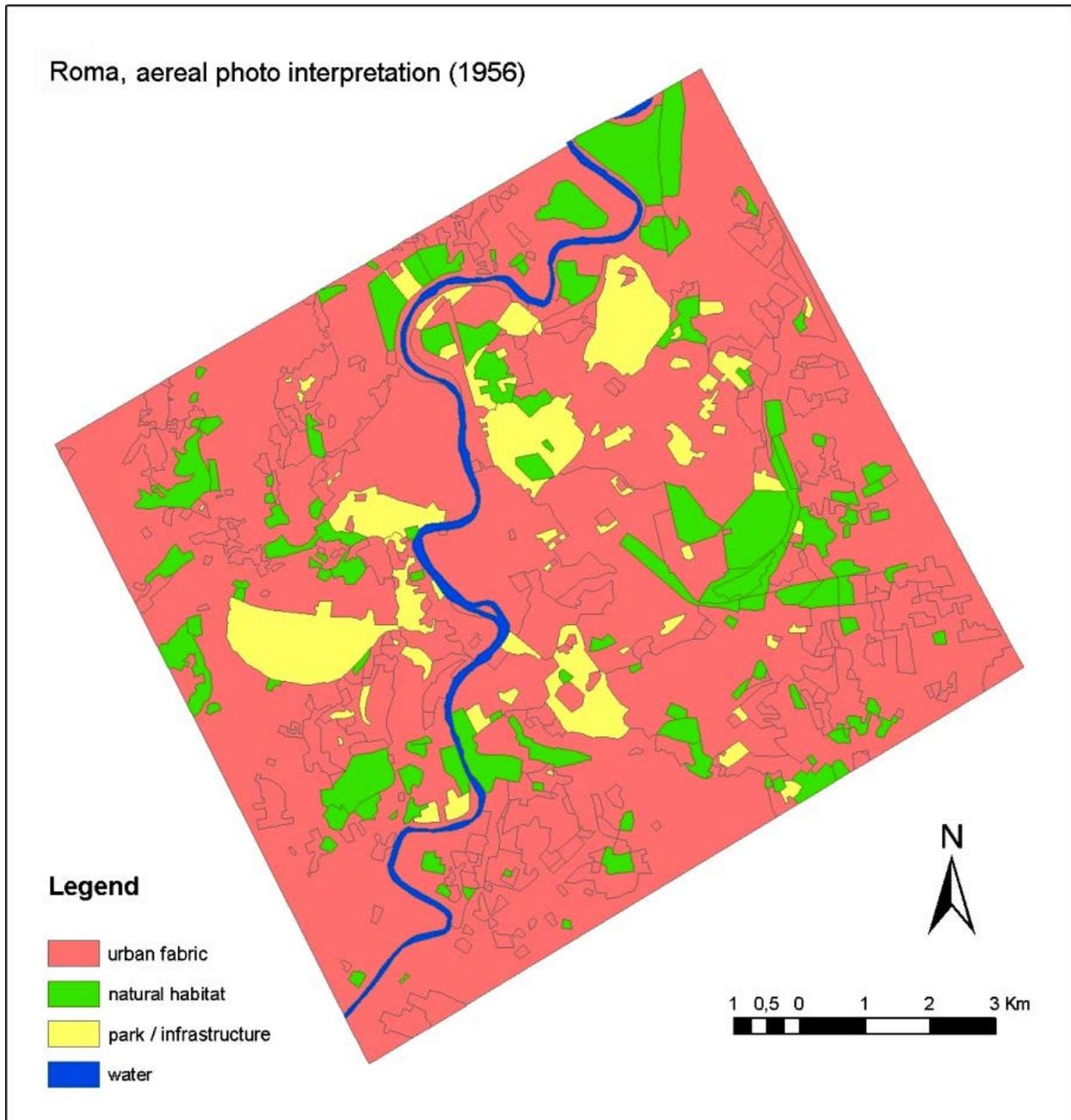
* Source: authors' own elaboration.

3. Rome Metropolitan Area

3.1 Case Study Context: Processes of Urbanization and Dynamics of Population

Rome is the largest municipality in Europe: its built-up area is slightly smaller than that of Greater London and it is almost twice as large as the Parisian territory within the *Petite Couronne*. Moreover, there is 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 (Figure 6.5). This feature led to Rome being described as a city-archipelago (Marcelloni, 2003, p. 31). The non-built-up areas cover 73% of the territory; in Amsterdam and Paris these zones account for just 23% of the total (Marcelloni, 2003). Those voids in Rome are often farmland (paradoxically, Rome is the largest rural municipality in Italy) or areas that have a high environmental, historic or cultural value. There are relatively few brown-fields since Rome has never been an industrial city. Industrial factories were located on a few road axes along which small and medium-sized enterprises grew up. The developed city, therefore, consists of residential-style buildings, some of which are dedicated to commerce and services activities (Montanari, Staniscia & Di Zio 2007).

Figure 6.5. *An interpretation of the city of Romè's urban structure, 1956**

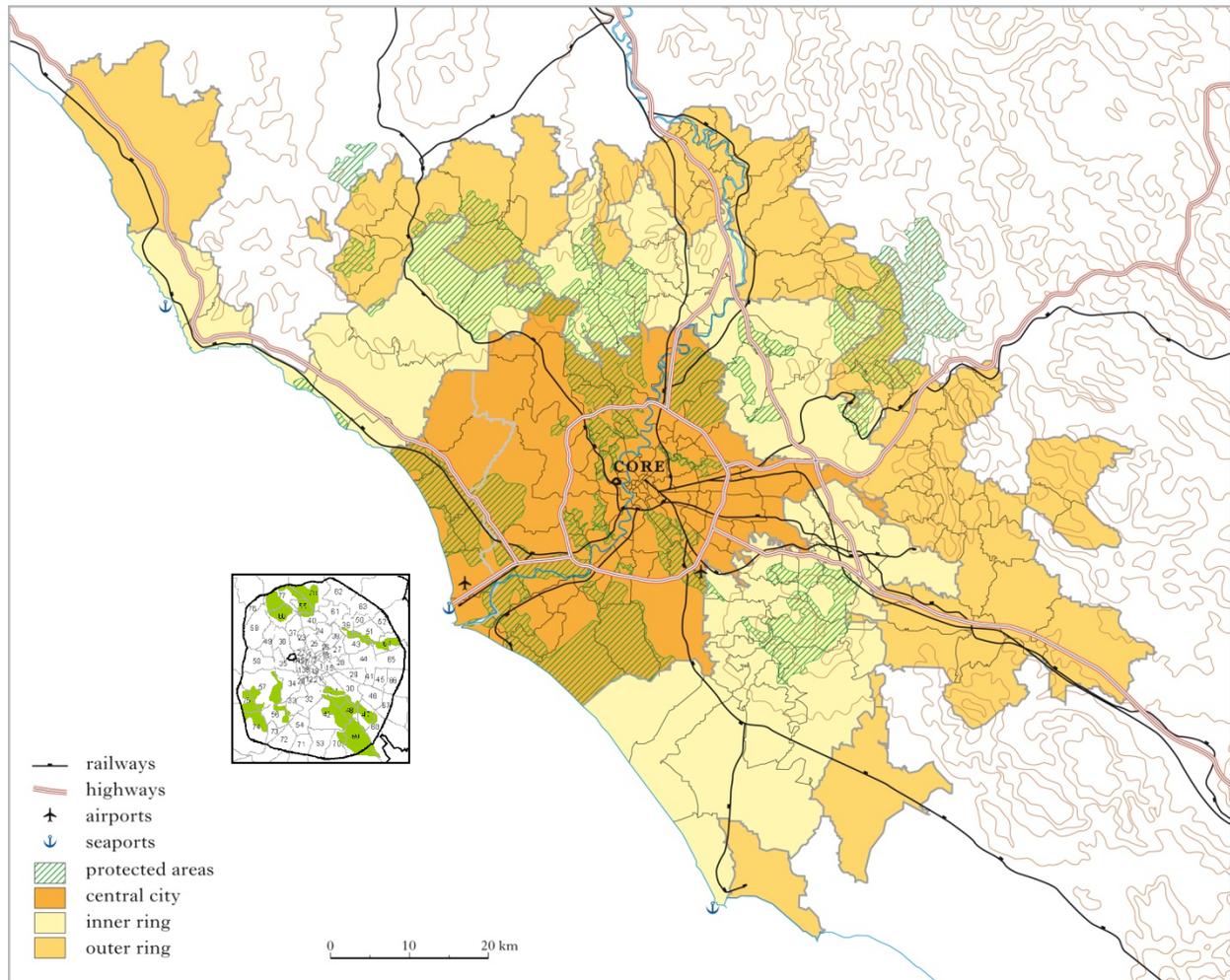


A characteristic of the Municipality of Rome is the large number of green spaces, archaeological sites, parks and natural reserves. This environmental system consists of 82,000 hectares, 64% of the entire municipal territory. The city is characterized by an inadequate public

* Source: authors' own elaboration based on Montanari (2010a).

transport network. The underground railway system has only 2 lines, covering just 37 linear kilometres, and has 49 stations, all of which are within the ring road. This poor coverage is aggravated by the fact that, between 1981 and 1991, the residential population was tending to move from the areas within the ring road towards the metropolitan belt, but the number of jobs in the centre has remained high. This phenomenon of residential decentralization and less than proportionate economic decentralization has generated congestion and pollution. The motorization rate (defined as the number of cars per inhabitant) is 0.5, one of the highest in the world (Los Angeles is 0.6; Paris is 0.3) (Marcelloni 2003).

In the last twenty years, a tendency has prevailed to renovate peripheral buildings and existing spaces. In addition to this medium-term planning, the mid 1990s saw the creation of infrastructures and interventions for the celebration of the Holy Year in the Millennium year of 2000, and the anticipated arrival of approximately 20 million pilgrims. This special year, with the urgency typical of such large events, fostered a new trend of renovation and restructuring in some cases, but obstructed it in others. The new City Plan of 2003 envisaged the renovation of the areas concerned through housing renewal and the provision of new services and infrastructures. All these have led to an improvement in the environmental and living conditions of the residents; they enabled the creation of new employment opportunities that should help in reducing the pressure on the city centre. Policies are clearly aimed at a polycentric city with some peripheries that could become new centres: the City Plan has identified 18 new urban and metropolitan centres. The underlying aim is the revitalization of the peripheries through "city injections administered to non-cities, a distribution of central city values throughout the suburbs" (Marcelloni 2003: 132). The undertaking consists of finding peripheral locations in the municipality, not outside it, integrated into the network through the mobility system (Montanari, Staniscia & Di Zio 2007).

Figure 6.6. *Rome Metropolitan Area and its Core**

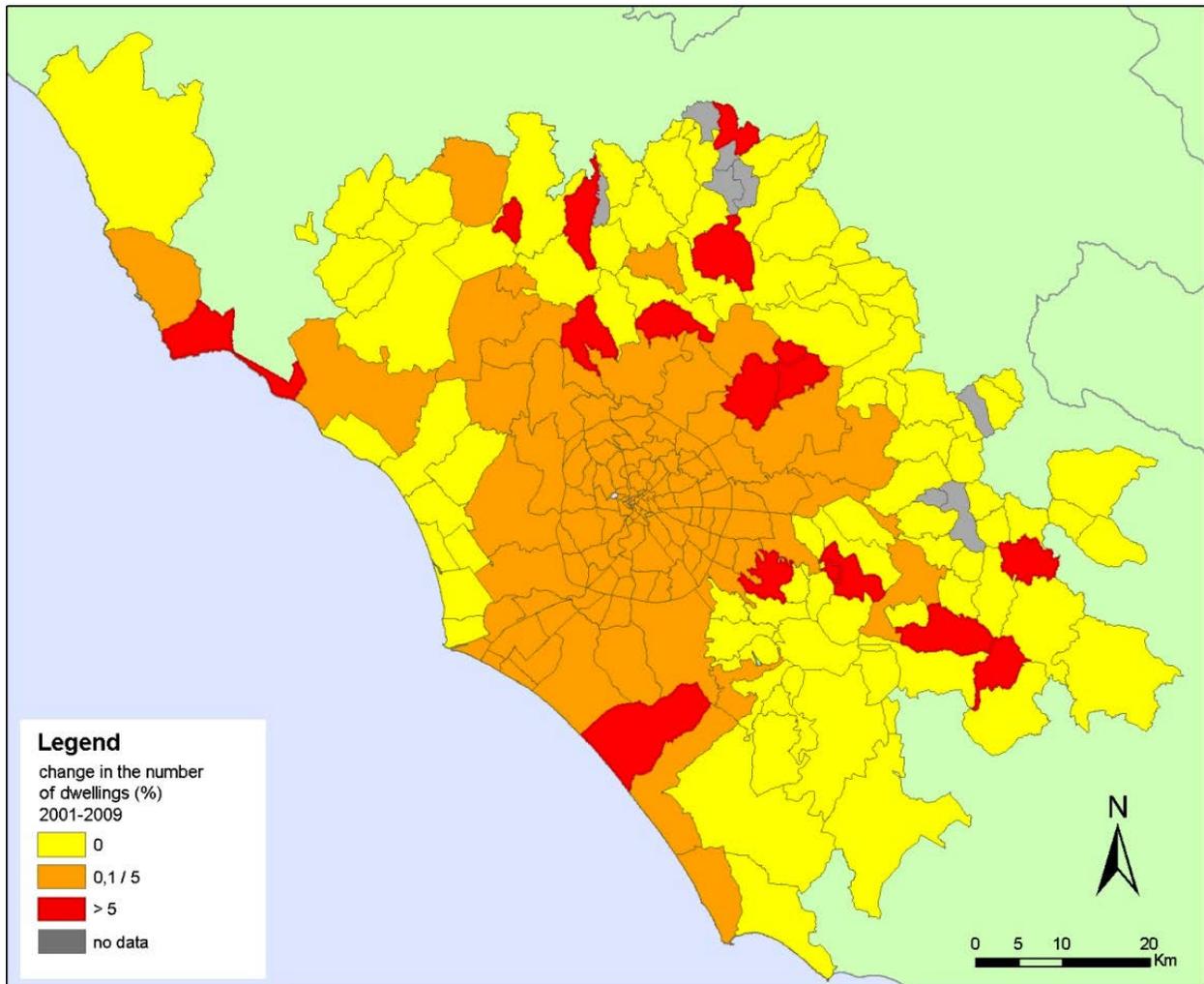
The main tool of spatial government at local level is the City Master Plan of Rome. The urban development of Rome has been driven by the old City Master Plan approved in 1962 and by the New City Master Plan, launched in 2003 and effective since 2008. In the period considered in our analysis, therefore, several tools overlap. On the one hand, the City Master Plan of 1962, past heritage, still having the binding force of a law, but very intensively modified by all the changes which have occurred and by the implementation of Sectoral Plans (Piani di settore) and of Detailed Plans (Piani Particolareggiati). On the other hand, there is the new City Master Plan. The 1962 Master Plan has aimed to create a city, the most relevant characteristic of

* Source: authors' own elaboration.

settore) and of Detailed Plans (Piani Particolareggiati). On the other hand, there is the new City Master Plan. The 1962 Master Plan has aimed to create a city, the most relevant characteristic of which is – according to Maurizio Marcelloni, coordinator of the new Master Plan – to be a city without rules, in the sense that there is a prevalence of individual freedom and behaviour on the limits imposed by social organization (Marcelloni 2003: 7).

The final result has been a mono-centric and compact city where the historical central part remains the strongest and the most attractive, in contrast with a non-regulated and often degraded periphery, mono-functional for residential use, and poorly connected to the centre because of an inefficient mobility and transport system. It is not difficult to understand why many observers agree that Rome is a city without rules. This is a recurring statement even in the political arena where, continuously, the aim of giving rules and certainties to the city is reaffirmed. One could confirm that, even from this specific point of view, Rome effectively represents the general image of the Country: the image of a society in which the application of laws represents the exception more than the rule; a society in which the disordered accumulation of laws makes their application so difficult that it presses for their non-application in an ever more invasive way (Marcelloni 2003: 24).

The new City Master Plan starts from the problems unsolved by or generated by the 1962 Master Plan (Figure 6.7). On the issue of decentralization the new Plan does not have specific aims, but it has, as a priority, the creation of "new centralities" that should generate a polycentric city. The "new centralities" will be linked to both residences and economic activities. The Municipality of Rome has, also, chosen to fill in the urban empty spaces, left over by uncontrolled and illegal building activities, with green areas or new office districts.

Figure 6.7. *Rome Metropolitan Area, urban development, 2001-2009**

During the period 1991-2001, the core of the metropolitan area of Rome registered a loss in population, while there was an increase in the rest of the central city: in other words, there was absolute population decentralization. In the period 1992-2000, the migratory rate in the Municipality of Rome was negative (on average -2.5 per thousand per year). The Municipality of Fiumicino underwent a considerable, high positive migratory rate (on average +20.4 per thousand per year). Fiumicinòs administrative autonomy enabled the demand for construction settlements along the Rome-airport axis to be met, a demand that Rome's large municipal administration, which managed those spaces within a more complex area, would have found

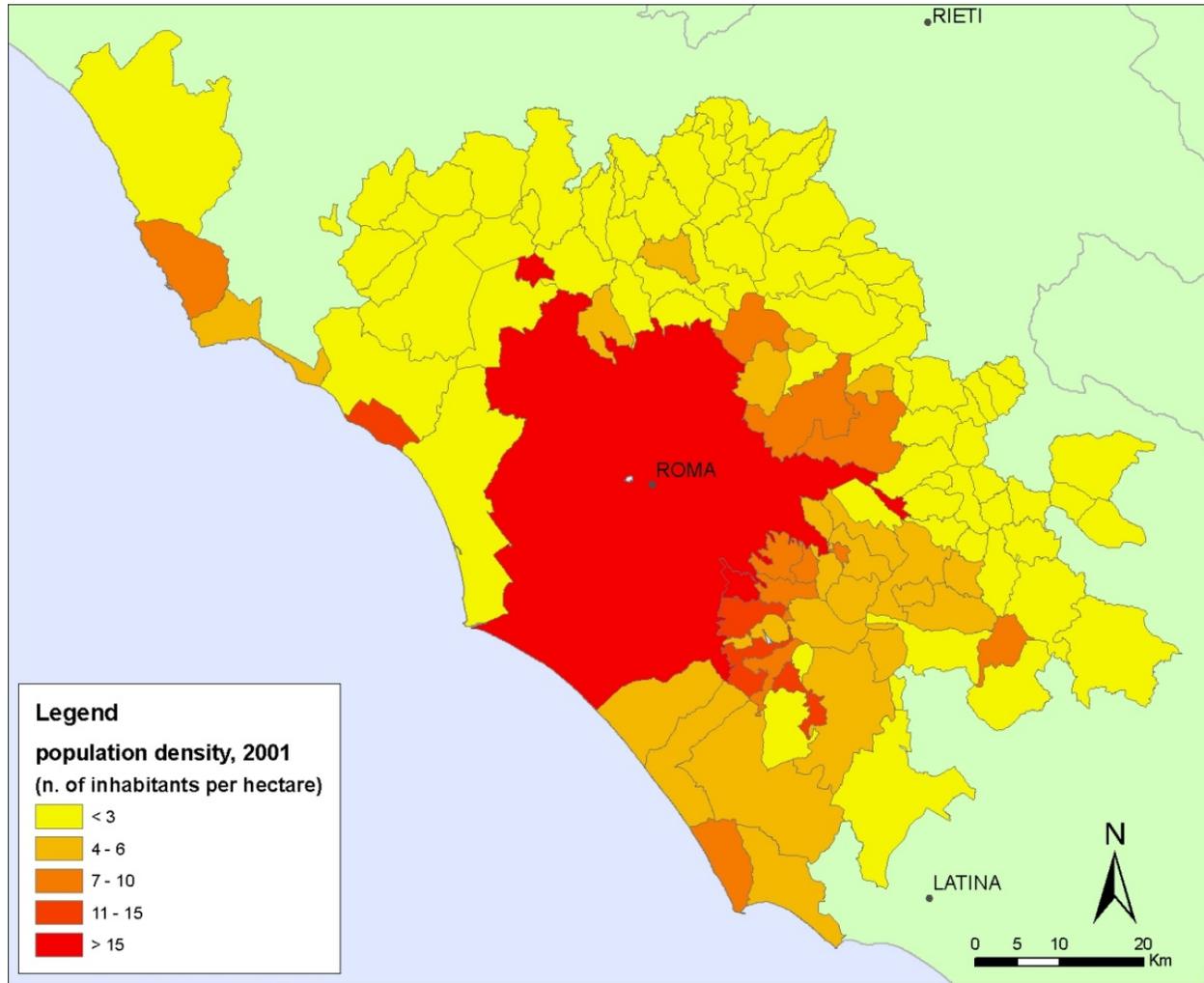
* Source: authors' own elaboration based on ISTAT(2011) and CORINE (2006).

difficult to fulfil. Indeed, in the metropolitan area of Rome, a growing need for housing has emerged, despite the population decline, because of the different composition of families and decreasing numbers of members, and a lack of public initiative in the reuse of buildings.

In the inner ring, the population increased, particularly in the most southern municipalities. Overall, the area registered an increase of more than 100,000 units in the period 1991-2001. The migratory rate in the inner ring was positive and particularly high (>25 per thousand per year) in a few of the municipalities surrounding the Municipality of Rome. The total average yearly migratory rate was +15.5 per thousand.

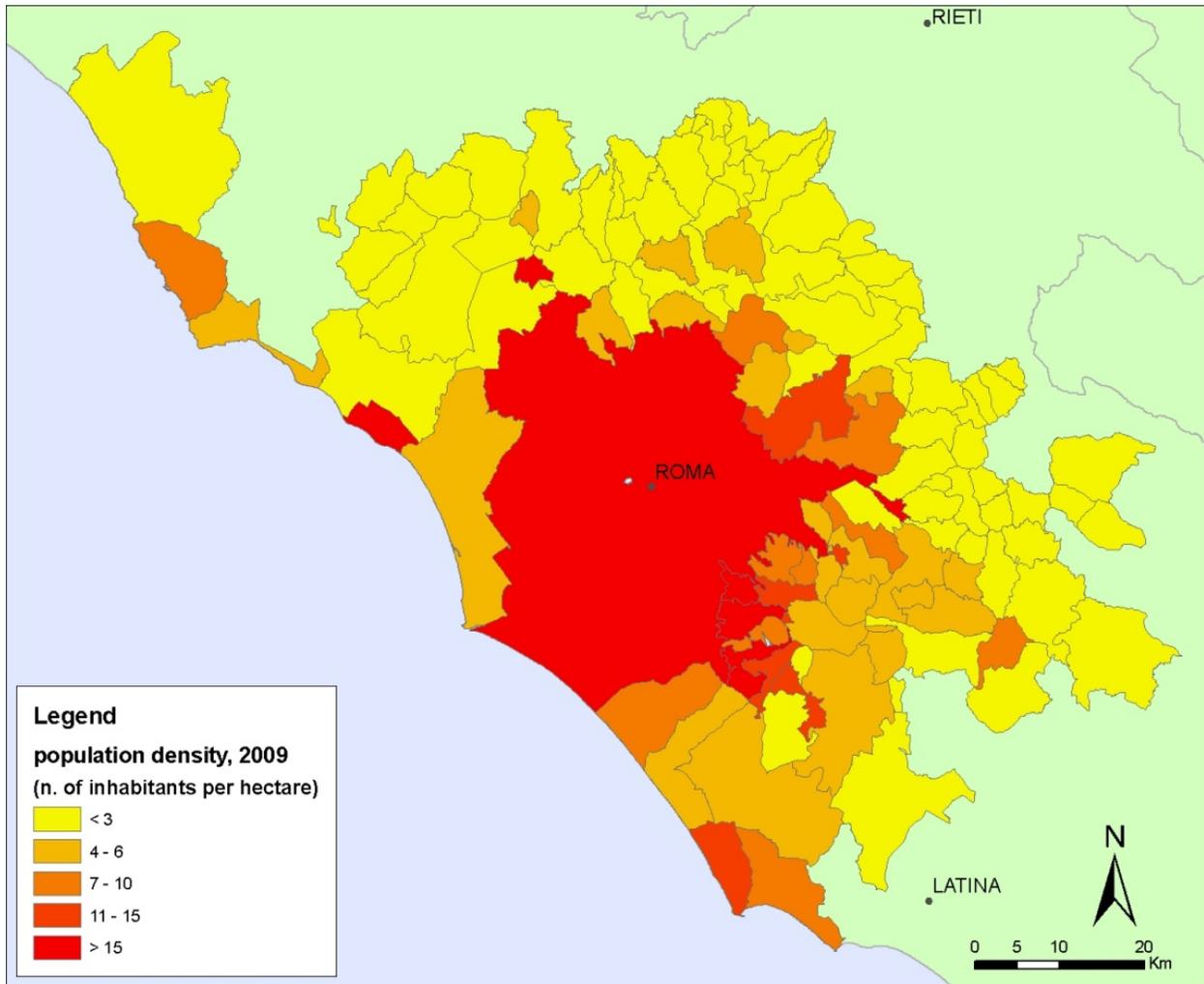
In the outer ring there was a slight increase in population in the northern and southern areas and a loss in population in its eastern area. A total increase of almost 19,000 residents was registered in the period. In the outer ring, a weak positive migratory rate was registered in most municipalities, with some exceptions of high positive migratory rates in the northern part. The average yearly migratory rate was +8.7 per thousand (Montanari, Staniscia & Di Zio 2007).

Figure 6.8. Rome Metropolitan Area, demographic characteristics, 2001*



* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.9. Rome Metropolitan Area, demographic characteristics, 2009*



* Source: authors' own elaboration based on ISTAT (2011).

3.2 Migration

During the 1990s, Rome was a destination for both transitory immigration and settlement, with continuous strengthening of the latter. It is a transitory destination in the sense that, for many, it represents merely a halting place within a larger migratory route, directed towards other European countries or, although to a lesser degree, towards overseas countries. On the other hand, Rome is a destination of settlement for all those who, within their migratory project, choose it as a place of residence and a work place, for themselves and their children. If one uses these considerations as a starting point, it is possible to identify within the Municipality of Rome four main components of immigration (Caritas Diocesana di Roma 2000):

1. a component of legal and stable settlement;
2. a component of legal temporary settlement;
3. a component of hidden-illegal stable settlement;
4. a component of hidden-illegal temporary but fluctuating settlement.

Each of these components presents different motivations, projects and behaviour patterns.

Rome attracts foreign migrants because it is the capital city of the country, it is the residence of the Pope and of diplomatic and consular representatives, and it houses the headquarter of various international organisations and of the Commission for the recognition of refugee status. In addition, there is a strong network of solidarity NGOs, the possibility of less controlled hidden employment and the tolerance of a city that accommodates millions of tourists every year, the majority of whom are foreigners (Caritas di Roma 2000).

In correspondence to such a vast "supply" by the city, one finds a high "demand" from foreign migrants. Besides the four components listed above, and founded on parameters of stability/transience and legality/illegality, it is possible to identify other categories of foreign presence in Rome. It is therefore possible to identify flows of tourists and pilgrims, clergymen and monks, ambassadors and diplomats, and students. Each group has different motives.

The job market in the Municipality of Rome cannot be considered efficient in assisting the integration of foreigners. There is a wide gap in the market between supply and demand due to the difficulties encountered by foreign migrants in cutting through official 'red tapè' (at

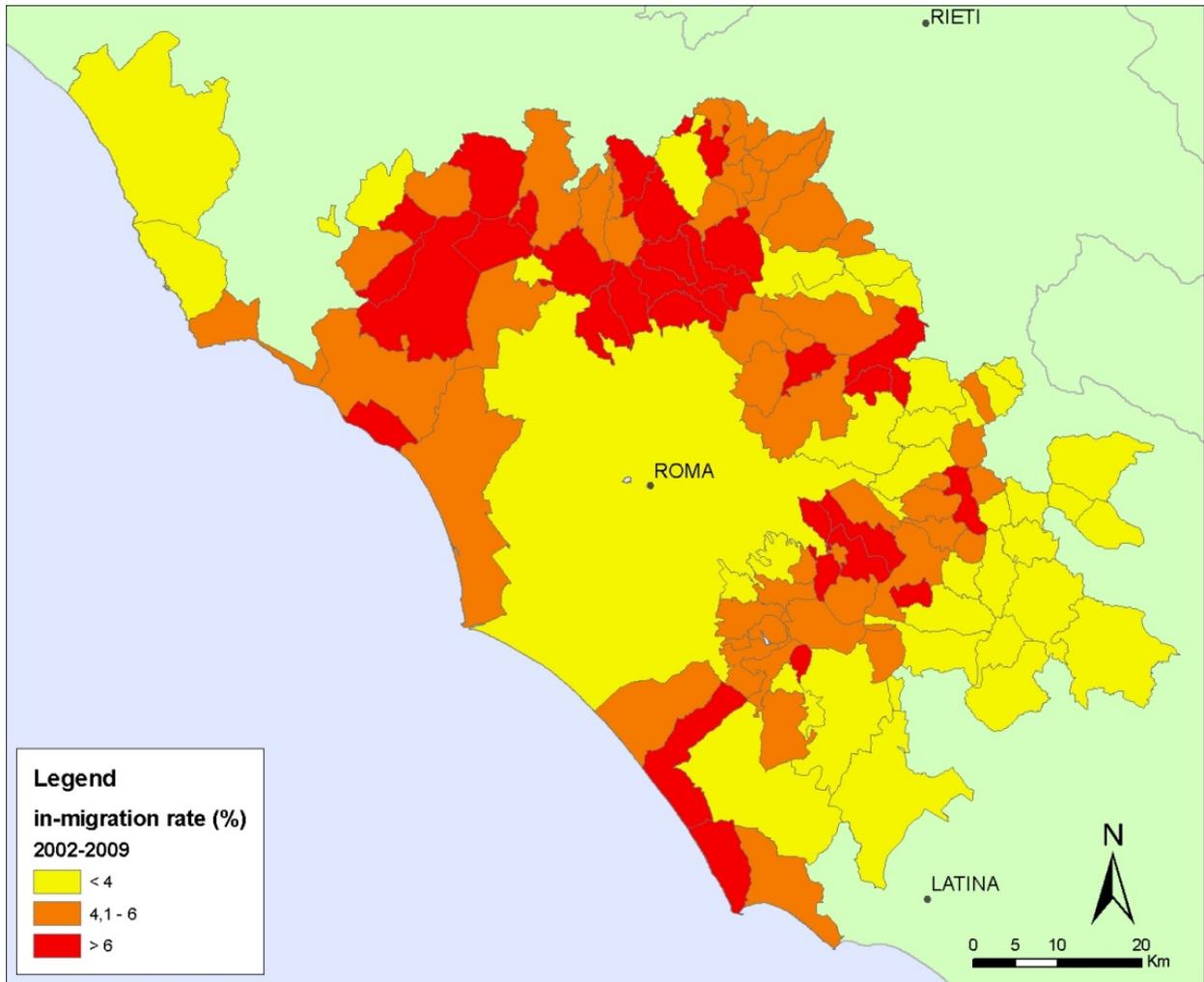
employment centres) and to the inefficiency of these centres in developing their activities. Furthermore, a deep-rooted prejudice linked to the "strangeness" of the foreigner still persists amongst potential employers, a prejudice that becomes even more marked with differences in skin colour (Caritas Diocesana di Roma 2000).

The main jobs carried out by foreigners are in the domestic services sector: namely baby-sitting, care-assistance for the elderly, and cleaning, for women; street trading and unskilled manual work, especially in construction, for men.

Although the employment situation is dynamic, there are differences within the various ethnic groups. Those who have less difficulty in finding a job are Poles, Romanians and Filipinos, whilst Muslims and Africans in general encounter many more difficulties, due to prejudices against the colour of their skin and their different habits and religious customs (Caritas di Roma 2000).

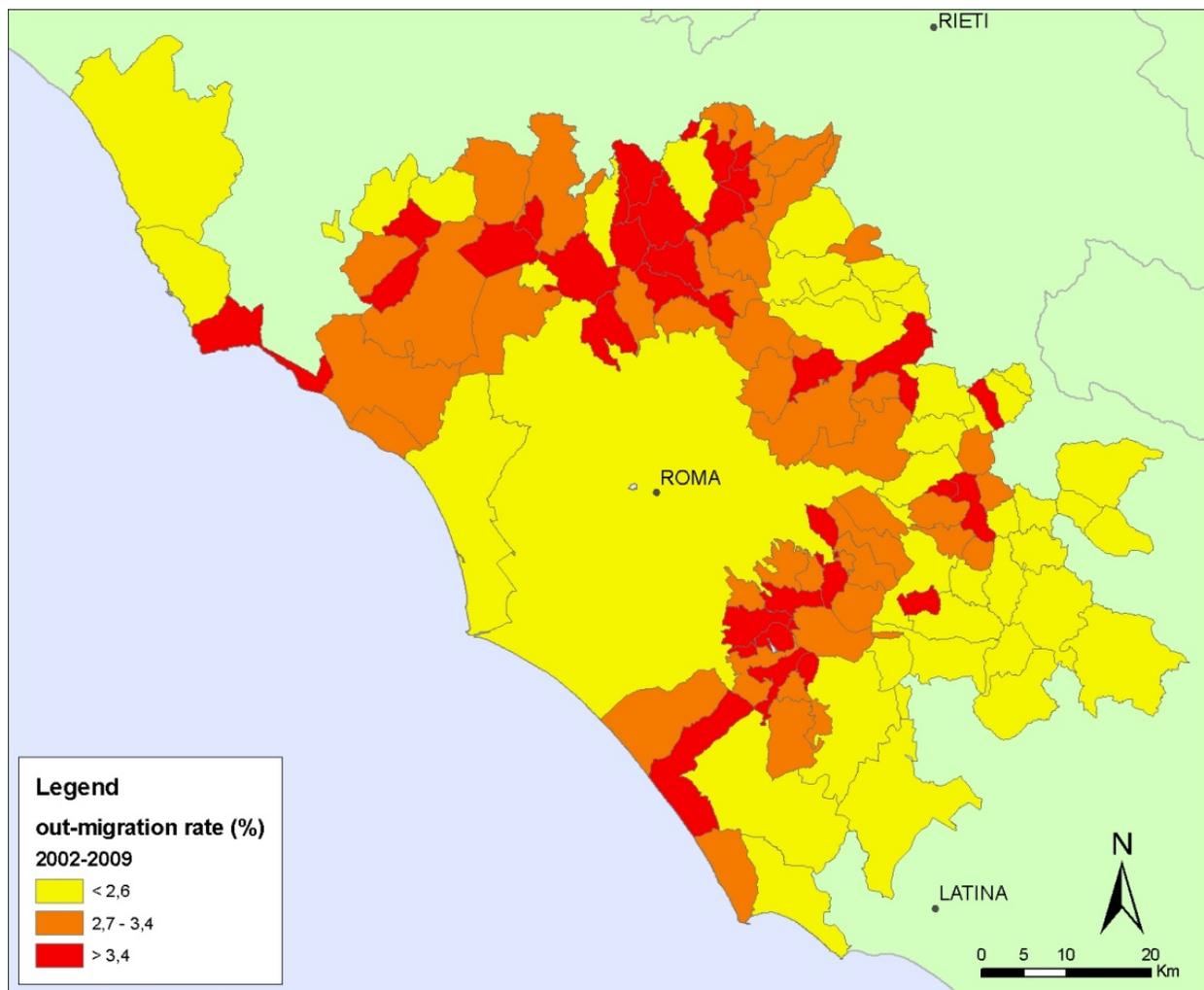
The distribution of foreign citizens in Rome has a polycentric structure: the leading 5 foreign communities in 2009 (Romania, Philippines, Poland, Bangladesh and Peru) represented 47.3% of the total number of foreign citizens in Rome and the leading 10 communities (those listed above plus China, Ukraine, Ecuador, Egypt, Sri Lanka) represented 62.1% of the total number (Caritas di Roma 2010).

Figure 6.10a. Rome Metropolitan Area, population dynamics, 2002-2009*



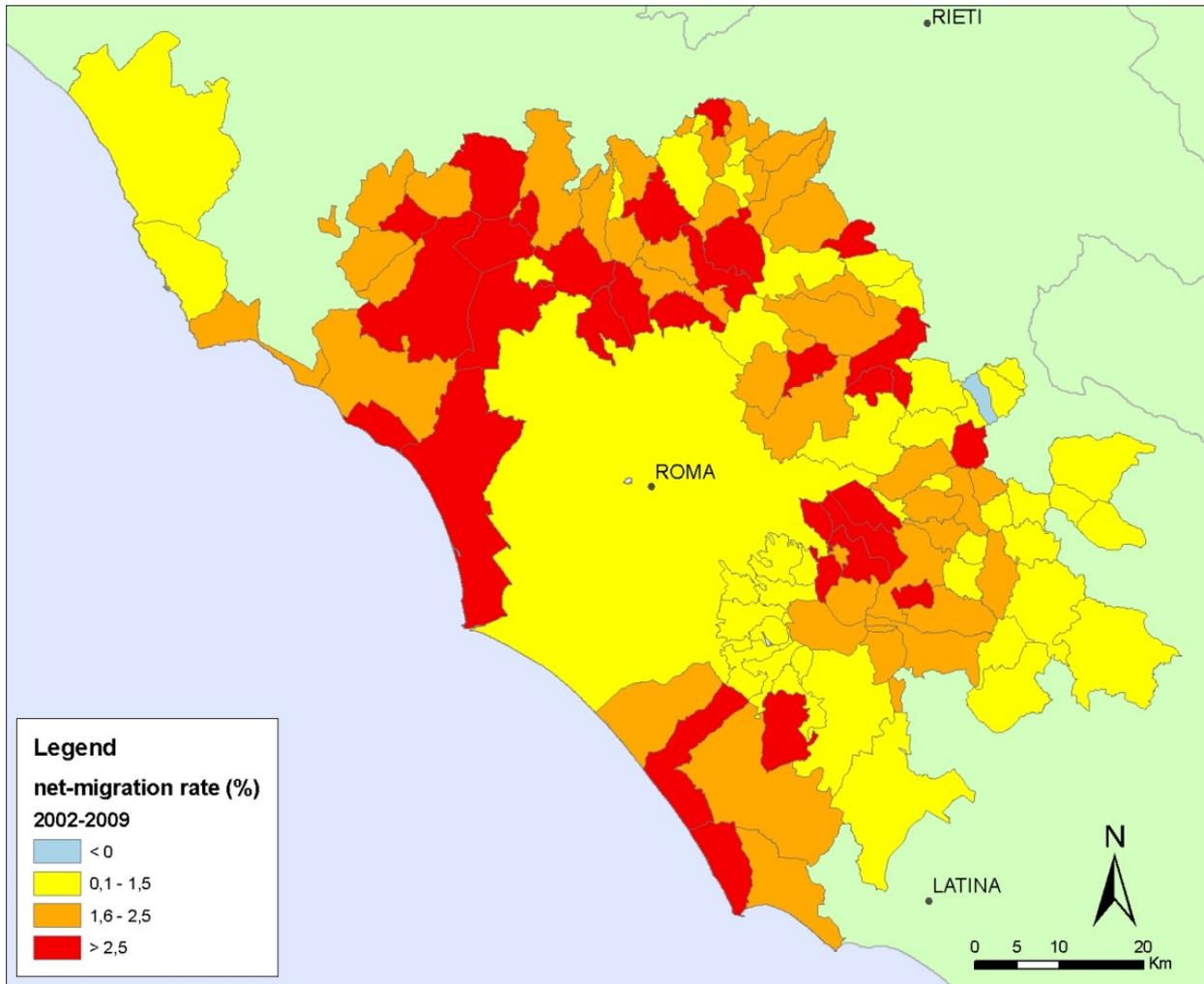
* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.10b.*



* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.10c.*



* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.10d. Rome Metropolitan Area, population dynamics, 2002-2009*

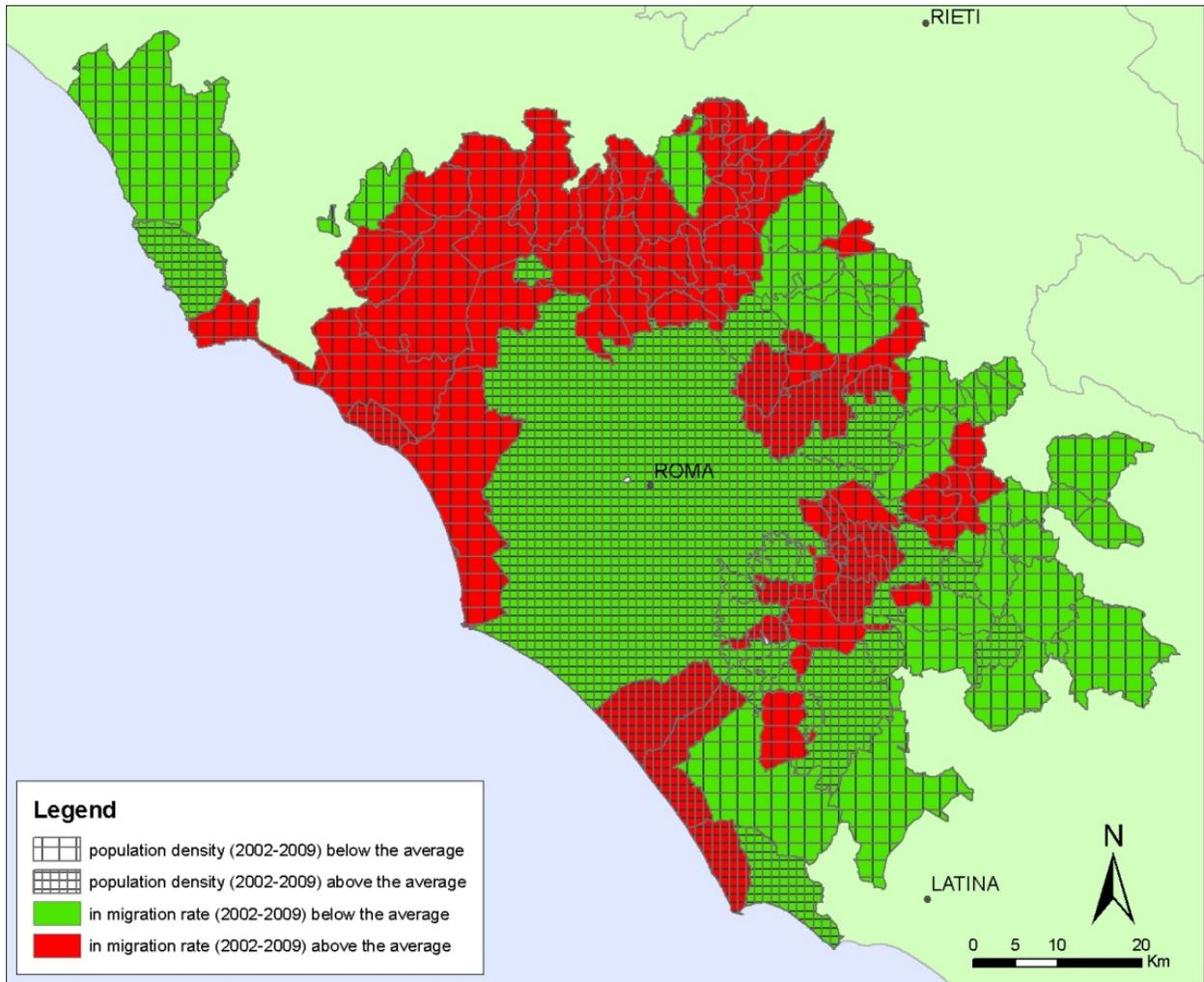
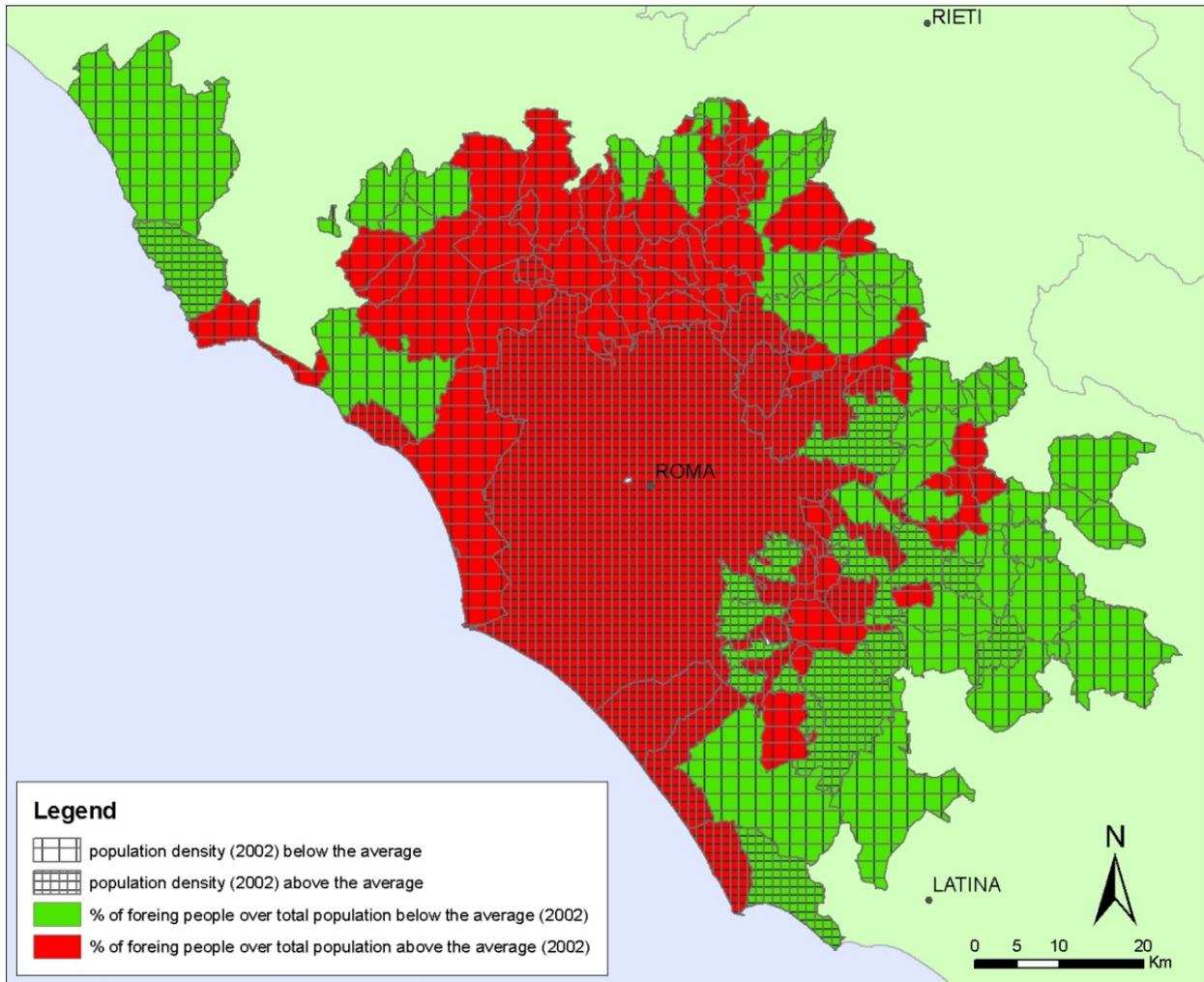


Figure 6.11. Rome Metropolitan Area, foreign citizens, 2002*



* Source: authors' own elaboration on ISTAT (2011).

Figure 6.12. Rome Metropolitan Area, foreign citizens, 2009*

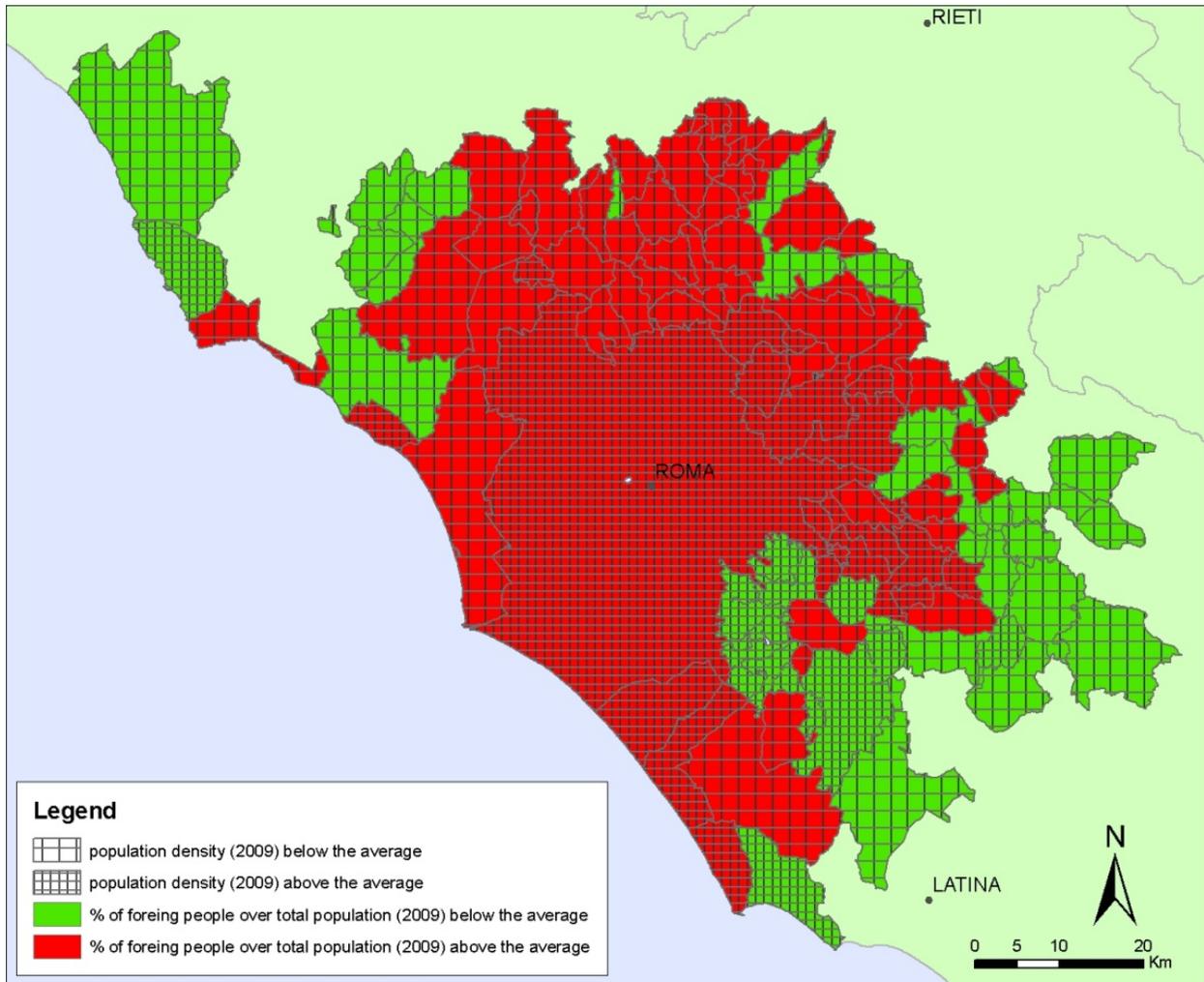
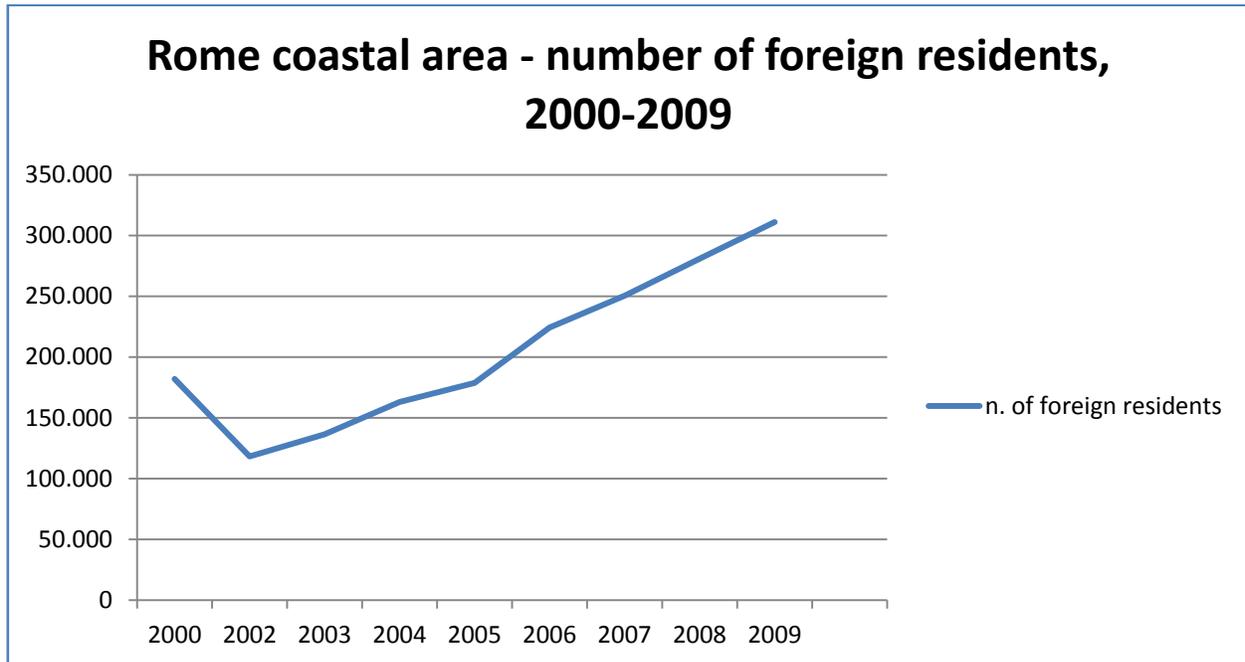


Figure 6.13 shows the increase in the number of foreign citizens resident in the coastal municipalities, in the last ten years. The foreign population increased in the entire metropolitan area, and it was particularly strong in the core-central city and along the coast. Coastal municipalities, indeed, have the advantage of being well connected to the city centre, where the low income foreign labour can more easily find a job; in addition, the presence of non-used second houses at a relatively cheap price, favours a prosperous market in real estate renting.

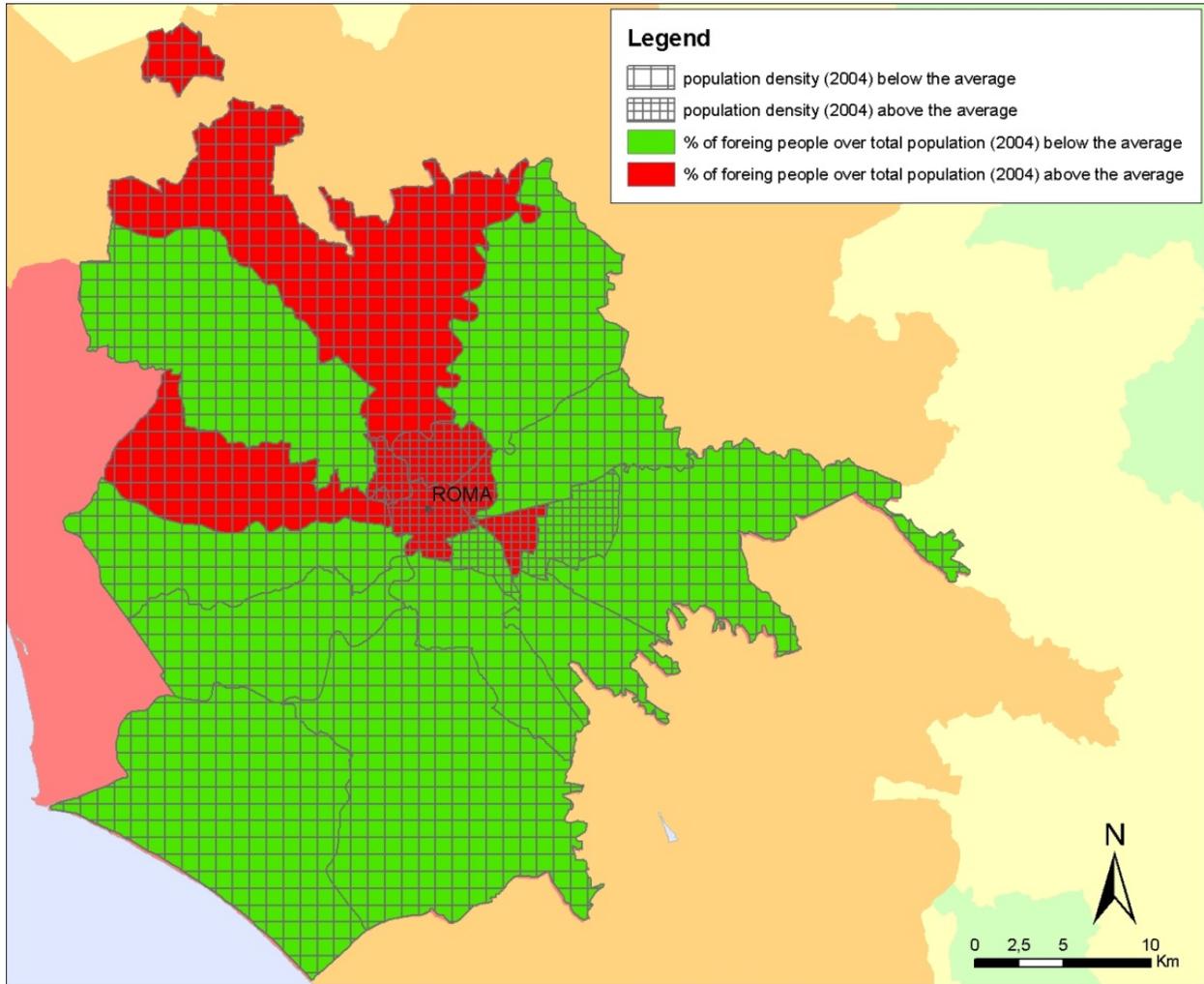
* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.13. *Rome coastal area: number of foreign citizens, 2000-2009**

Figures 6.14 and 6.15 show the incidence of the foreign citizens in the City of Rome in 2004 and 2008. No significant changes occurred in the distribution of the foreign population except for District VIII, crossed by the Casilina, one of the main road axes, characterized by relatively low cost housing.

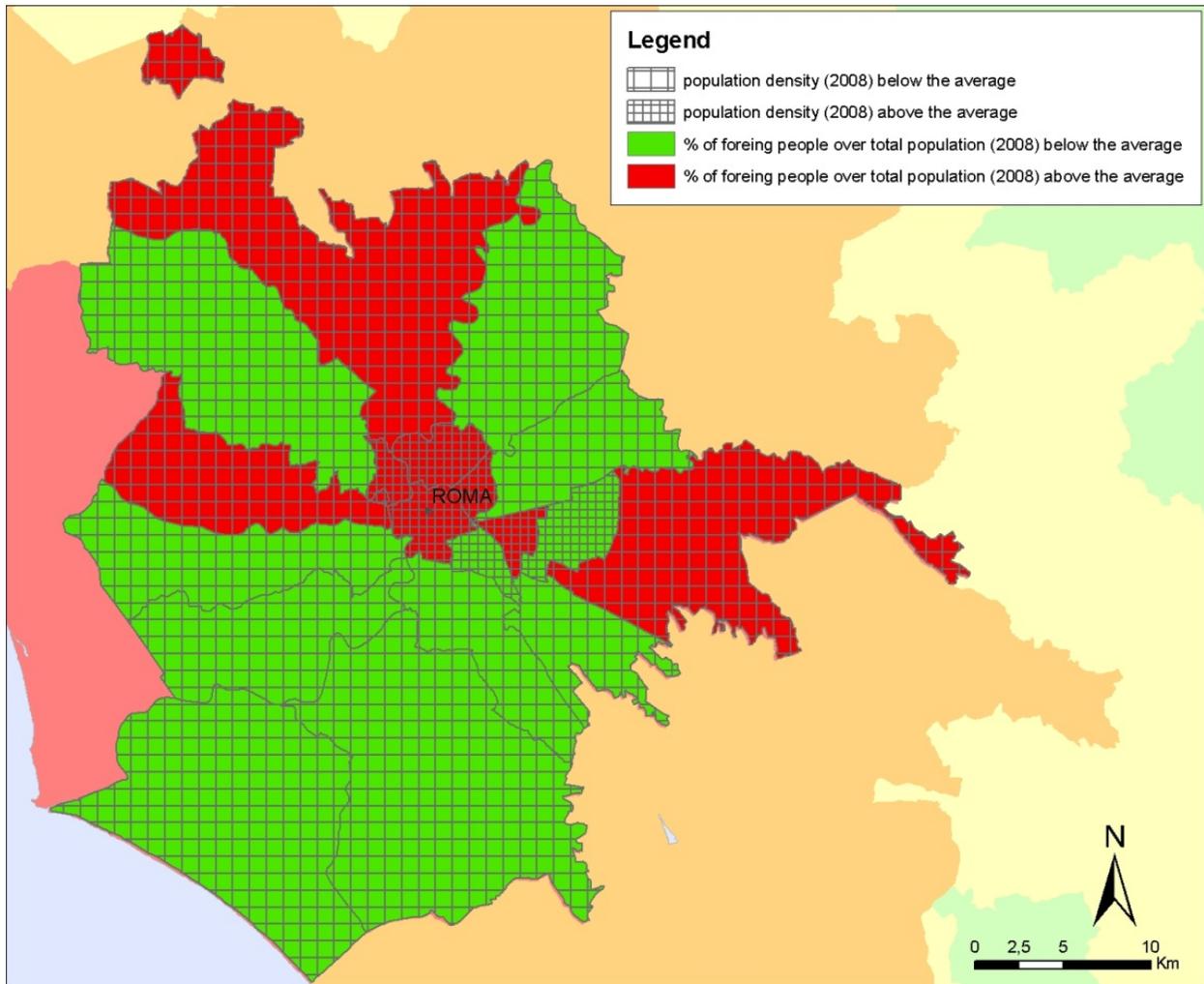
* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

Figure 6.14. *City of Rome, foreign citizens, 2004**



* Source: authors' own elaboration based on Comune di Roma (2005).

Figure 6.15. *City of Rome, foreign citizens, 2008**



* Source: authors' own elaboration based on Comune di Roma (2010).

3.3 Temporary Mobility

3.3.1 Commuting

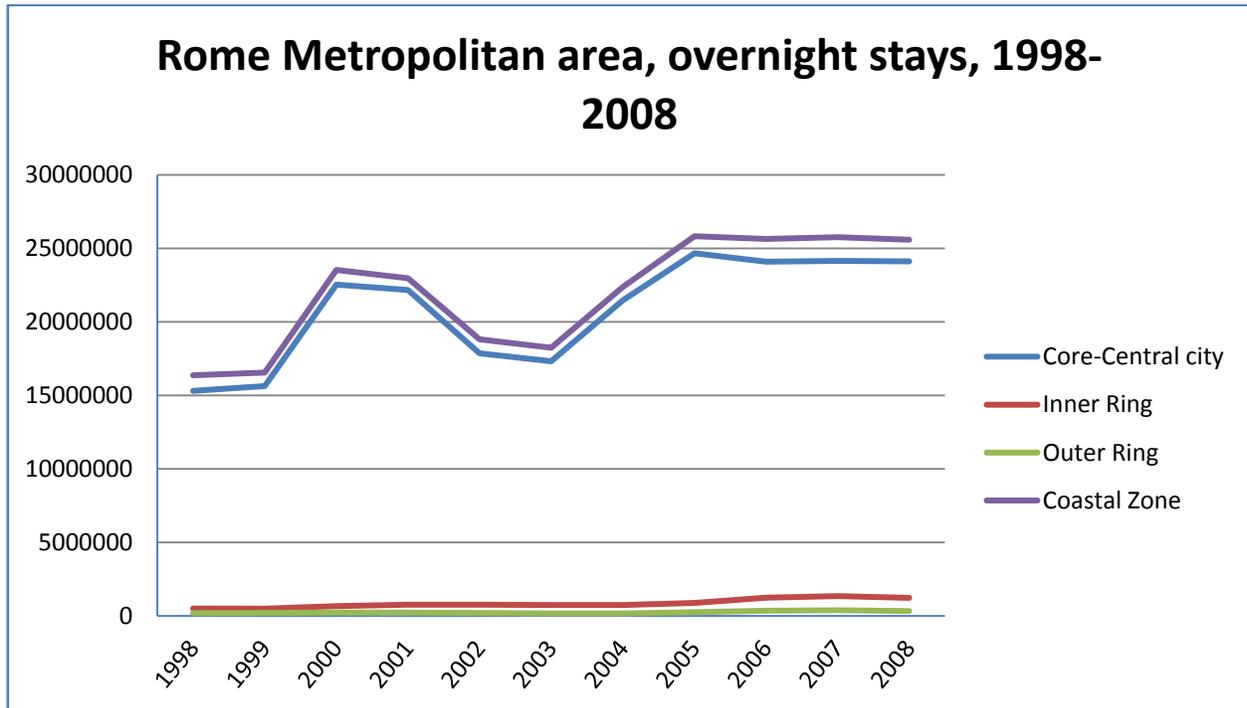
Given the strong attractive capacity of its core, the Rome MA is every day the destination of hundreds of thousands of commuters. In the year 2001 it was estimated (Memotef, 2011) that, on an average day of the year, almost 800,000 persons were moving within the core and more than 100,000 people were moving from the rings (inner and outer) to the core. In the year 2000, on average, 300,000 vehicles were moving (in and out) through the highway gates of the metropolitan area. Ten years later, in 2010, that figure had increased to nearly 400,000 vehicles per day. This drastic rise in the number of vehicles is mainly due to the processes of residential and economic decentralization, and is therefore linked to real estate market dynamics and the failure of planning policies. The increase has been particularly significant in the coastal area where, in the period 2000-2010, the number of vehicles moving through the highways gates has increased 40% (authors' own elaboration based on *Autostrade per l'Italia* and *Strada dei Parchi* 2010).

3.3.2 Tourists and day visitors

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.

Figure 6.16 shows the trend in overnight stays from 1998 to 2008. The very high dynamics of the core-central city are due to the important tourism role played by the city of Rome.

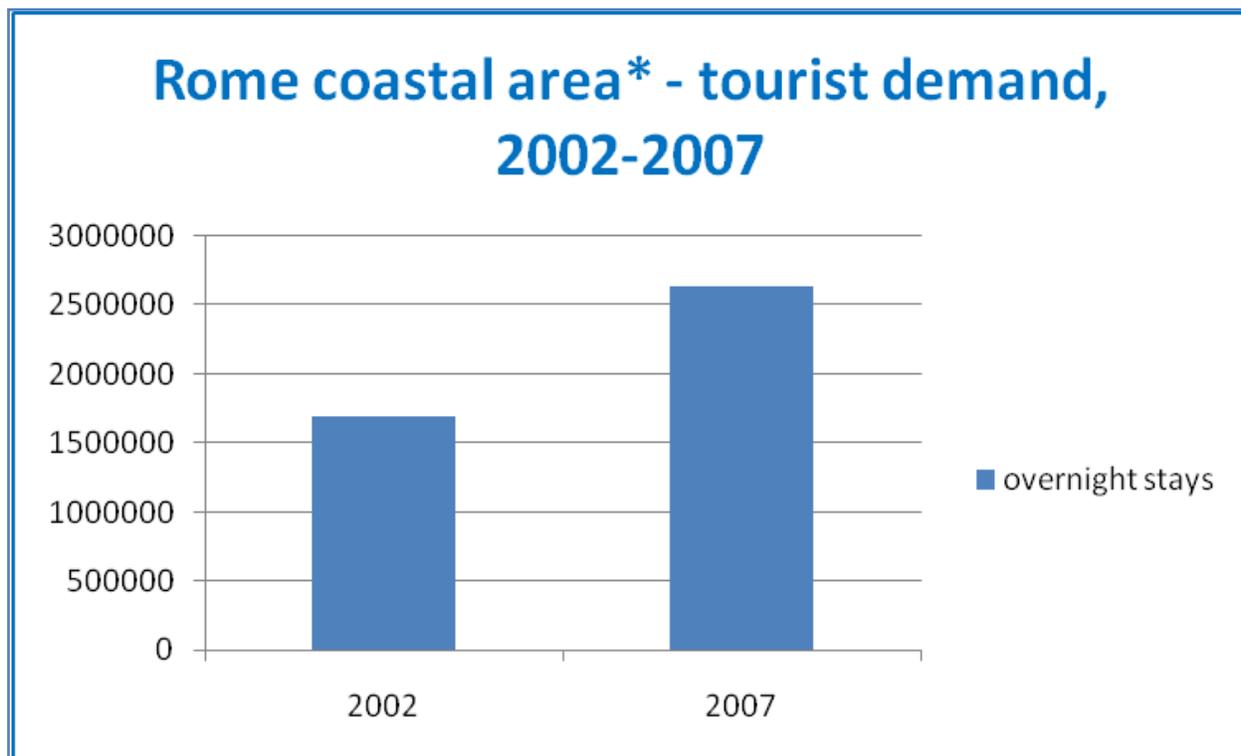
Figure 6.16. Rome metropolitan area, overnight stays, 1998-2008*



This general increase is reflected in the trend registered along the coastal area. Figure 6.17 shows the increase in the number of overnight stays in all the coastal municipalities, taking into account, for the case of the municipality of Rome, only that part of territory facing the sea (District XIII). It is possible to observe a remarkable increase even excluding the core of Rome.

* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

Figure 6.17. Rome coastal area: tourist demand, 2002-2007* **

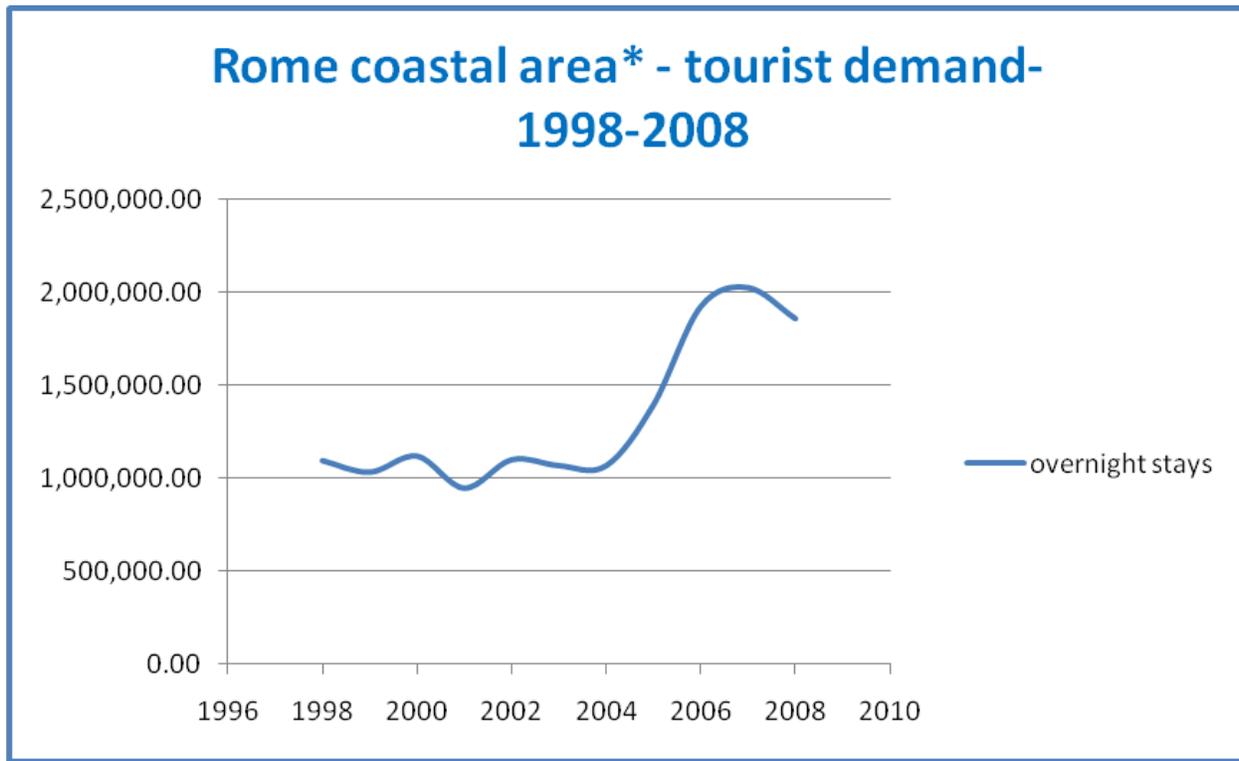


The tendency registered above is confirmed even if we look at the trend in overnight stays excluding District XIII, and taking into account only the smaller municipalities as illustrated in Figure 6.18. This trend shows a turning-point around the year 2008, when the economic and financial crisis hit the world economy.

* Source: authors' own elaboration on *litorale s.p.a.*, 2010.

** The municipality of Rome is not included. The Municipio XIII (Municipality of Rome, coastal District) is included.

Figure 6.18. Rome coastal area: tourist demand, 1998-2008* **

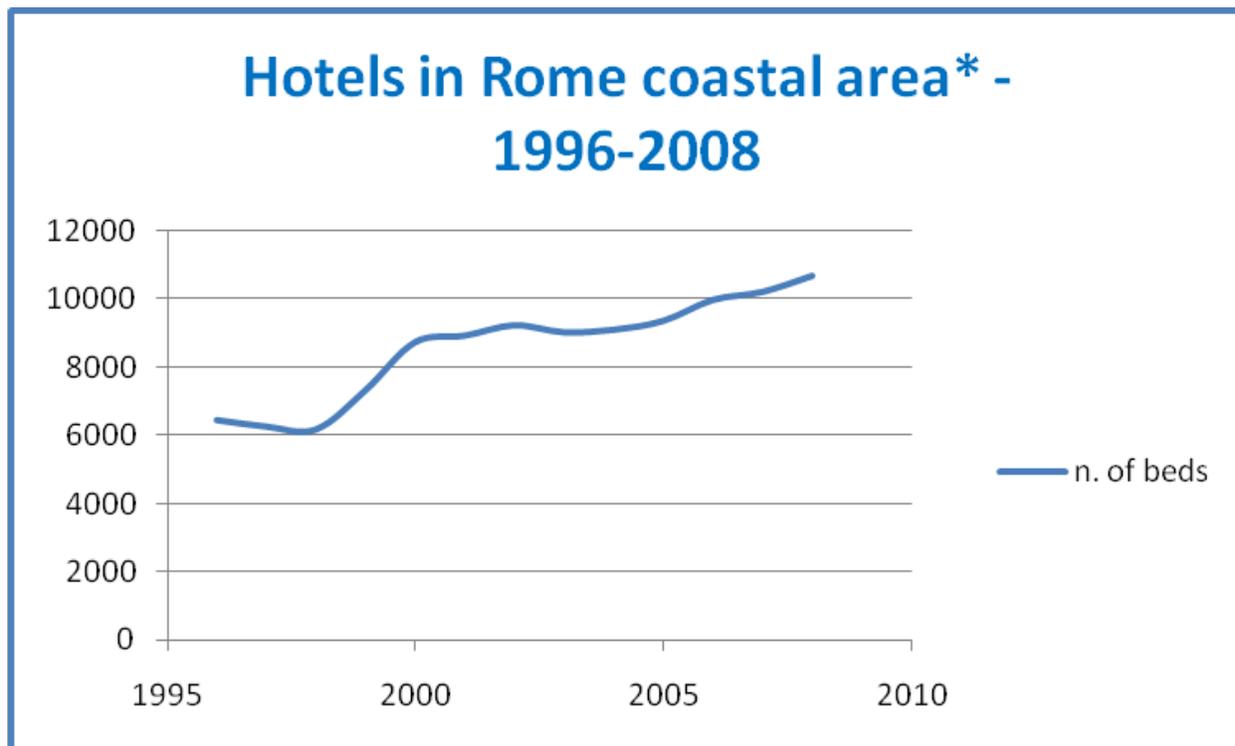


If we now look at tourist accommodation, we can observe an increase in the number of beds in hotels (Figure 6.19). This trend, obviously, has not yet incorporated the effects of the crisis that we will probably be observed in the coming years.

* Source: authors' own elaboration based on Istituto Tagliacarne (2010).

** The Municipality of Rome is not included.

Figure 6.19. *Hotels in Romè coastal area, 1996-2008** **



Given its importance in the metropolitan area, it is worth paying particular attention to the dynamics of tourism in the city of Rome in very recent years.

The international economic crisis began to affect Romè tourism sector in March 2008, when changes with respect to the previous year - still positive in January and February - turned increasingly negative, with the lowest negative peaks in July (-8.06% arrivals, -9.56% overnights) and November (-8.82% arrivals, -10.01% overnights). Italian arrivals and overnights in the year 2008 declined, respectively, by 4.31% and 6%; arrivals and overnights by foreign tourists registered a drop of, respectively, 5.42% and 5.32%. American and German arrivals, in particular, decreased of 10.3% and 8.56%. Foreign customers in 2008 were less than double (1.6) the Italian ones in terms of arrivals and more than double as regards overnights, reflecting longer stays.

* Source: authors' own elaboration based on Istituto Tagliacarne (2010).

** The Municipality of Rome is not included.

An overall view shows that Romè tourism has not been as seriously affected by the international economic crisis as other cities. There were fewer arrivals and overnights in January-August 2009 compared to the previous year. In August, the figures relating to foreign visitors once again turned positive (arrivals +0.94%; overnights +1.80%), while figures related to Italian visitors remained negative (arrivals -1.90%; overnights -0.87%). From autumn 2009 onwards, the statistics show clear signs of recovery as regards arrivals and overnights for Italian and foreign visitors alike. While overnight stays by American visitors were consistently lower than in 2008, the difference narrowed from July 2009 onwards. The number of European visitors to Rome, on the other hand, decreased only in the spring of 2009. Starting from May-June their numbers went up again sharply. Arrivals increased by 5.02% and overnight stays by 3.18% in October.

In response, many hotels started cutting prices to stay on the market and to survive. The situation is different in accommodation other than the hotel sector.

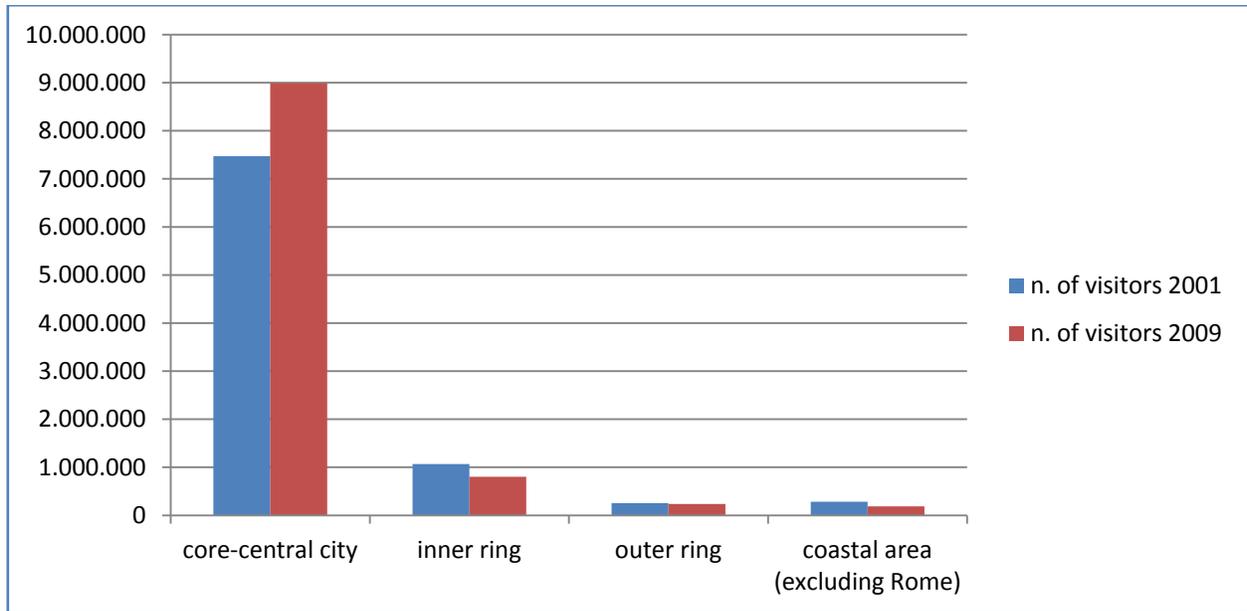
Romè tourism supply – as the healthy performance of its tourism sector confirms despite the crisis – is based on the quality of its services and the unequalled density of cultural product. The 2009 Report of Federculture, the national association of public and private entities in charge of cultural and leisure activities, confirms the integral place that Romè tourism provision occupies in the Italian and European context. One could state that the tourism and cultural supply of Romè historic centre is so vast that 'destination Romè cannot be evaluated like any other urban tourist destination, and therefore does not depend on events in the rest of the world. The risk for Romè tourism comes rather from endogenous causes (Montanari 2010b).

3.3.3 Cultural activities

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. Comparing the number of visitors to the Vatican Museums with the over eight million visitors to the Louvre in Paris, and the nearly six million visitors to the British Museum in London, would make little sense, except for identifying a centre of interest for tourists visiting Rome. The other Rome museums lag well behind the top few. There were 9,189,066 visitors to government museums and monuments in Rome in 2008, and 1,317,229 visitors to civic museums; in 2008 there were over 12 million visitors to government museums and monuments in the entire Lazio region, clearly dominated by Rome's cultural presence. The archaeological circuit "The Colosseum, Palatine Hill and the Roman Forum", alone drew nearly 5 million visitors. The number of visitors to state museums in Rome went up by 21% and visitors to civic museums increased by 47% in the 2000-2008 period. In 2009 Rome organised at least four exhibitions that attracted a significant number of visitors (Montanari 2010b):

- "Giotto e il Trecento" (Giotto and the 14th century – 196,544 visitors) at the Complesso del Vittoriano;
- "Beato Angelico, l'Alba del Rinascimento" (Blessed Angelico – The Dawn of the Renaissance – 187,059 visitors) at the Musei Capitolini, Palazzo dei Caffarelli;
- "Futurismo. Avanguardia-Avanguardie" (165,939 visitors) at the Scuderie del Quirinale;
- "Giulio Cesare. L'uomo, le imprese, il mito" (Julius Caesar – the man, the exploits, the legend – 162,584 visitors) at the Chiostro del Bramante.

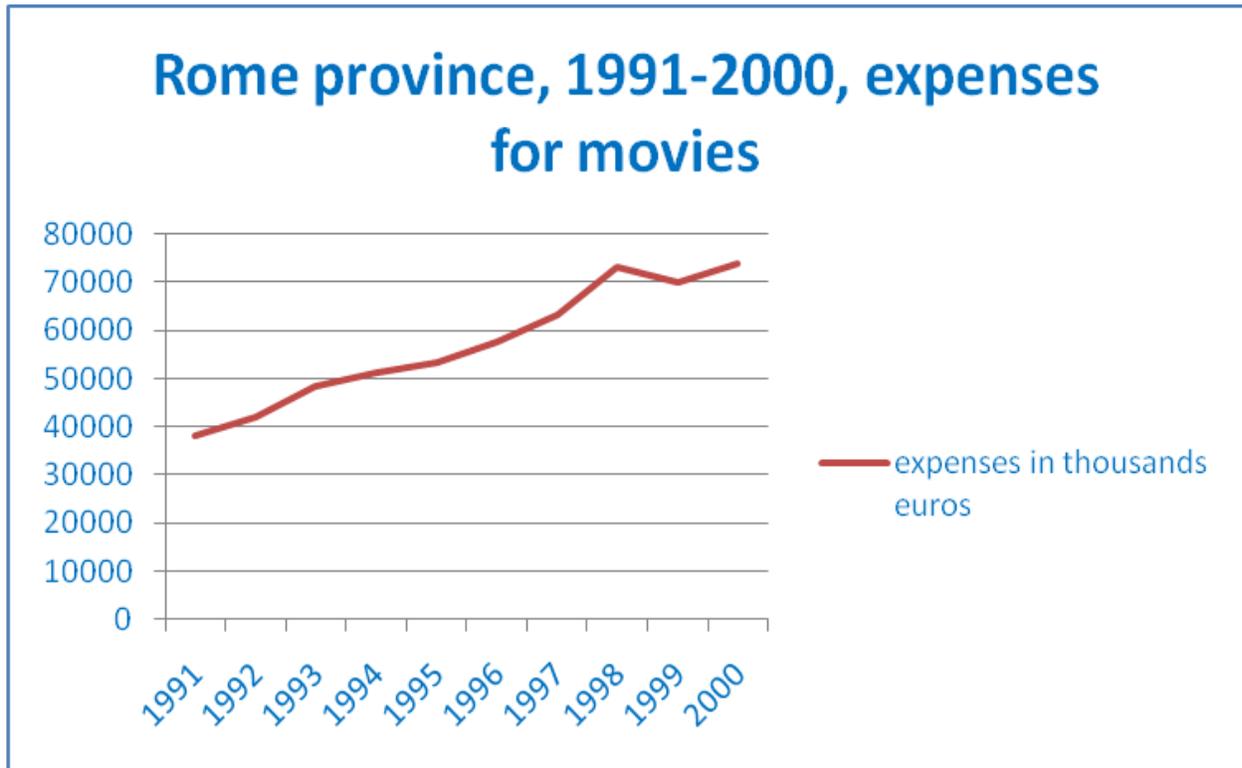
Figure 6.20. Rome Metropolitan Area, 2001-2009, visitors to state museums, monuments and archeological sites*.



* Source: authors' own elaboration based on MiBAC (2011).

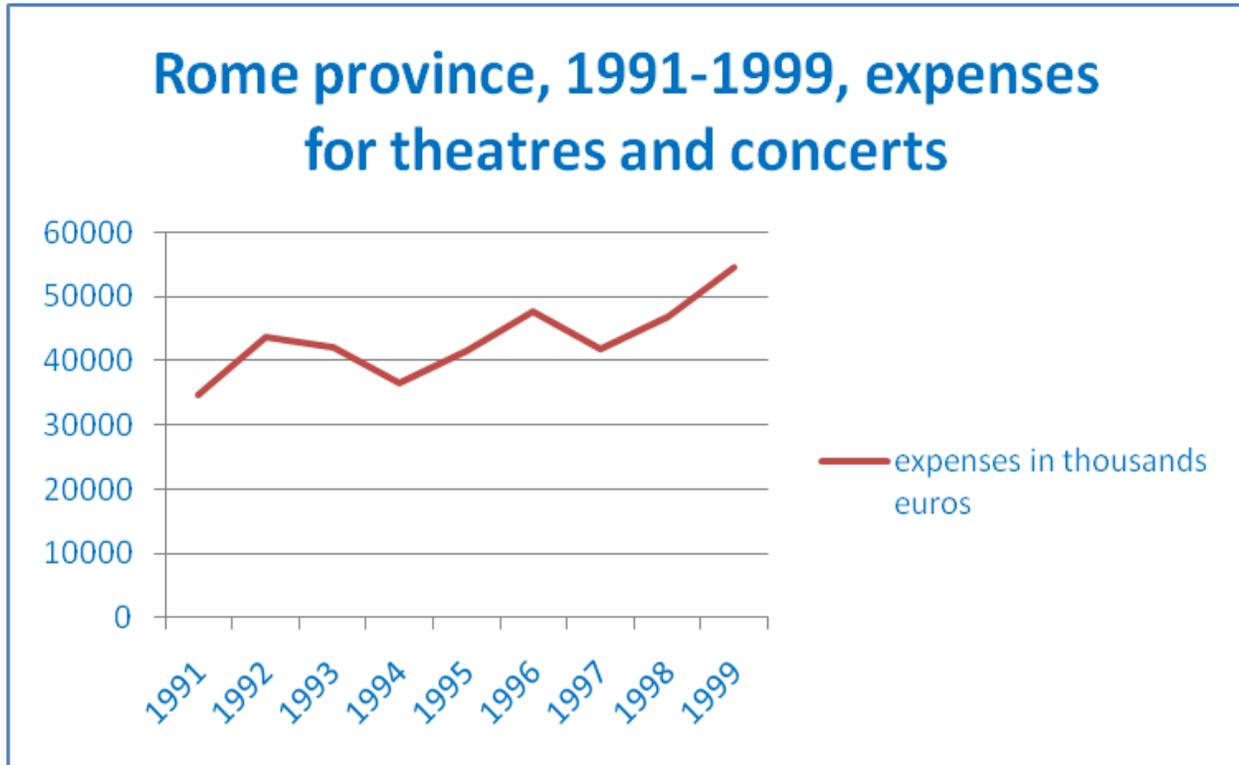
Figures 6.21 and 6.22 show the increasing expenditure on attending movies, performances in theaters and concerts in the Rome Province (a smaller territorial unit than the Rome MA) during the 1990s.

Figure 6.21. Rome province, 1991-2000, expenditure on movies*



* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

Figure 6.22. Rome province, 1991-1999, expenditure on theatres and concerts*



Residents are in competition with those who temporarily visit the city (tourists, visitors, commuters, migrant workers) for the use of spaces and services. Competition takes place, in particular, in the use of buildings because of the increase in the demand for non-residential uses. In the tourist areas, a significant change can also be observed in commercial spaces, since the number of shops selling products for occasional customers is increasing due to higher profits. Changes are taking place because of an excess of demand; this generates higher prices in the real estate and product markets; in turn, these create an increase in the cost of living. Beyond a certain income level, it is difficult for traditional residents to maintain their homes in the tourism areas where gentrification processes take place. Tourism uses can contribute to the improvement of economic and social conditions for some residents but they can also cause an increase in environmental stresses (air, water, waste, noise, landscape, smell); in addition, they make access to public transports difficult for residents. If negative effects exceed advantages, historic centres may suffer from an alteration to their economic and social structure. This

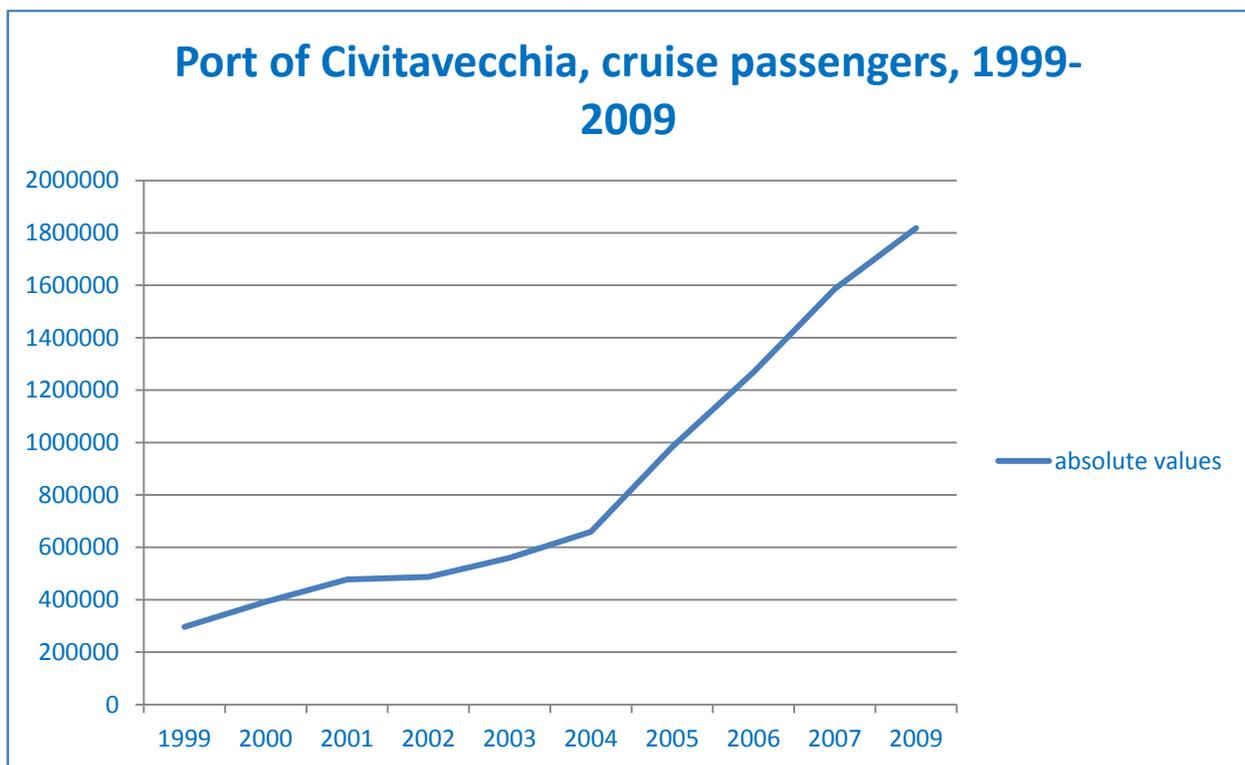
* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

weakens the tourism attractions of historic cities where locals – with their habits, uses, and customs – are part of the cultural heritage (Montanari & Staniscia 2010).

3.3.4 Marine borders, recreational use

With an average of 5,000 cruise ship passengers per day, with peaks of 20,000 per day during the year, Civitavecchia (northern part of the coastal area) has become the first ranked cruise ship harbour in the Mediterranean basin. Launched as a cruise ship harbour on the occasion of the Jubilee year, its growth has been constant and inexorable, with an increase of 300% in the average number of passengers (Figure 6.23). Once they have landed in Civitavecchia, almost all the passengers move to Rome. Usually they have a short visit (five hours), mostly visiting the Vatican city and what they leave in the city is money for a cheap lunch and for cheap souvenirs. They usually travel by bus and, more recently, by a so called "sea-train". An increase in traffic and pollution is one of the main consequence of their presence.

Figure 6.23. Port of Civitavecchia, cruise passengers, 1999-2009*

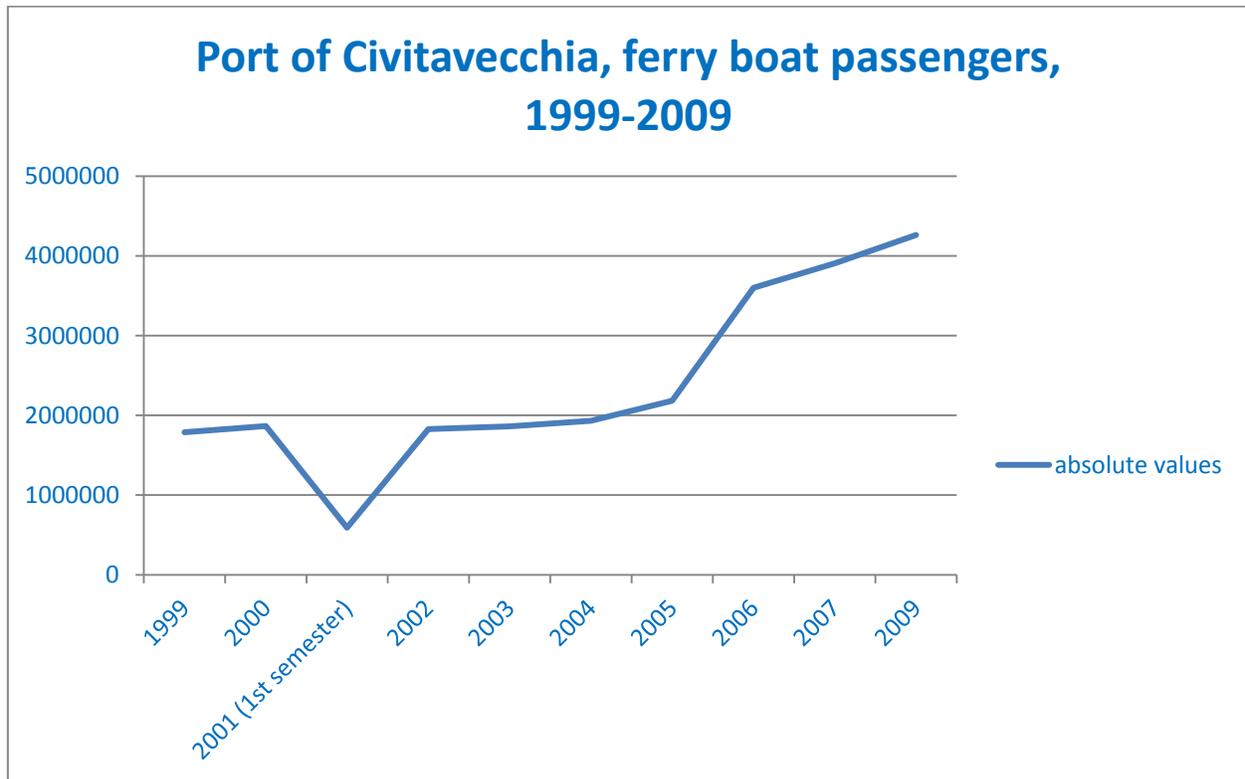


Boats moored in marinas remained relatively constant in the last ten years, at around 7,000. The marinas, indeed, are always fully occupied and their capacity has not increased in the

* Source: authors' own elaboration based on Port of Civitavecchia (2011).

last ten years. The last ten years were also characterized by an increase in the number of passengers using ferries, (Figure 6.24).

Figure 6.24. Port of Civitavecchia, ferry boat passengers, 1999-2009*



* Source: authors' own elaboration based on Port of Civitavecchia (2011).

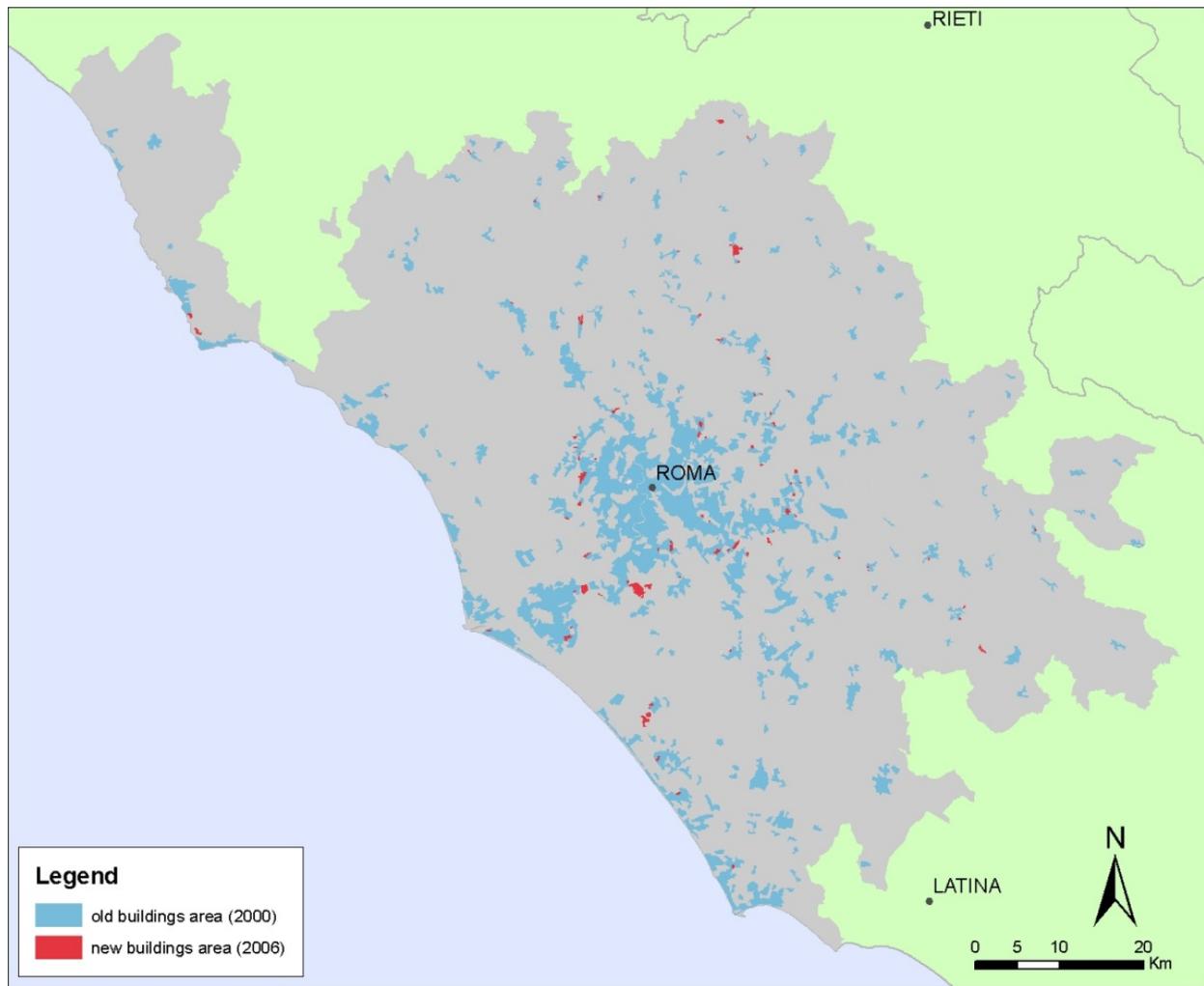
3.4 Mobility and Urbanization

3.4.1 Land use and land use changes

Rome MA is characterized – as are all Italian cities with a long history – by a mixed use of residential, commercial, and service areas. The traditional structure of a building is: shops at the ground level, offices at the first floors, apartments above. That is why no phenomenon of intensification could be registered in this period. The same applies to increases in the height of buildings. A strict regulation is imposed on all buildings and they can not exceed a certain height (that of the Saint Peter's church); a long building history has already stabilized the skyline.

In contrast, the phenomenon of extensification has occurred, mainly due to residential sprawl and economic deconcentration (Figure 6.25). After the introduction of the Euro, a lack of adequate public policies provoked a doubling in the prices of houses. Young singles, couples and families had no choice but to move to the city outskirts. At the same time the culture of hypermarkets and business parks, imported from the American tradition, needed new land in the suburban areas. The construction of new infrastructures and improvements to existing ones, on the occasion of the Jubilee year, supported the enterprises in their location choices far from the centre.

Figure 6.25. Rome Metropolitan Area, urban extensification, 2000-2006*

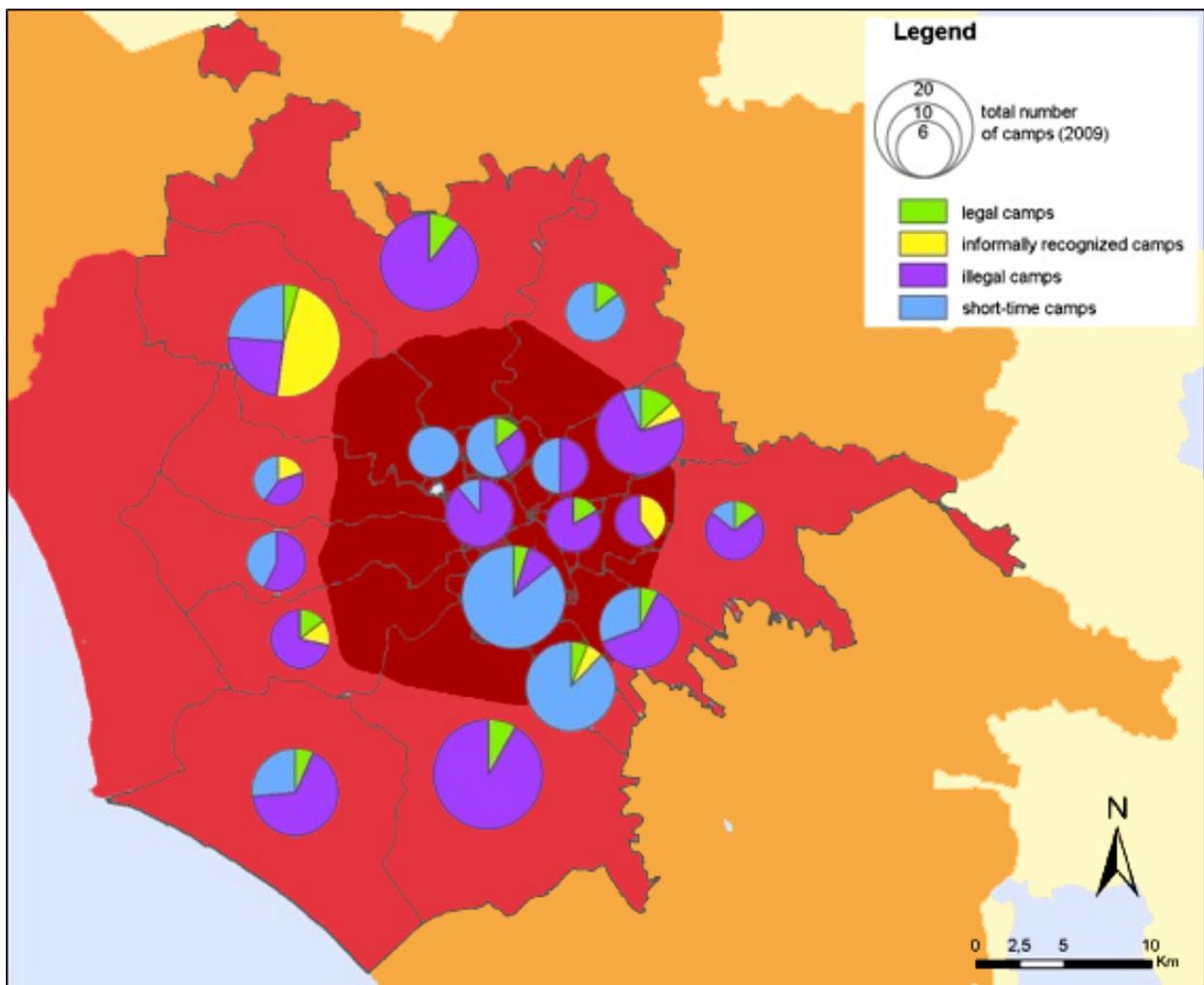


* Source: authors' own elaboration based on CORINE (2000, 2006).

3.4.2 Temporary housing

Temporary and shanty settlements in Rome are related to the presence of Roma and Sinti camps (Figure 6.26). They are concentrated in the core, and today there are 219; more than one half are illegal and one third are temporary camps. In the XIII District (the District facing the sea), there are 15 camps, two thirds of which are illegal. Caritas (2010) estimates the presence of around 10,000 persons living in shanty housing, more than half of whom are located in legal camps.

Figure 6.26. City of Rome, Roma and Sinti camps, 2009*



* Source: authors' own elaboration based on Caritas (2010).

4. Chieti-Pescara Urban Area

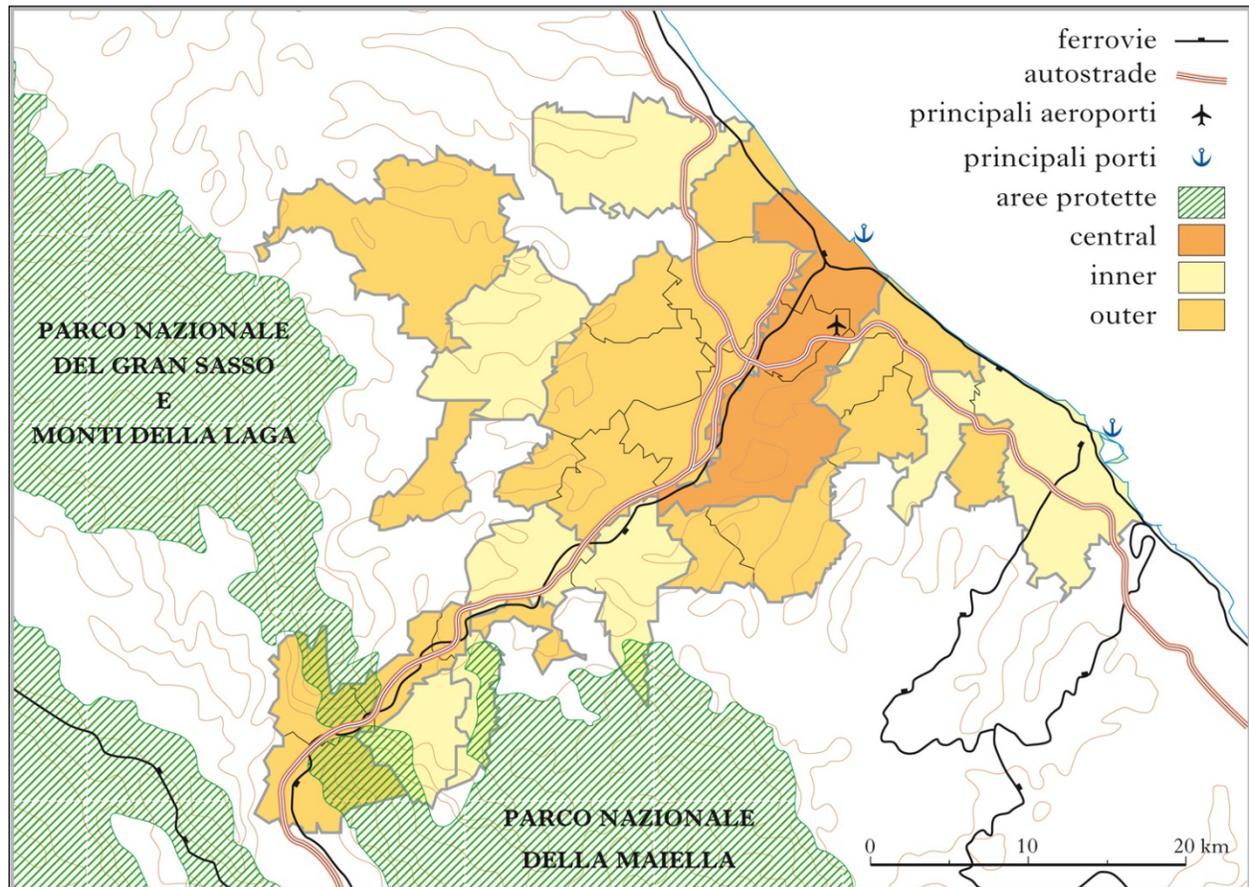
4.1 Case Study Context: Processes of Urbanization and Dynamics of Population

Population decentralization took place in Italy between 1981 and 1991. All the municipalities with more than 20,000 inhabitants registered a decrease in population, and the drop was greater than 10 percent for the municipalities with more than 500,000 inhabitants. This phenomenon was accompanied by a new tendency: new forms of urban polarization. The traditional '*core-periphery*' scheme was replaced by a new '*network*' scheme with strong links at several points. A new term has been found to describe this phenomenon, namely '*scattered town*' (*città diffusa*) (Montanari & Staniscia 2003a). During the 1990s there was a slackening of internal and external movements of native-born Italians, and an increase in migratory flows from abroad. Italy confirmed its status as an '*immigration*' country (Montanari & Cortese 1993). Taking into account these urban dynamics, it can be said that: "in recent years the migration loss of the provinces with a very high population density intensified without an indication of a clear move to the small city stage" (Bonifazi & Heins 2001).

Chieti-Pescara UA is limited by the sea, in the North-East, and by the National Park of Majella and the National Park of Gran Sasso and Monti della Laga, in the South-West. The central city is formed by the main cities - Chieti and Pescara - the first one having an ancient origin on the hill, the second one being of recent origin along the plain and the coast. Pescara city can be considered to be the spontaneous "branch" of the city of Chieti, following the technological innovations which characterised the XXth century. In recent years, a new settlement along the Pescara river has been created. It is constituted of houses, business parks, shopping centres, and industries, with no discontinuity points.

The Chieti-Pescara UA is characterised by a system of infrastructures which are basically linear, with many points of intersection, creating a net of roads (Figure 6.27).

Figure 6.27. *Chieti-Pescara Urban Area**



The total Urban Area can be considered larger than a mid-sized city in the Italian context, accounting for around 400,000 inhabitants. Its urban development has been uneven throughout its history. It followed a path common in urban agglomeration in Central-Southern Italy, with a delay of ten years. During the Sixties and Seventies, indeed, the internal areas of the region – mostly hilly and mountainous – lost population that partially moved towards the plain and the seaside. In this way, the coastal area of the Chieti-Pescara agglomeration registered a population increase that is still continuing. The distribution of residents within the urban area also changed through time.

In the period 1991-2001, the central city registered a population loss owing to a decrease in the two main cities (Pescara and Chieti). The net loss was about 8,000 inhabitants, or 4.15%. The coastal municipalities experienced a negative migration rate (-4.6 per thousand per year),

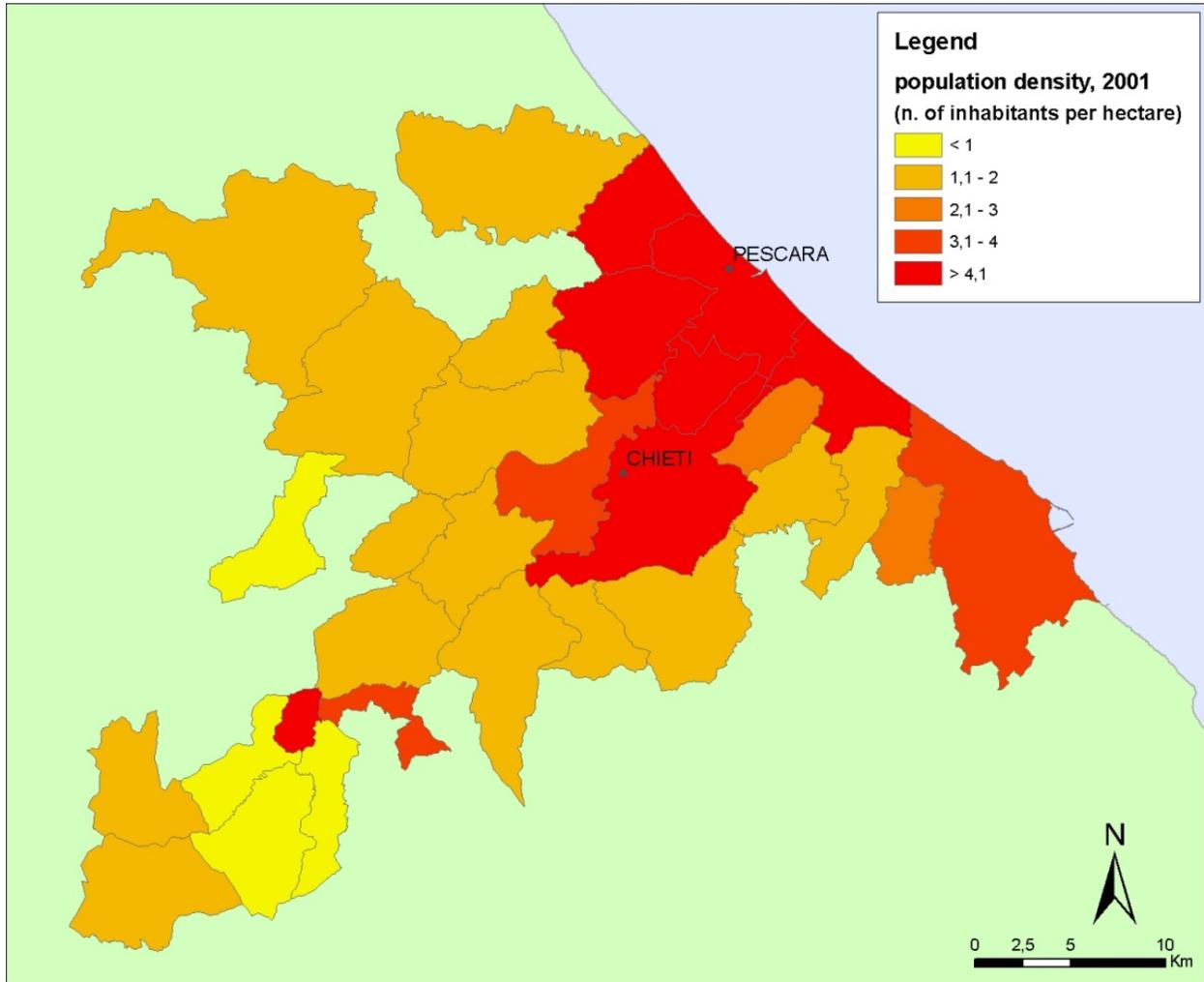
* Source: authors' own elaboration.

In the period 1991-2001, the central city registered a population loss owing to a decrease in the two main cities (Pescara and Chieti). The net loss was about 8,000 inhabitants, or 4.15%. The coastal municipalities experienced a negative migration rate (-4.6 per thousand per year), the highest negative peak in the whole metropolitan area. In the internal municipalities the rate was positive. The total average yearly migratory rate was -1.8 per thousand. There is, therefore, a picture of absolute population decentralization.

The inner ring registered a weak increase in population as a result of the strong increase in the northern coastal municipality. The final result was an increase of around 2,000 units, or +3.68%. The migration rates in the coastal municipalities were positive and high, reaching their peak in the northern coastal municipality (+15.2 per thousand per year). The other municipalities registered a weak positive migraton rate, with the most internal municipality being the only exception. The total average annual migration rate was +6.5 per thousand.

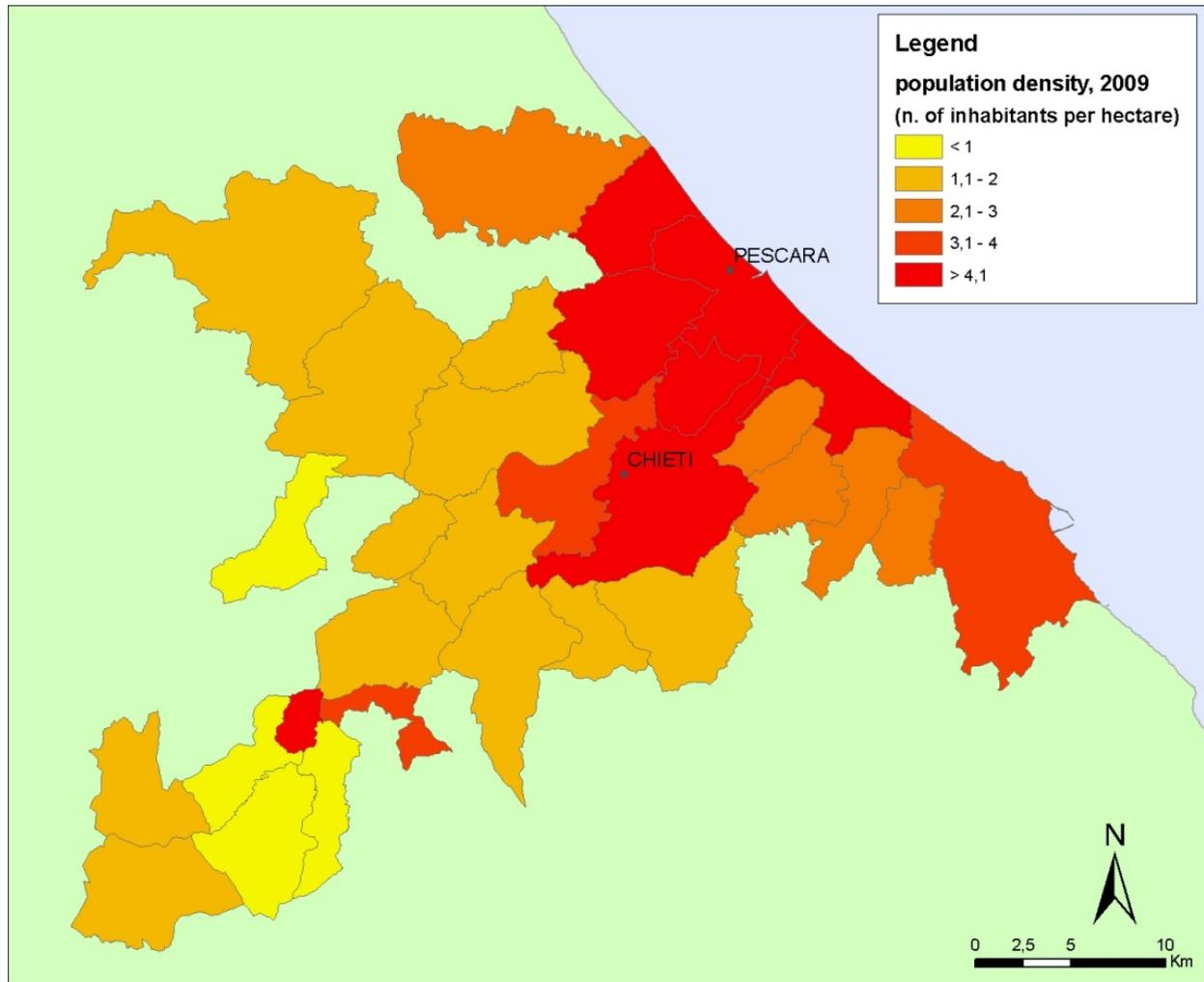
In the outer ring there was a significant increase in population; the rise was particularly high in the two coastal municipalities and in those surrounding the central city. The total increase was of more than 12,000 inhabitants: + 8.78%. The outer ring registered a generalized positive migration rate with the most internal municipalities being the only exceptions. The coastal municipalities, and those surrounding the central city, registered the highest positive peaks. The total average annual migration rate was +9.1 per thousand (Montanari, Staniscia & Di Zio 2007).

Figure 6.28. Chieti-Pescara Urban Area, demographic characteristics, 2001*



* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.29. Chieti-Pescara Urban Area, demographic characteristics, 2009*

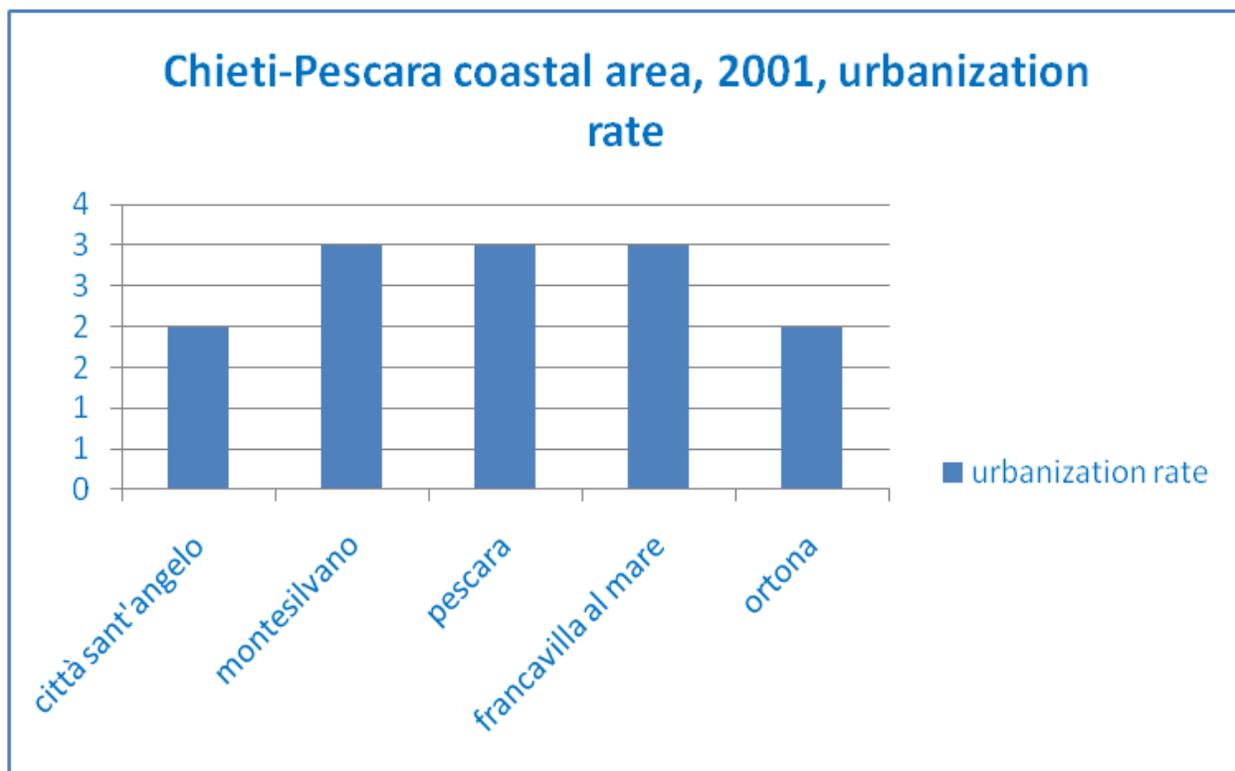


Chieti-Pescara UA has experienced phenomena of both residential and economic decentralization at different speeds. The Italian component of the resident population shows a preference for the municipalities in the outer ring: peripheral territories became attractive because of the lower prices in the real estate market, because of the development policies implemented at the local level, and because of improvements to the transport system and infrastructures.

* Source: authors' own elaboration based on ISTAT (2011).

Figure 6.30 shows the urbanization rates of five coastal municipalities. Three degrees are considered at the Italian level (1=low, 2=medium, 3=high). It can be seen that the most populous and important municipalities have high urbanization rates.

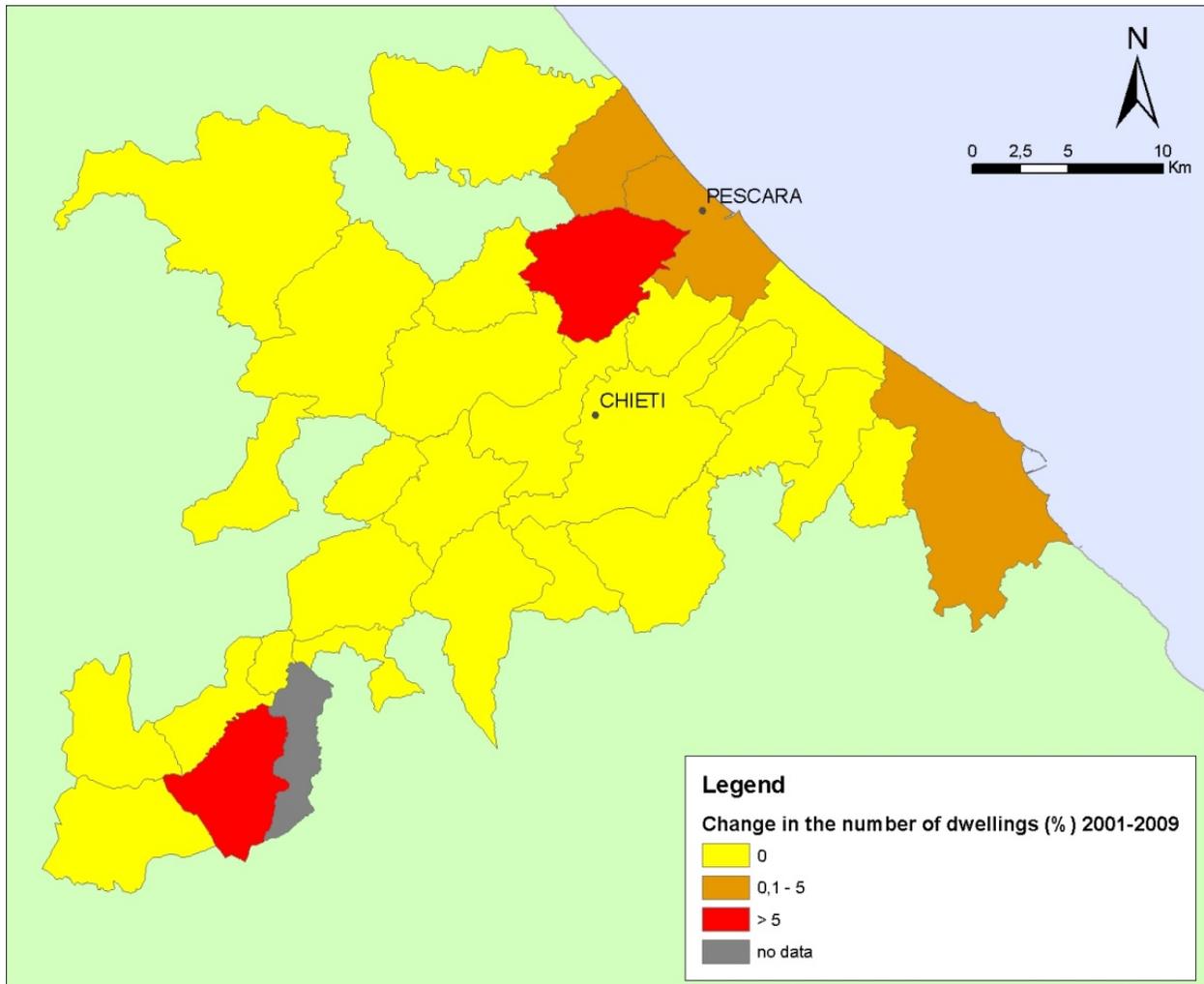
Figure 6.30. Chieti-Pescara coastal area, 2001, urbanization rate*



The urbanization process in Chieti-Pescara UA has been influenced by several driving forces through time: increasing population, preference for the seaside, increases in house prices, lack of effective public planning, and delays in development policies. The result is a very unbalanced agglomeration, with a high concentration of buildings and residents along the coast and a related phenomenon of sprawl and residential decentralization due to the lack of free space in the core. Some areas are congested whereas others are empty (Figure 6.31).

* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

Figure 6.31. Chieti-Pescara Urban Area, urban development, 2001-2009*



* Source: authors' own elaboration based on ISTAT (2011) and CORINE (2006).

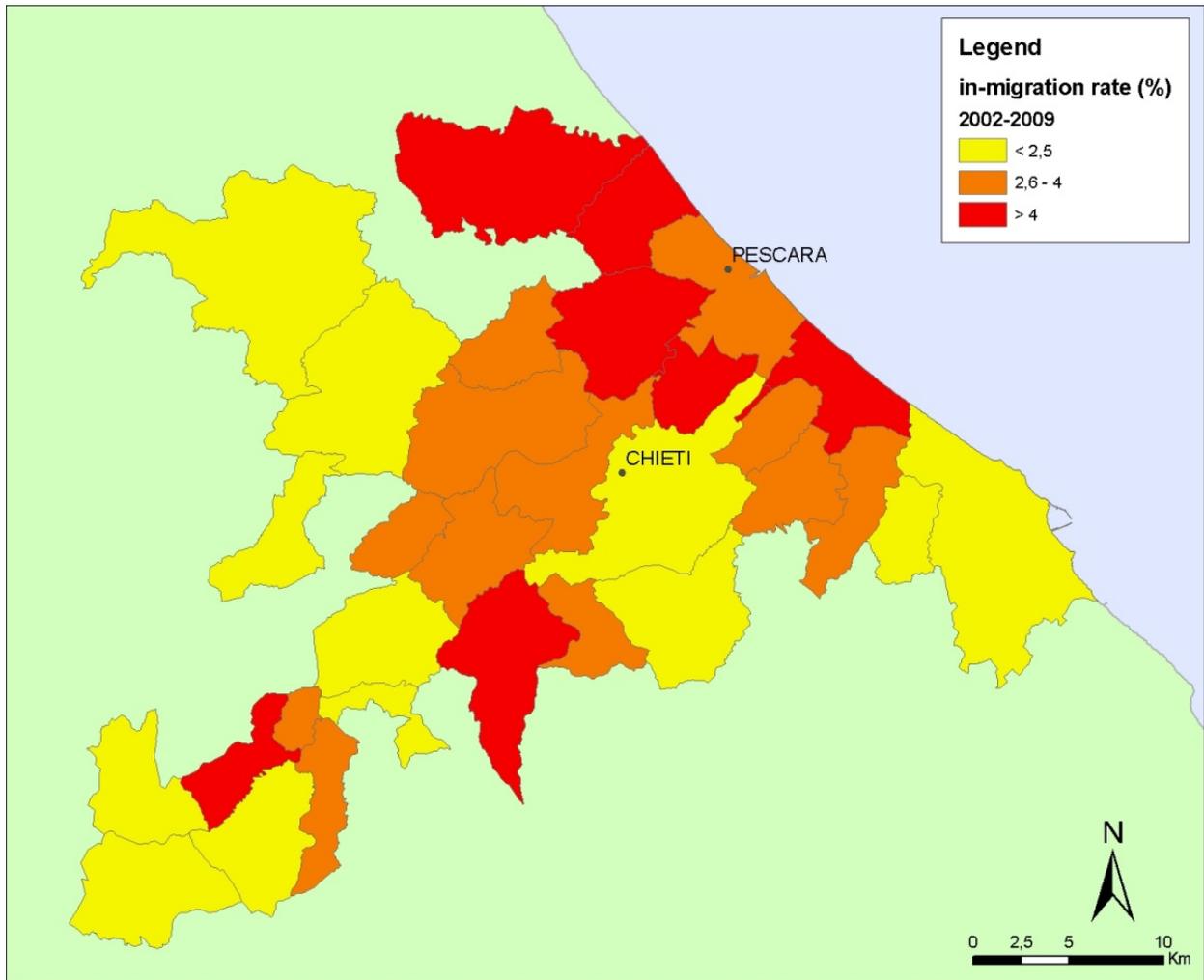
4.2 Migration

The number of foreign citizens in the Chieti-Pescara UA increased significantly in the 1990s from 1,993 individuals to 5,053 individuals (+153% in ten years). The incidence of citizens (measured as the weight of the foreign component in the total population), is particularly high in the inner and the outer ring, where it is equal, respectively, to 14.37 per thousand and 14.84 per thousand in 2001. In 1991 the numbers were, respectively, 4.44 per thousand and 6.49 per thousand. The municipalities with the highest values are the largest ones, situated along the coast and in the central city. The increase in the number of foreign citizens has been registered in all three sub-areas with a particularly important role played in the inner ring where the highest increase is registered (Figure 6.32).

In 1993 the total number of foreign citizens was 3,458 (1,450 of whom were women). By 2004 the total number of foreigners had reached 9,109 (5,112 of whom were women). The foreign presence, therefore, increased by 163.4%. This increase had been particularly high for women (+252.5%).

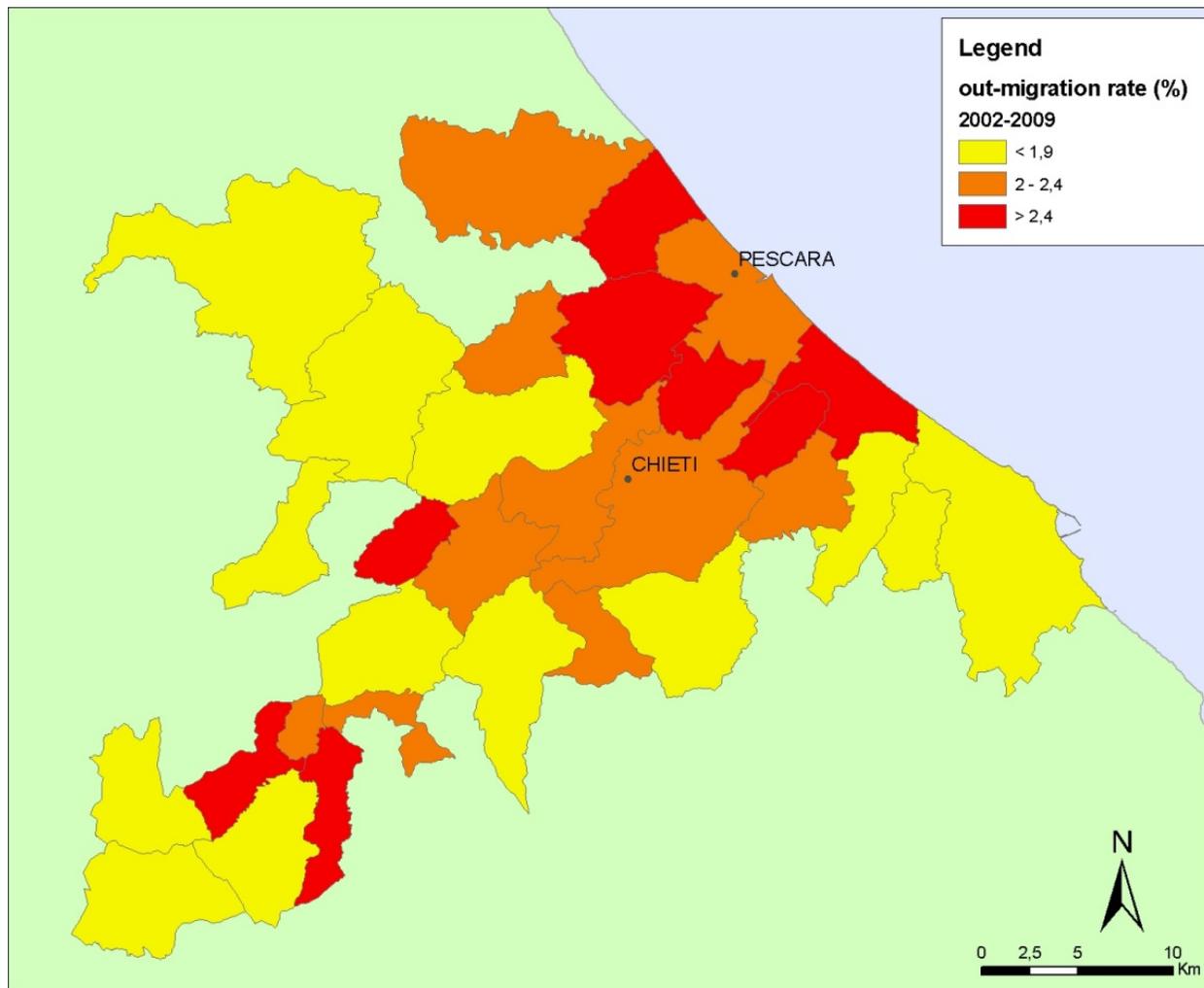
In 2004 the municipalities with the highest location quotient were sited along the coast and in some inland areas. The largest communities were from Albania, Ukraine, Romania, Former Yugoslavia, China, Senegal, Poland, Greece, Morocco, Brazil. The first three communities, alone, accounted for more than 50% of the total.

Figure. 6.32a.*



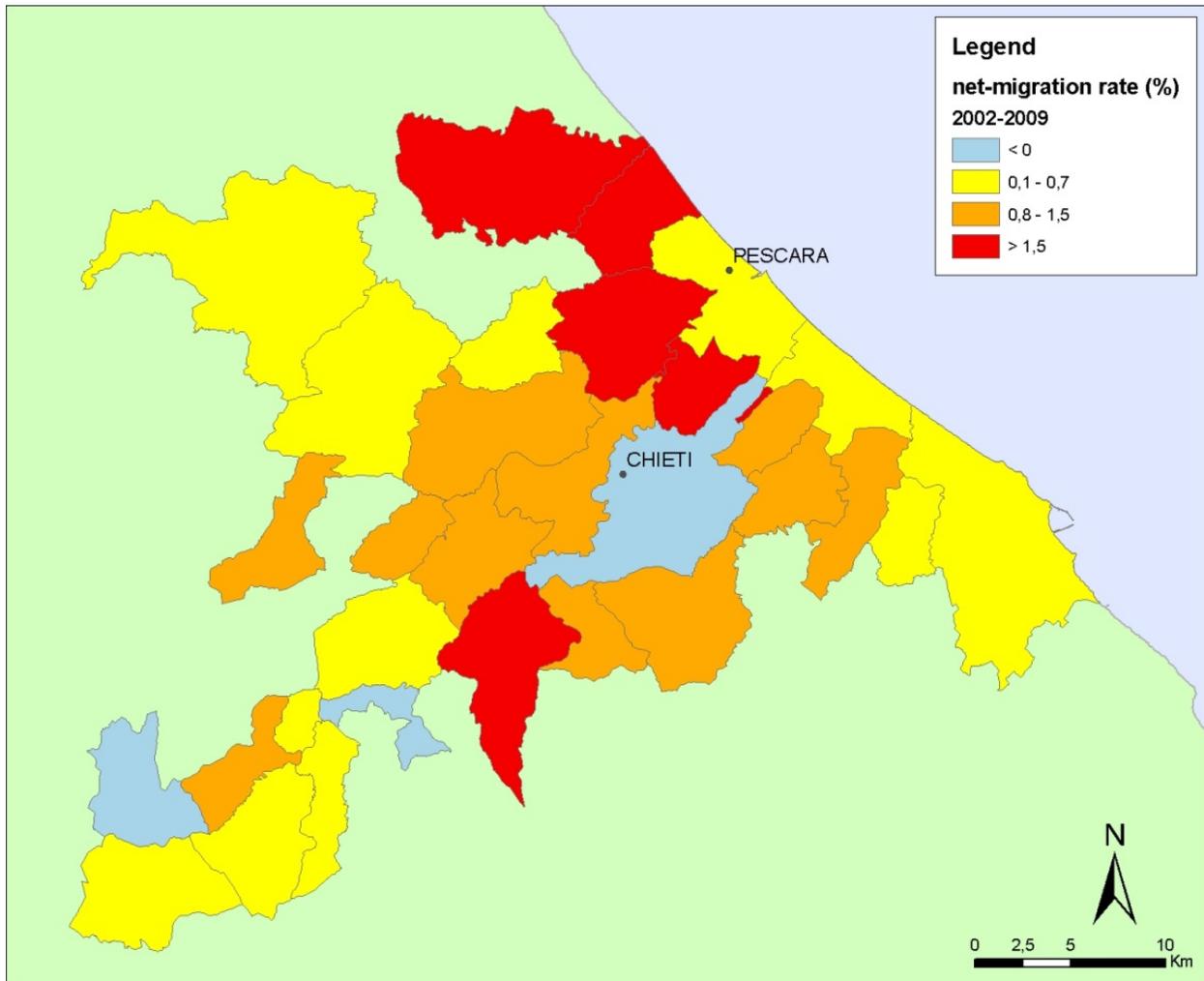
* Source: authors' own elaboration.

Figure. 6.32b.*



* Source: authors' own elaboration.

Figure 6.32c.*



* Source: authors' own elaboration.

Figure 6.32d.*

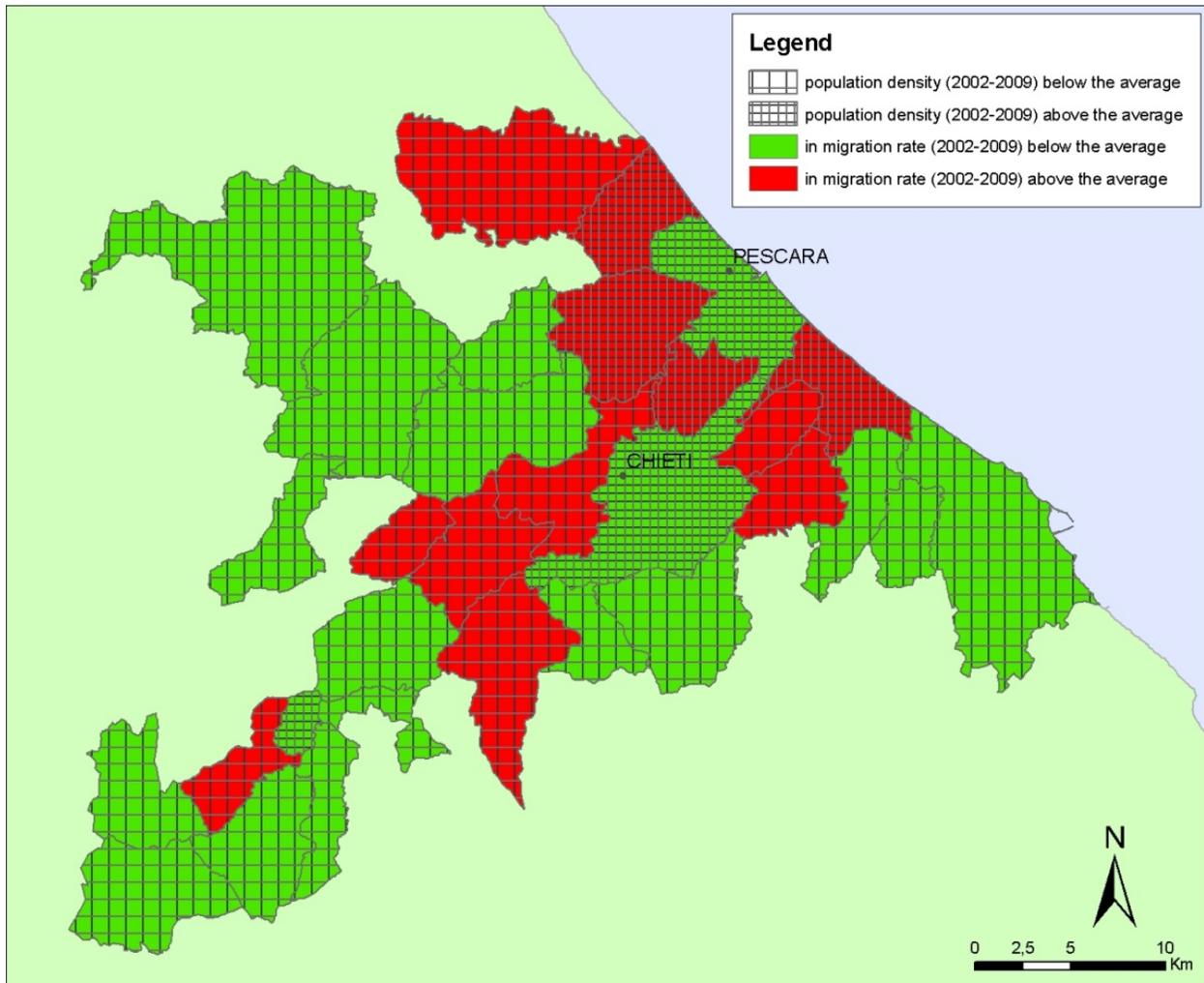
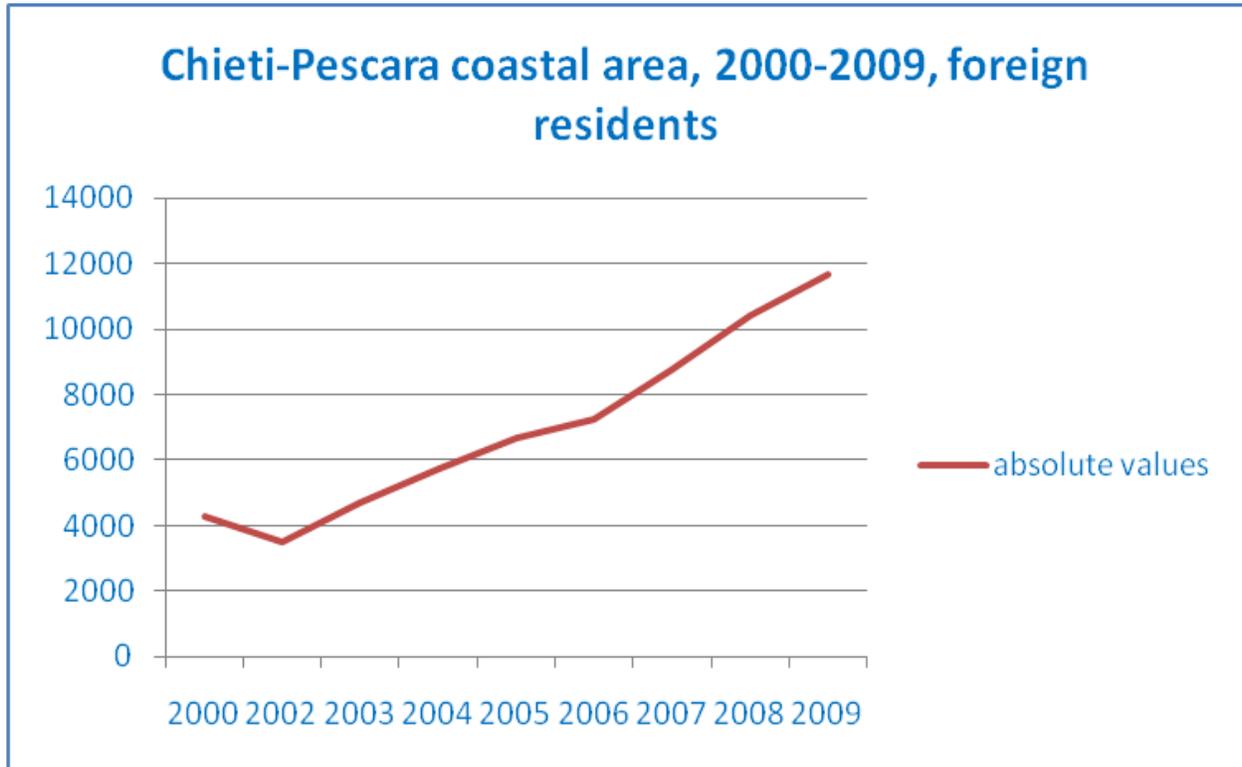


Figure 32a-32d Chieti-Pescara Urban Area, population dynamics, 2002-2009

Figures 6.33-6.35 show the recent trends in the numbers and distribution of foreign citizens along the coastal area and in the metropolitan area.

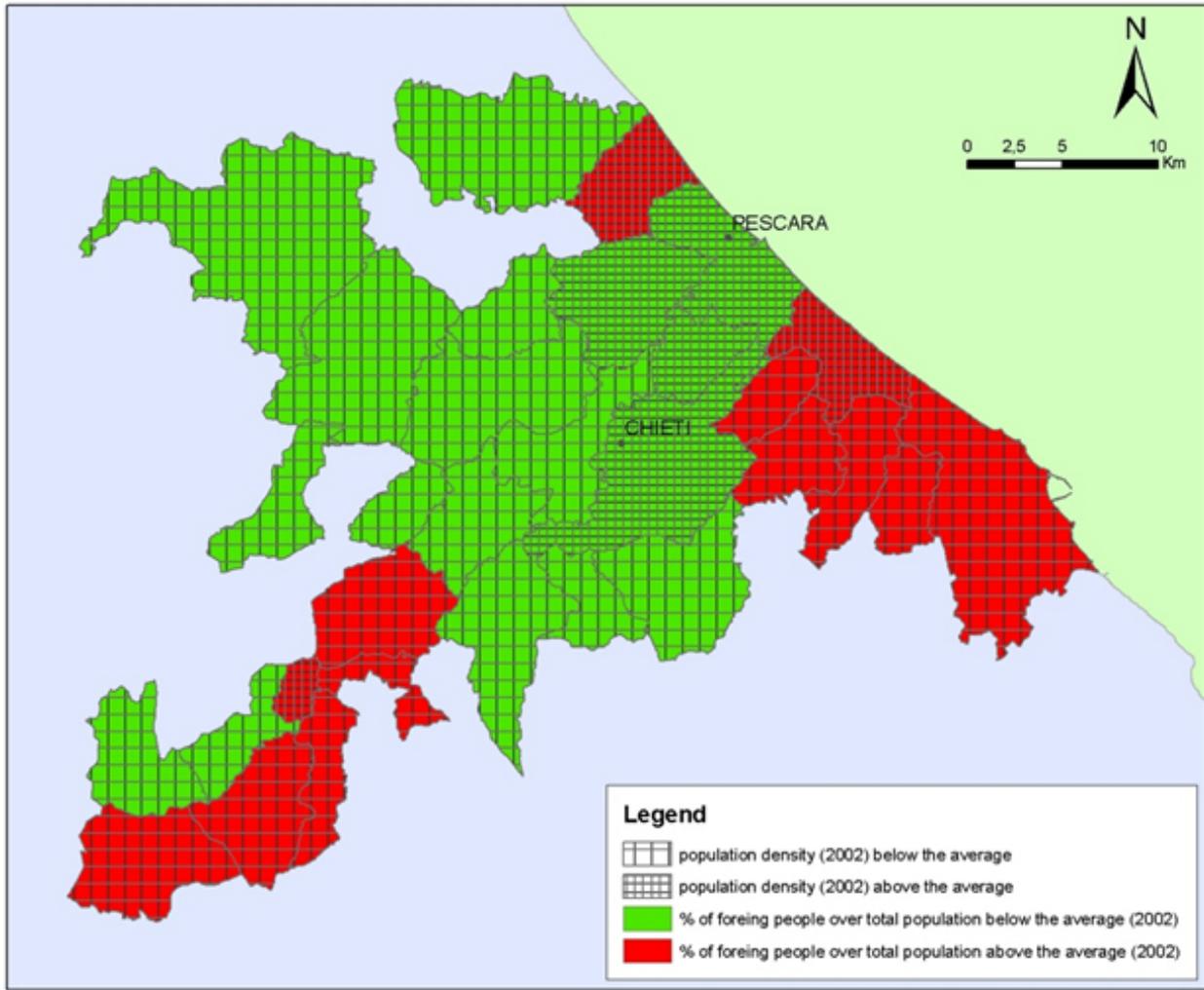
* Source: authors' own elaboration.

Figure 6.33. *Chieti-Pescara coastal area, 2000-2009, foreign citizens**



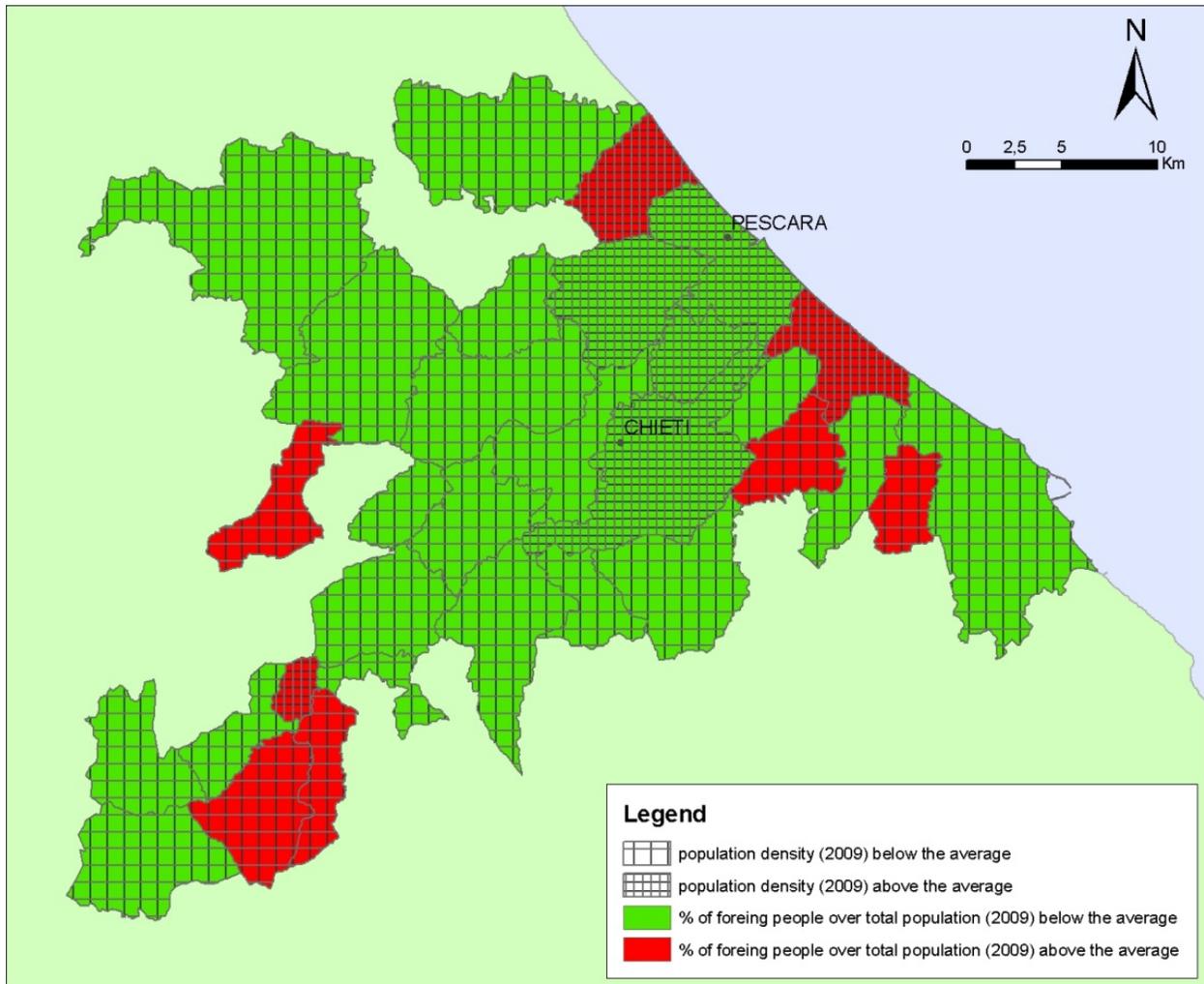
* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

Figure 6.34. Chieti-Pescara Urban Area, foreign citizens, 2002*



* Source: authors' own elaboration.

Figure 6.35. Chieti-Pescara Urban Area, foreign citiznes, 2009*



* Source: authors' own elaboration.

4.3 Temporary Mobility

4.3.1 Commuting

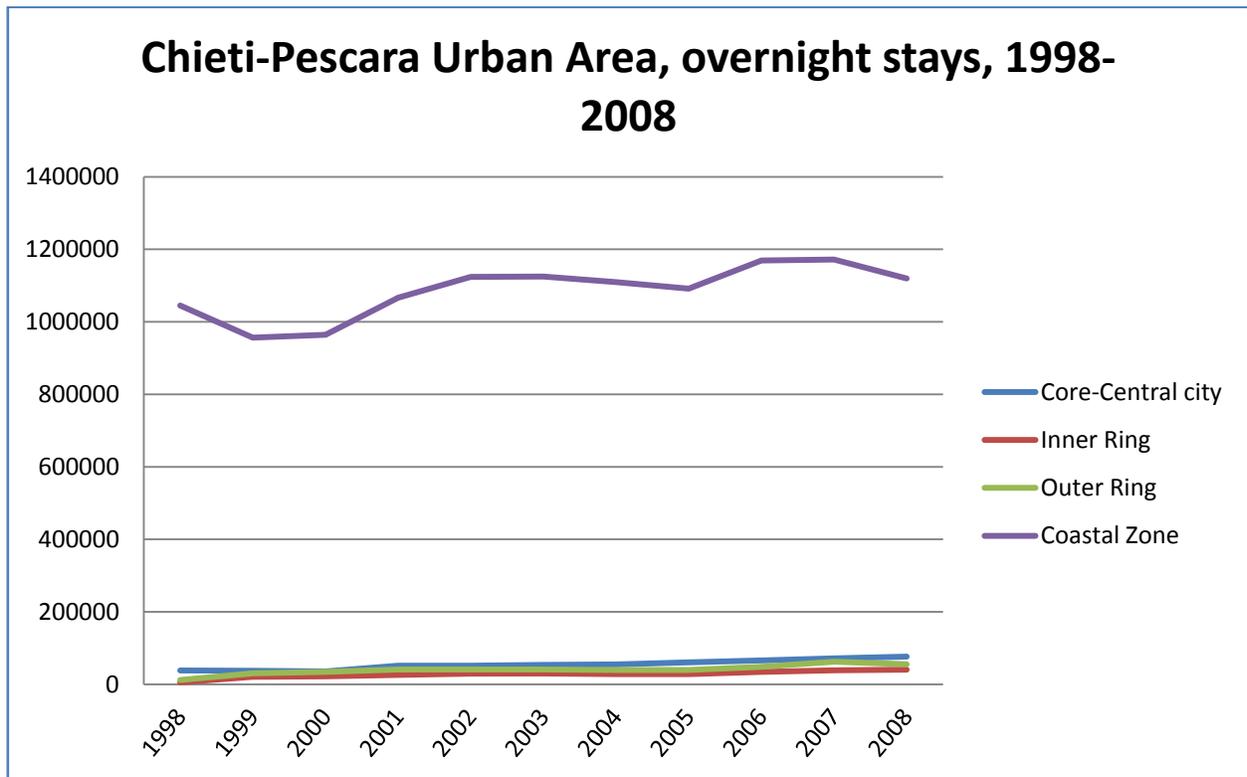
The Chieti-Pescara UA, given the strong attractive capacity of its core and coastal zone, is the destination of hundreds of thousands of individual commuters. In the year 2001 it was estimated (Memotef, 2011) that, on an average day, around 40,000 persons were moving within the core and almost 20,000 people were moving from the rings (inner and outer) to the core. In the year 2000, on average, 70,000 vehicles were moving (in and out) through the highway gates of the metropolitan areas. Ten years later, in 2010, that figure had increased to nearly 90,000 vehicles per day. This rise in the number of vehicles is mainly due to the processes of residential and economic decentralization, and it is therefore linked to real estate market dynamics and to the failure of planning policies. The increase along the coastal area in the period 2000-2010 was equivalent to 25% (authors' own elaboration based on *Autostrade per l'Italia and Strada dei Parchi* 2010).

4.3.2 Tourists and day visitors

Chieti-Pescara UA is characterized by a substantial and constant number of tourists in the last ten years and by strong fluctuations in the supply of accommodation.

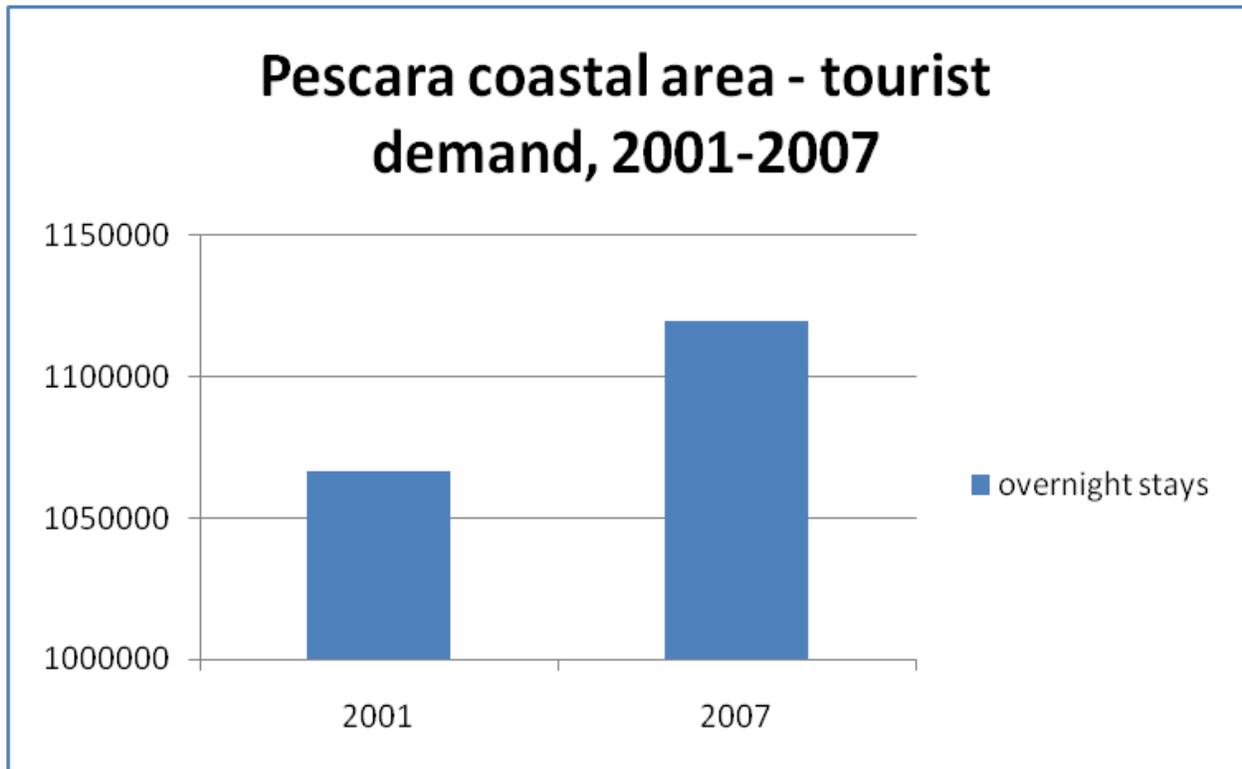
The average number of tourists on any one day of the year was around 3,300 in 2001 and had reached around 3,500 in 2008. The increase was more marked in the core than in other areas; in the coastal zone, it was below average. The number of overnight stays was above 1,100,000 in the year 2007. Figures 6.36 and 6.37 show the trend in overnight stays in the metropolitan area and, in particular, in the coastal area.

Figure 6.36. Chieti-Pescara Urban Area, overnight stays, 1998-2008*



* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

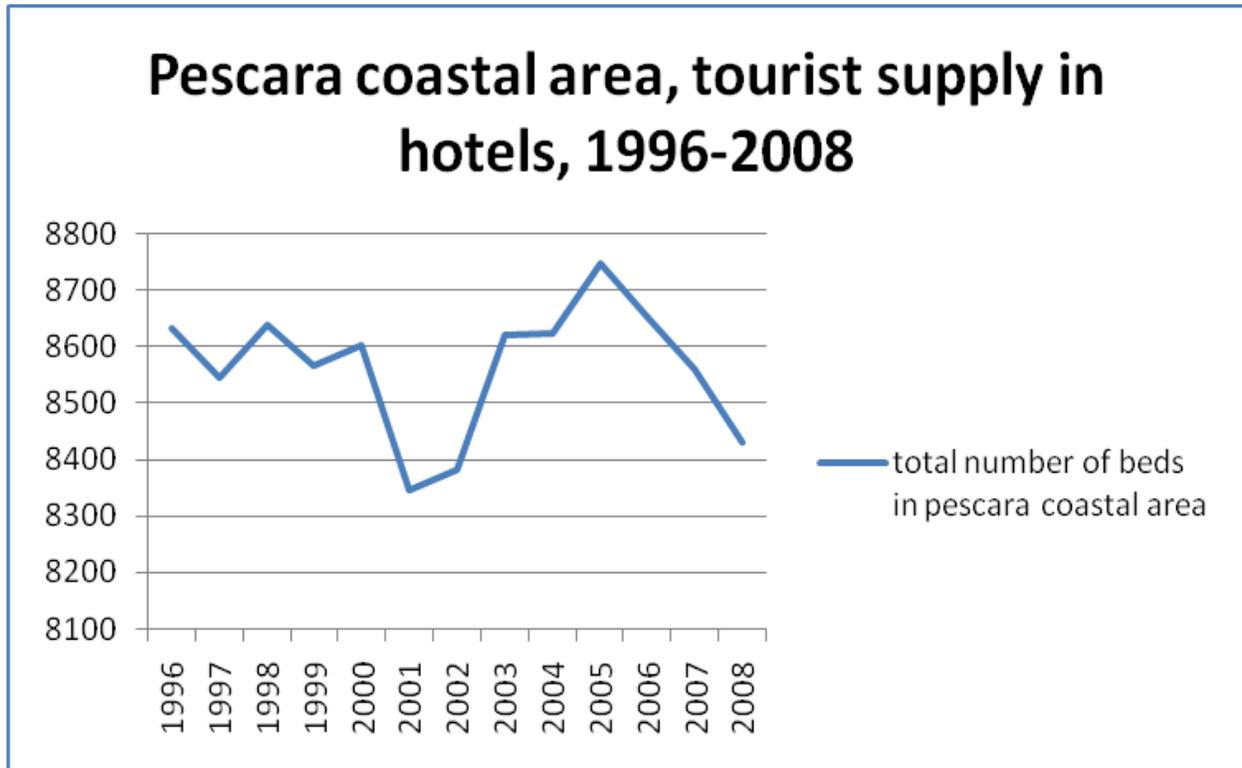
Figure 6.37. Pescara coastal area, tourist demand, 2001-2007*



The number of beds followed a non-linear development path in the coastal area (Figure 6.38). We can observe a significant decrease at the beginning of the decade, an increase up to the middle of the 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 has intervened relatively recently. The tourist operators are still looking for an alternative tourism development model and the public authorities are unable to support this process. This is why the processes of restructuring are continuous and they have not led, so far, to any stable solution.

* Source: authors' own elaboration based on Istituto Tagliacarne (2010).

Figure 6.38. *Pescara coastal area, tourist supply in hotels, 1996-2008**

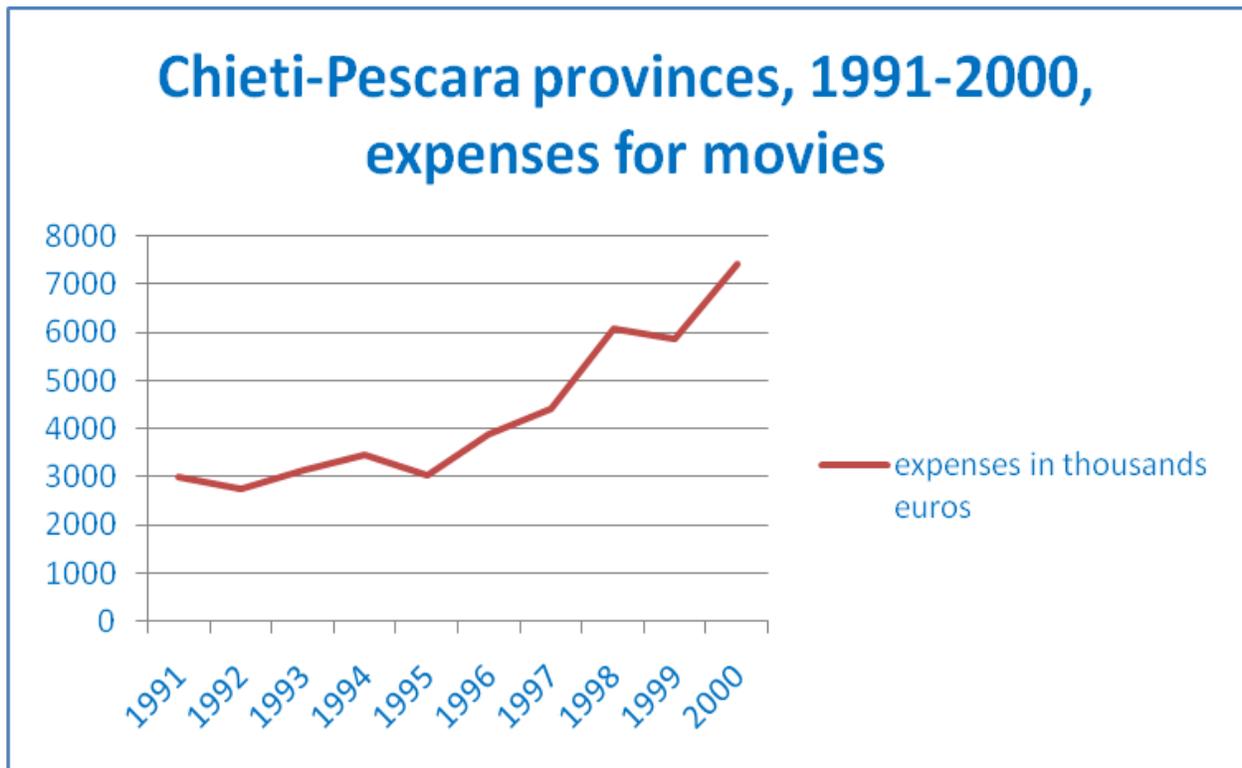


* Source: authors' own elaboration based on Tagliacarne (2010).

4.3.3 Cultural activities

Figures 6.39 and 6.40 show the trends in the expenditures on movies, concerts and theatre performances in the Chieti and Pescara provinces (this territory is larger than the Chieti-Pescara UA) during the 1990s. We can observe a remarkable increase in the expenditures on movies and a fluctuating, but still positive, trend for theatres and concerts.

Figure 6.39. Chieti-Pescara provinces, 1991-2000, expenses for movies*



* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

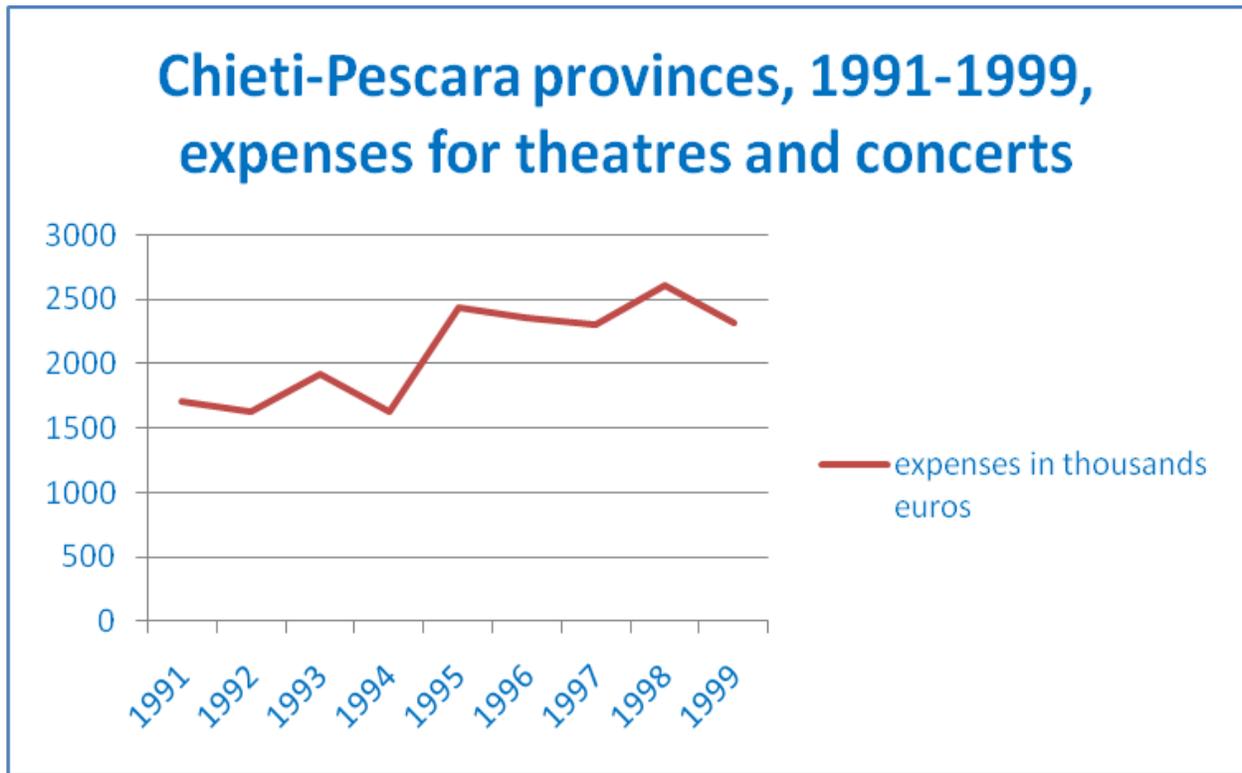
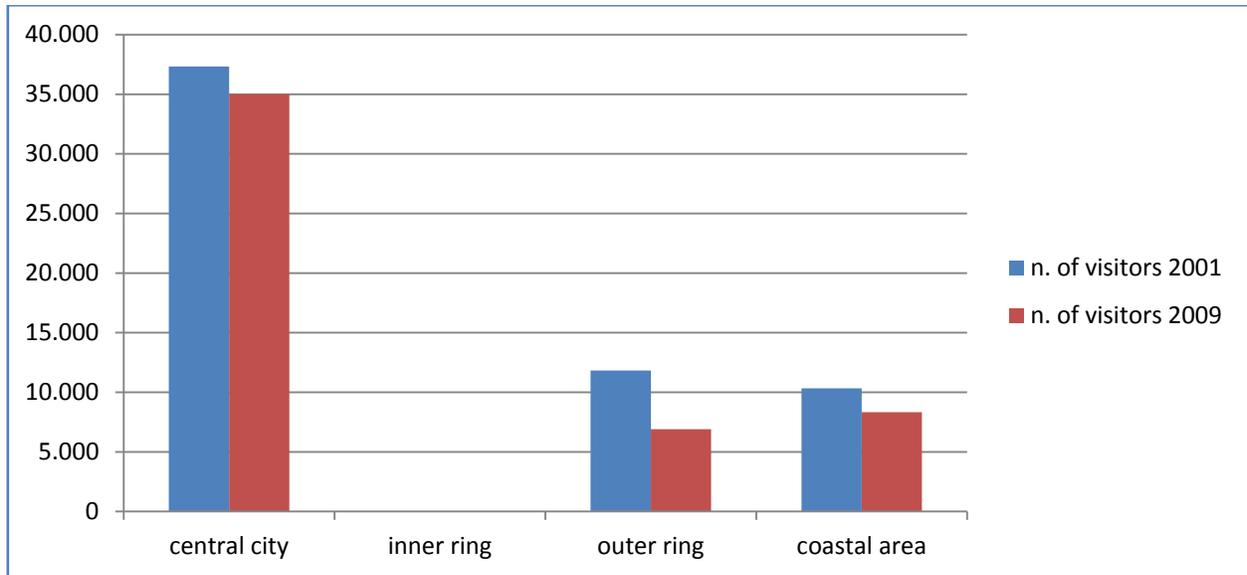
Figure 6.40. *Chieti-Pescara provinces, 1991-1999, expenses for theatres and concerts**

Figure 6.41 shows data for the visitors to museums, monuments and archeological sites at the beginning and at the end of the last decade. A decrease can be noticed which can be explained as a consequence of the earthquake that hit the city of L'Aquila, in the same region, in April, 2009. New data should be examined, when available, to check whether this hypothesis can be confirmed.

* Source: authors' own elaboration based on Istituto Tagliacarne (2011).

Figure 6.41. Chieti-Pescara Urban Area, visitors to museums, monuments and archeological sites, 2001-2009*



4.3.4 Marine borders, recreational use

The few marinas in the area can host up to 1,200 boats and they are always occupied at or near their maximum capacity. The ferry traffic is very low (with only a few arrivals per day) and there are no cruise ships docking because of the shallow water in the ports.

There are around 200 beach houses, which tend to be occupied from mid-April to mid-September every year. They occupy 15 km of coast, with an average distance of 55 meters from the shoreline.

* Source: authors' own elaboration based on MiBAC (2011).

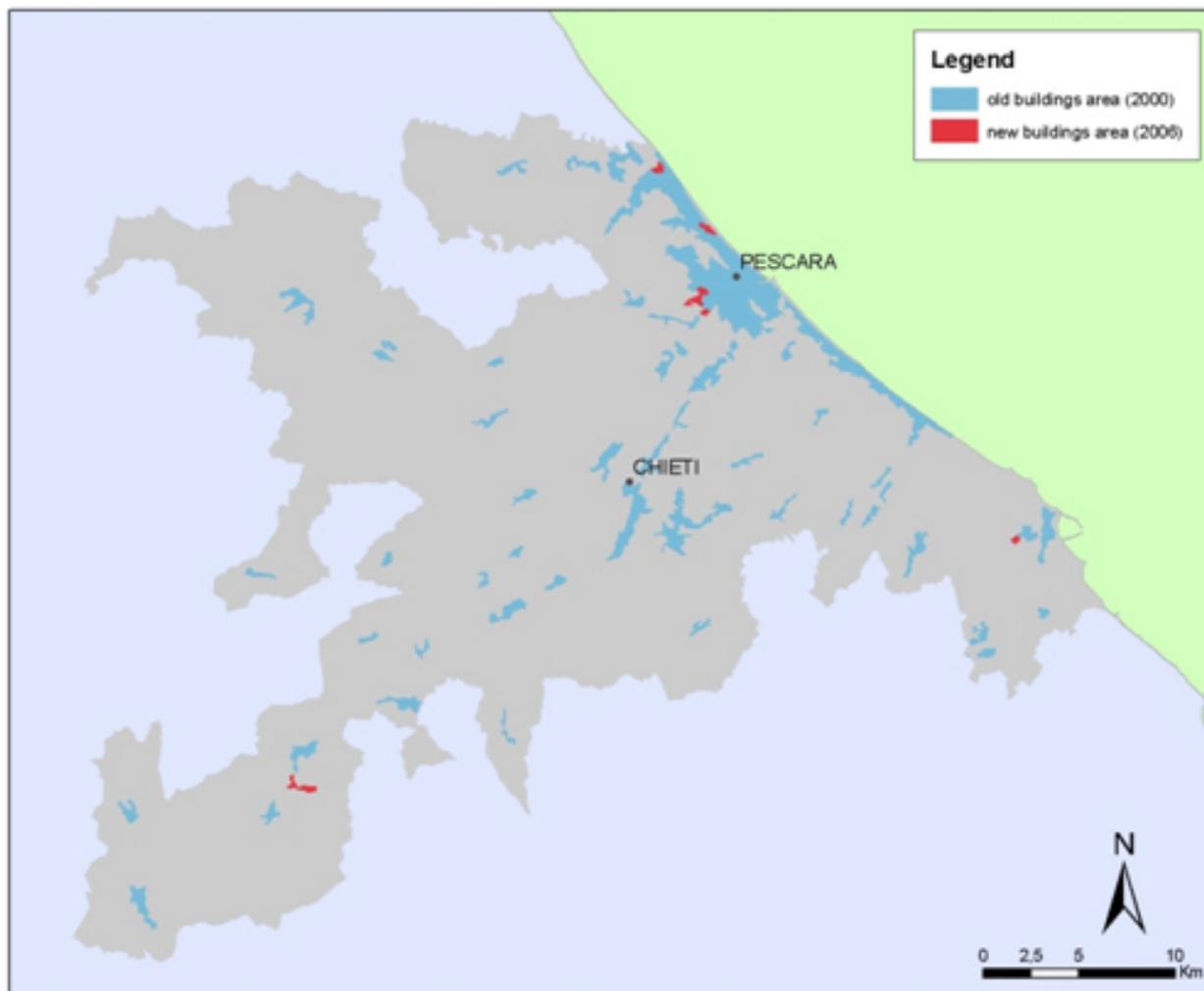
4.4 Mobility and Urbanization

4.4.1 Land use and land use changes

Chieti-Pescara UA is characterized by mixed residential, commercial, and service areas. The traditional structure of a building is: shops at the ground level, offices on the first floor, and apartments above. That is why no phenomenon of intensification could be registered in our analysis. An increase in height was prevented by the regulations of the City Master Plans.

In contrast, there has been considerable extensification, mainly due to residential sprawl and economic decentralization (Figure 6.42). After the introduction of the Euro, a lack of adequate public policies provoked a doubling in the prices of houses. Young singles, couples and families had no choice but to move to the city outskirts. At the same time the culture of hypermarkets and business parks, imported from the American tradition, required new land in the suburban areas. The construction of new infrastructures and the improvements to existing ones supported enterprises that located far from the urban centre.

Figure 6.42. Chieti-Pescara Urban Area, urban extensification, 2000-2006*



* Source: authors' own elaboration based on CORINE (2000, 2006).

5. Conclusions: Human Mobility and Environmental Conflicts

The high concentration of residential and economic activities along the coast leads to significant conflicts between human action and the environment in both Rome MA and Chieti-Pescara UA.

The high prices of houses in the core of Rome have induced residential decentralization. Many individuals and households, formerly resident in the core, have moved to the coastal municipalities. Many houses, formerly used as second homes for summer activities, have become principal houses, also as a consequence of the relatively low costs of loans. Second homes along the coast have, often, become residences for the foreign population. New districts have been built. A conflict has emerged in the use of existing houses and land uses.

In Rome MA, residential decentralization has not been completely followed by economic decentralization. This implies that many residents in the outskirts and along the coastal area still retain jobs in the core. This fact, together with the inefficient public transport systems and the extensive use of private vehicles, generates ever-growing traffic congestion with serious consequences in terms of pollution.

Tourist flows are very intense in the Rome MA and they are concentrated in the historic centre of the core. The public authorities aim to increase the number of tourists, in spite of the risks that both the cultural and environmental heritage are facing. A conflict has emerged between mass tourism and quality tourism. The coastal area has not reached its saturation point yet in terms of the number of tourists but it is encountering economic and environmental problems due to the prevailing mass tourism, characterized by a low yield.

The development of Civitavecchia as a port for cruise ships has contributed to the increase of the number of tourists in the metropolitan area. Those flows of passengers are directed to the core of Rome and they are not captured by the local community (Civitavecchia); this latter is paying the high environmental costs of the presence of cruise ships with limited economic advantage at the time of writing. New modes of tourist development need to be found that have a lower negative impact on the local communities.

The presence of Roma camps in some districts of the coastal area has generated strong conflicts with local communities. An increase in the crime rate is reported by the residents, an increase that is often more perceived than real.

Along the Chieti-Pescara coast, the strength of the sea is eroding the beach, thus reducing the development capacity for tourism and leisure activities. Continuous actions are

needed from the local authorities to create barriers to control the sea activity. That action often consists in adding ineffective wave-breakers that need to be constantly maintained and reinforced.

The concentration of population and building along the coast has provoked, in the Chieti-Pescara UA, an increase in house prices and competition for the use of land. Speculation in the building sector is frequent and public policies are ineffective in containing this.

Tourist flows are not intense in the Chieti-Pescara UA but the use of the beach by daily visitors is very high during the summer. Conflicts between the economic interests of the beach house owners and the quality of life of the residents are observed.

The Chieti-Pescara UA is involved, for a portion of its territory, in a major conflict linked to the creation of a national natural coastal park (the Costa Teatina National Park). A law, dating back to the year 2001, has established the existence of the Park that has not been implemented so far because of strong opposition from many stakeholders representing the area. That conflict is a "mirror" of the inadequate, wild development of the coastal area in terms of population and buildings.

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CHAPTER VII.

Portugal: Human Mobility and Spatial Interaction in Urban/Metropolitan Contexts – Lisbon, Eastern Algarve and Funchal

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1. Introduction

The Metropolitan Area of Lisbon (MAL) is Portugal's main urban region and has the largest population concentration in the country. In 2001, MAL had 2.7 million inhabitants and in 2009 about 2.9 million inhabitants. Population density is also the highest in Portugal with 959 inhab/km² in 2009. The significant population concentration is linked with the type of economic activities that have developed and higher patterns of urbanization. It is acknowledged as an administrative region, however, with no separate governmental bodies. MAL accounts for about 50% of the wealth generated in Portugal and, therefore, it is a recognized mega-metropolitan region, where the distribution and consumption patterns of transportation and population are constituted of four million people. Additionally, MAL can be explored in a more restricted perspective, taking into account territory and statistical databases. In this perspective, it produced 37% of the national Gross Value Added (GVA). The importance of the MAL region comes from an historic growing and development process, associated with the dynamics of the economy, attractiveness to migrants and metropolitization.

In this case study, the core municipalities encompass Lisboa, Oeiras, Amadora, Odivelas, Almada, Barreiro and Seixal, with Lisbon (capital city) being the central node of the network. This first and central concentric crown holds similar population, employment, housing, services and commuting patterns. In the case of the ring municipalities (e.g. Cascais, Loures, Sintra, Vila Franca de Xira, Alcochete, Moita and Montijo), they represent the suburban area with lower rates of urbanization and less attractiveness for enterprises and employment; journeys to work or to school/university tend to be made towards the core municipalities.

The Eastern Algarve region was defined using mixed criteria because it is not recognised as an autonomous region even for statistical purposes. Based on population concentration in rings around Faro city, which is the capital city of the Algarve, the other four municipalities reveal an urbanization process attached to the exchange of flows existing between them. Faro and Olhão municipalities represent the core, which reveals major urbanization indexes, population density and concentration of enterprises, industries, transportation and employment. Faro international airport is popular with foreign tourists, making available the supply of urban, beach, adventure and golf tourism attractions and activities. Temporary mobility and journeys to work flow essentially within the core, or from the ring to the core municipalities: retailing and employment are the main reasons for this commuting. The transportation network is denser and better organized among Eastern Algarve

municipalities, providing them with a better chance to be connected to each other and to grow as nodal places. Faro University attracts substantial flows of students, promoting an interesting housing dynamic, especially in Olhão. The ring is constituted of Albufeira, Loulé, Tavira and São Brás de Alportel municipalities. Except for Albufeira, because of its remarkable population density, urbanity and multiple economic uses and activities, such as the tourism industry, the remaining ring municipalities show traces of rurality. Tavira and Loulé also have significant importance in tourist flows (Tavira Barrier Island; and Quarteira, a remarkable coastal tourist destination) and commuting among resident from the core and the ring. Loulé is an important centre of employment, in spite of its remaining territory, along with S. Brás de Alportel, and is characterized by a rural population with low population densities.

The third case study is Madeira Island with an area of 75,852 ha and encompassing 10 municipalities. Funchal's Metropolitan Area, which will be a subject of analysis in this report, includes the municipalities of Ribeira Brava, Câmara de Lobos, Funchal, Santa Cruz and Machico. The core comprises Funchal, which is the capital city of the Island and for that reason experiences faster and higher levels of development in terms of urbanization, cultural features, the economy and employment concentration. Funchal has the highest densities of population in the Island, being also the centre of transportation networks, the airport and port facilities. The ring includes the remaining municipalities placed around Funchal, which are extremely dependent upon its dynamics. Migration is mainly concentrated in Funchal, while commuting journeys are made mainly towards the core. However, this division is arguable, although it appears to be coherent with the Island's functioning and historical growth. The ring's municipalities contain considerable rural areas, mainly those that are located further from the coastal zone, where the population density is higher and is more urban and industrial.

2. Methodology

2.1 Defining functional urban regions

Employment, housing and population concentration are the main features of the definitions of the Eastern Algarve and Funchal. The Metropolitan Area of Lisbon is an effective statistical region, which facilitates the identification of the core and ring areas based on the aforementioned mixed criteria, commuting journeys and migration.

According to the functional regions literature, Eastern Algarve and Funchal share some points in common, since both do not exist for administrative or statistical purposes. In this context it was necessary to analyze their material and immaterial flows within these regions at the NUTS II level, and then put their particularities in a narrower perspective.

On the one hand, the Algarve had been developing growing flows of urbanity, mainly due to tourism. Tourism is one of the main sectors that drives the Algarve economy, putting in place provision for some basic needs and consequently, allowing residents to have a better quality of live by improving the quality of tourism services, transportation networks, and the urban and natural environment. Because it is the capital of the Algarve, Faro was the starting point for the definition of the functional region, from which concentric rings were “designed” to establish dependency relations between territories. Similar cumulative urban development has been experienced by Faro and Olhão, and for that reason they were grouped within the core. Subsequently, and based on an analysis of human mobility, economic and employment exchanges of flows, the ring was defined around the core materializing the Eastern Algarve axis where internal mobility is organized within these rings in stronger ways than it is in other parts of the Algarve. Cohesion in population densities, social uses, migrants’ occupations, location of retailing and industries, as well as urbanization processes were taken into account. In addition, housing-market definitions were examined in order to establish patterns of residential mobility, population concentration and density, as well as dwelling dynamics. Second residences patterns were helpful in defining housing prices and local housing markets, while temporary residents were an important component of temporary mobility and tourism features, because they have different distributions in the core and the ring.

Funchal Urban Area has a more simplistic form because the urban, economic, touristic, access and social systems are organized around the capital city of the Island, which is at the same time an autonomous region (Autonomous Region of Madeira). This also means that the

approach taken to define this functional region was a top-down approach (non-exhaustive and nodal). Funchal is the only municipality of the core and the central node in terms of journeys to work into the core.

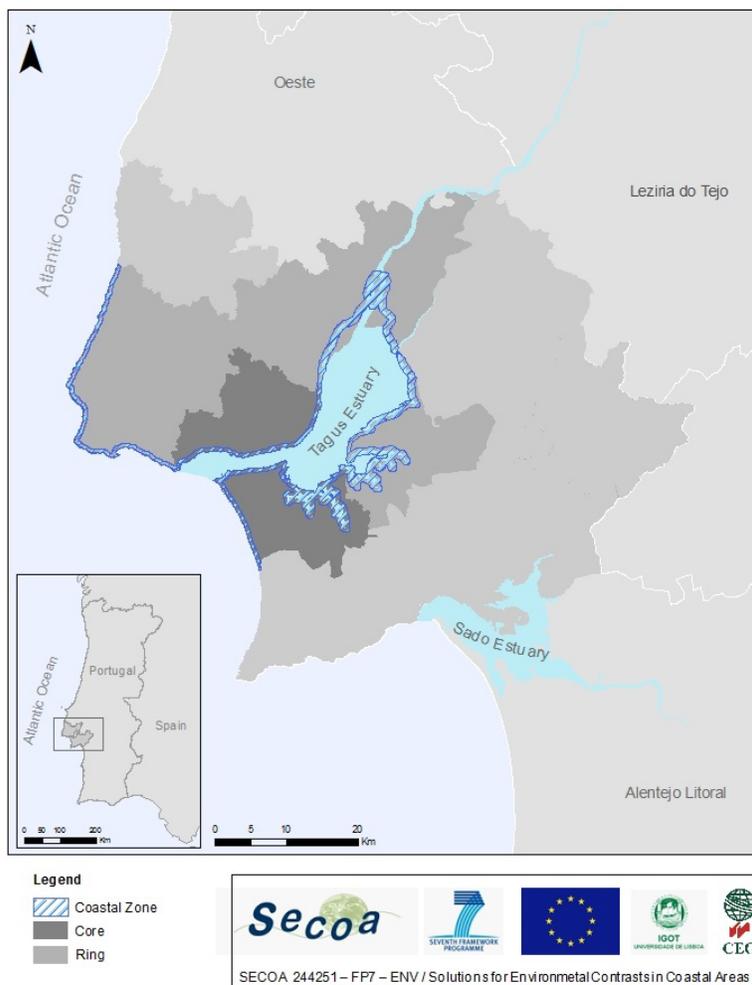
Population densities have been one of the central foci in the definition of functional regions because people have location patterns that follows their work, use of services, transportation and housing availability. For this reason a service-district definition approach was adopted based on defining service areas (shopping and major services, such as banks, public services, financial and others). In addition, the transportation network is clearly concentrated in Funchal, in terms of both in and out circulation, and therefore commuting is essentially from within the core or from the ring to the core. The ring municipalities of Funchal Urban Area have experienced processes of urbanization near the coastal area, but a large part of the municipalities are still peri-urban areas with some traces of rurality in their ways of life, work and economic exploitation, and social practices. This is the most natural area of the functional region.

3. Lisbon Metropolitan Area

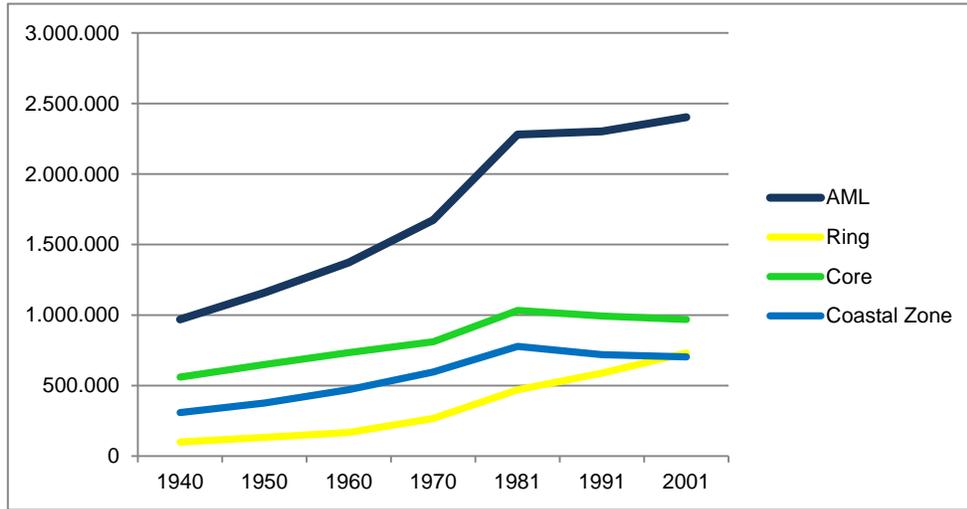
3.1 Overview of Urban Development.

In 2001, the Lisbon Metropolitan Area had 2.7 million inhabitants, 1.4 million of whom lived in the core municipalities, whilst 0.97 million lived in the ring municipalities.

Figure 7.1. Metropolitan Area of Lisbon case study



From 1940 to 2001 the resident population in the Lisbon Metropolitan Area increased 148%. Up to the 1960s, population growth was due mainly to a strong rural exodus. Imbalances in the development of the country were strongly evident at that time, and many people sought new ways of living in the Lisbon Metropolitan Area, which was the most prosperous region of the country.

Figure 7.2. *Evolution of the resident population in LMA, 1940-2001**

In the 1970's, the improvement of living conditions in the country, related to the social and economic changes that came after the change in political regime in 1974, reduced internal movements towards the Lisbon Metropolitan Area. In the 1970s the main growth factor was the inflows of people who came from the former Portuguese colonies in Africa (around half a million people). A significant proportion of these migrants (some of whom were return migrants) settled in the Lisbon Metropolitan Area. Since 1990, the population change in the Lisbon Metropolitan Area has also largely been accounted for by an influx of immigrants. Portugal remains a country with a significant emigration movement; however, the net international migration is positive. A considerable number of these immigrants established themselves in the Lisbon Metropolitan Area because it offered better employment opportunities than most other regions.

Urban growth in the Lisbon Metropolitan Area was concentrated in the core and the coastal area until the 1960's but, after the 1970's, industrial development in some municipalities promoted the spread of urbanization. Together with the development of transport facilities and new modes of transport, mobility increased as demonstrated by the number of people who worked or studied in a different municipality from the one where they resided (630,000 in the core accounting for 56% of the total movements in this zone; 458,000 in the ring, accounting for 82% of the total movements in that zone); 1.1 million go to work in the core and 310,000 go to

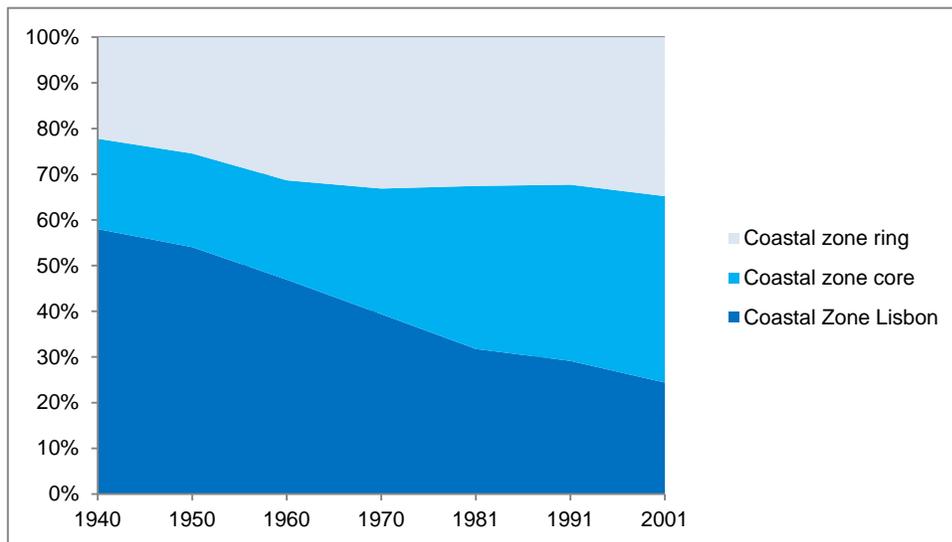
* Source: National Statistics Institute (INE), Population Census 1940-2001.

work in the ring (INE 2001). The region's most important areas of services and retailing are concentrated in the municipalities of the core, notably Lisbon municipality, which contributes to a substantial flow of people to this area. Because some of the most important universities of the country are based in the core municipalities, they also attract a significant number of students to the core.

Between 1981 and 2001 the resident population in the core and coastal zone has decreased by 6% and 10%. The decline of the coastal zone is mainly due to the decrease of population in the city of Lisbon that has lost 30% of the population in its coastal area.

In 1960 the municipality of Lisbon accounted for 47% of the population living in the coastal area of LMA, but by 2001 this figure had fallen to 24% (Figure 7.3). Housing degradation and the competition amongst more valued land uses has led some population and activities to seek other locations in the LMA and beyond. Individuals were looking for new housing conditions, in some cases closer to their workplaces; the economic activities were looking for new conditions in locations with more space, lower prices and good accessibility.

Figure 7.3. Evolution of the resident population in the coastal zone in LMA, 1940-2001*



* Source: National Statistics Institute (INE) (1940-2001) *Population Census*.

Globally, the population density was 898 inhab./km² in the Lisbon Metropolitan Area in 2001 (4,136 inhab./km² in the core and 843 inhab./km² in the ring municipalities), which represented an overall increase of 5.6% between 1991 and 2001. The highest population density is found in the coastal parishes. However, these coastal areas have experienced a decrease in population in the last decades, while the municipalities bordering the metropolitan area have had the highest population growth.

To summarize, the core population declined 10% between 1981 and 2009, due to: a loss of 40% of the resident population of Lisbon municipality; Barreiro also lost 12% of its population between the same time periods, related to the closing of several industrial activities. The core without Lisbon municipality increased 23% between 1981 and 2009. After 1981 the resident population evolution was still positive but smaller and slower.

3.2 Migration

3.2.1 National migration

The most important aspect of human inter-zonal mobility in the case study of LMA is the flow of population from the coastal zone and the core towards the ring.

The main reasons are:

- the demand for new housing (cheaper and larger in the ring);
- retirement of a part of the population who choose to live permanently in their second home (which are located predominantly in the ring municipalities) leaving the house in the core for their children;
- to live closer to work (although the average concentration of job opportunities is still far greater in the municipality of Lisbon, new job opportunities, especially in services, are increasing outside Lisbon).

3.2.2 International migration

International migration had long been a visible phenomenon in the Lisbon Metropolitan Area (LMA), mainly due to its large employment market. Migrants tend to search for low price housing in the centre and suburbs of Lisbon and, simultaneously, to settle near their places of work. Therefore, some of the core municipalities had the highest percentage of foreign residents in 2001. Indeed, Lisbon has the largest concentration of foreign population. The movements between the different areas of the LMA and the outskirts are substantial and follow the supply of jobs.

The municipalities of the core have more intense flows of inputs and outputs of migrants than the municipalities of the ring. Despite the differences between migration flows in the core and in the ring, it is important to note that those disparities decreased in 2001. Outmigration flows remain, with greater differences between core and ring in both time periods, due to the attractiveness of the core municipalities, namely Lisbon city.

Net migration has been increasing in all of the Lisbon Metropolitan Area since 1991 until 2001 (Figure 7.5). However, net migration as a percentage of total population is higher in the ring municipalities, where the increase is about 3% between 1991 (11%) and 2001 (14%). This is due to housing price factors, lower in some municipalities of the ring, such as Sintra, Loures and Vila Franca de Xira, allowing migrants to settle around the predominant work cluster (Lisbon city).

3.3 Temporary Mobility

Lisbon is the main employment centre in the Metropolitan area with half a million jobs. In 2001, employment in the LMA was 1.06 million. A study conducted for the city of Lisbon (2003-04) (CML, 2005) reveals that the LMA's population, not living in Lisbon municipality, makes circa 1.2 million trips daily with at least one trip ending in Lisbon municipality. Only 4% of these trips are made within the city of Lisbon. The population living in Lisbon municipality makes nearly 1.1 million trips per day, of which 22% are by walking, 32% are by individual transport and 44% trips are by public transport. In Lisbon, a total of about 2.3 million trips are made daily, on average, with at least one part ending within this perimeter. The first ranked reason for travelling is either work or study, which represents approximately one half of the total of trips. Shopping / leisure (14%) and personal matters (18%) account for roughly for one third of the trips. Despite the development of services across the LMA, there is still a strong

movement towards the city of Lisbon, which has a concentration of the highest ranked services and a greater diversity of supply.

Tourism is an important economic activity in the LMA municipalities, and represents another important element of temporary human mobility. Lisbon and Cascais are clearly the municipalities with the highest tourism function ratios, and have the largest supply of tourist accommodation. On average, per day in 2008, the core received 1377 tourists and the ring 418. These figures show an upward trend, particularly in some municipalities in the ring. As the main tourism attractions are concentrated in the coastal zone, the impact on this area is very strong.

Student mobility is another important element of temporary mobility. Some of the most important universities of the country are located in the core municipalities and they attract a significant number of students, who live (temporarily) mainly in the core. The total number of higher education students from outside the Metropolitan Area in the core is 122,000 (Reference year: 2007).

In 2001, 79% of the resident population in the core commuted daily to work and/or to study, but only 4% commuted from the core to the ring. The vast majority of movements are from either within, or to, the core. The resident population of the ring travelling within their municipality of residence was less than the number of people that travelled within the core municipalities (21% in the ring, 44% in core). This shows that the inhabitants of the ring's residential districts need to travel regularly outside the municipality for work. These movements are very concentrated in time.

*Table 7.1. Lisbon: Proportion of resident population per zone commuting**

| From – To | % |
|---------------------------------------|----------|
| CORE-CORE | 51,9 |
| CORE-RING | 4,0 |
| CORE - within resident municipalities | 44,1 |
| RING-CORE | 34,0 |
| RING-RING | 46,1 |
| RING - within resident municipalities | 19,9 |

The traffic in Lisbon Metropolitan Area is concentrated in two different time periods: at the start (more concentrated) and at the end (more extended in time) of the traditional working

* Source: National Statistics Institute (INE) (2001) *Population Census*.

day. The growth of activities with work schedules that extend into the night and weekend leads to large traffic movements that continue through the night, although usually without resulting in traffic jams. The fact that public transport timetables have not kept up with these employment shifts has led to an increase in the use of private vehicles for these journeys.

At weekends, and especially in the summer, the traffic flow to coastal areas (Costa de Caparica and the Cascais Line) is very important. In almost all these municipalities the most important recreational outdoor areas are located in the coastal zone and surrounding areas.

At night it can be observed that there is some movement to the centre of Lisbon city, mainly along the waterfront due to the higher concentration of night leisure facilities (restaurants, bars, clubs, and cultural services facilities such as theatres, music halls, opera) in this area.

According to a study conducted for the city of Lisbon (2003-04) on functional dependency in 1991 and 2001, it is possible to conclude that the total number of people that depends on Lisbon for reasons of employment or study has been decreasing, and this reduction is around 10%. Given the Census data, it appears that this decrease occurs not because Lisbon has received fewer people from outside, but due to the decline in the population that live in Lisbon, working or studying (-28.3%: from 336 thousand in 1991 to 241 thousand in 2001). Nevertheless, in this period, there has been an increase of 8% in the number of persons not resident in Lisbon, who work or study there (339 thousand to 364 thousand).

According to population projections for 2009, the city of Lisbon has lost, since 2001, 15% of its resident population; the core lost -1.2% and the ring gained +14%.

Functional dependence on Lisbon is expected to remain unchanged since the municipalities with the more significant increases in population are mainly places of residence, lacking job opportunities. There is a decrease also in the number of children traveling to Lisbon for high school studies, although there are still students from the outskirts who attend university. The supply of trade and services is more evenly spread throughout the Metropolitan Area; the demand for skilled services has grown, and their supply is still concentrated in Lisbon city.

In summary, then, there is a decentralization of population, but no evidence of a similar absolute or even relative decentralization of jobs and services, and therefore there are still strong flows from ring to core.

3.4 Mobility and Urbanization

3.4.1 Transport

The increase of housing in the Lisbon Metropolitan Area is higher in the ring municipalities (+36%, CORINE data 1990-2000). The largest increases occurred in areas that have benefited from improvements in transport infrastructures, which facilitated an increase in travelling distances between residential and work places (CORINE data 1990-2000); this situation also encouraged greater use of private transport. The evolution of the main mode of transportation used for commuting between zones reveals that private transport use (e.g. car) grew in a more significant way, at the same time that public transport use generally decreased.

The development of new public transport systems contributed to the growth of residential areas in the core. The number of residents in Seixal municipality increased 28% between 2001 and 2009, due to the opening of a new railway link between Lisbon city and the Tagus south bank in 1998. Moreover, Odivelas gained 16% between 2001 and 2009, because of the opening of new metro links in 2003.

Improvements in the suburban railway services have helped the growth of ring areas, such as: Cascais (+ 24% inhabitants from 2001-2009), Vila Franca de Xira (+ 39% inhabitants from 2001-2009), and Sintra (+ 74% inhabitants from 2001-2009). It is important to highlight the urban pressures on the coastal zone; for example, in Cascais municipality there was an increase in housing; in Vila Franca de Xira municipality, there was an expansion of economic activities and housing.

One of the most important transformations of the LMA urban fabric has occurred with the development of new transportation opportunities that link Lisbon city to other suburban areas. For example, Montijo municipality gained 16% inhabitants from 1991 to 2009 and the population of Alcochete increased 78% between 1991 and 2007, due to the Vasco da Gama Bridge which was opened in 1998. In both cases private transport is prevalent.

Table 7.2. Lisbon: Numbers of arrivals of public transport and private motor vehicles*

| | RING | CORE |
|--|-------------|-------------|
| Average Daily Number of Bus Arrivals (2010) | 2789 | 20320 |
| Average Daily Number of Train Arrivals (2010) | 773 | 1683 |
| Average Daily Number of Ferry Arrivals (2010) | 54 | 450 |
| Average Daily Number of Private Motor Vehicles on the Roads (2001) | 281076 | 345730 |

The average number of daily buses, trains and ferry arrivals is considerably higher in the core, reflecting the predominant journey to work patterns. However, the number of private motor vehicles on the roads per 100 inhabitants is higher in the ring (29/100 inhab.), than in the core (23/100 inhab.).

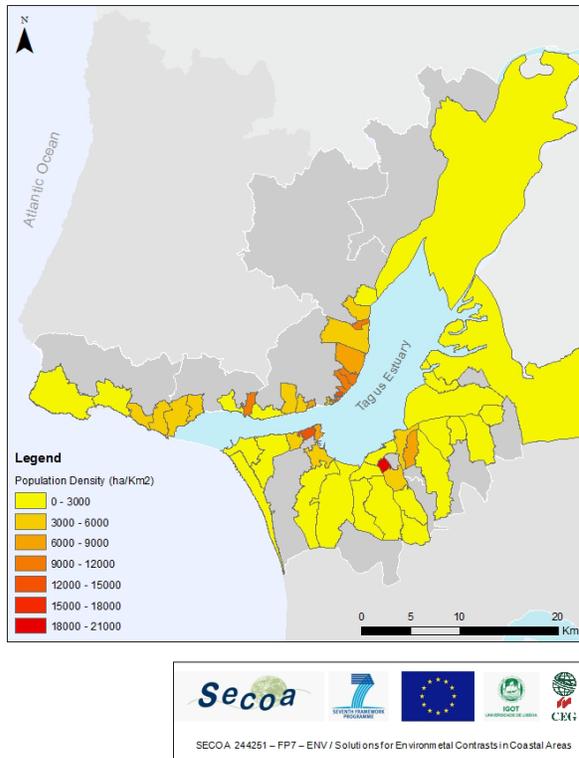
3.4.2 Population densities

The overall population density was 898 inhab./km² in the Lisbon Metropolitan Area in 2001: as would be expected, this was significantly higher in the core (4136 inhab./km²) than in the ring (843 inhab./km²), and represented an increase of 5.6% between 1991 and 2001. Population density has been falling in the core overall, although in fact this is due to just three municipalities (Lisbon, Barreiro and Amadora), and increasing in the ring, both overall and in every individual municipality.

The highest population density can be found in the coastal parishes (Figure 7.4). However, these coastal areas have experienced a population decrease in recent decades, while the municipalities bordering the metropolitan area have had the highest population growth.

* Source: SECOA WP3.3. database.

Figure 7.4. Population density in the coastal parishes of Lisbon Metropolitan Area - Tagus Estuary (inhab./km²)*



3.4.3 Land use: extensification versus intensification

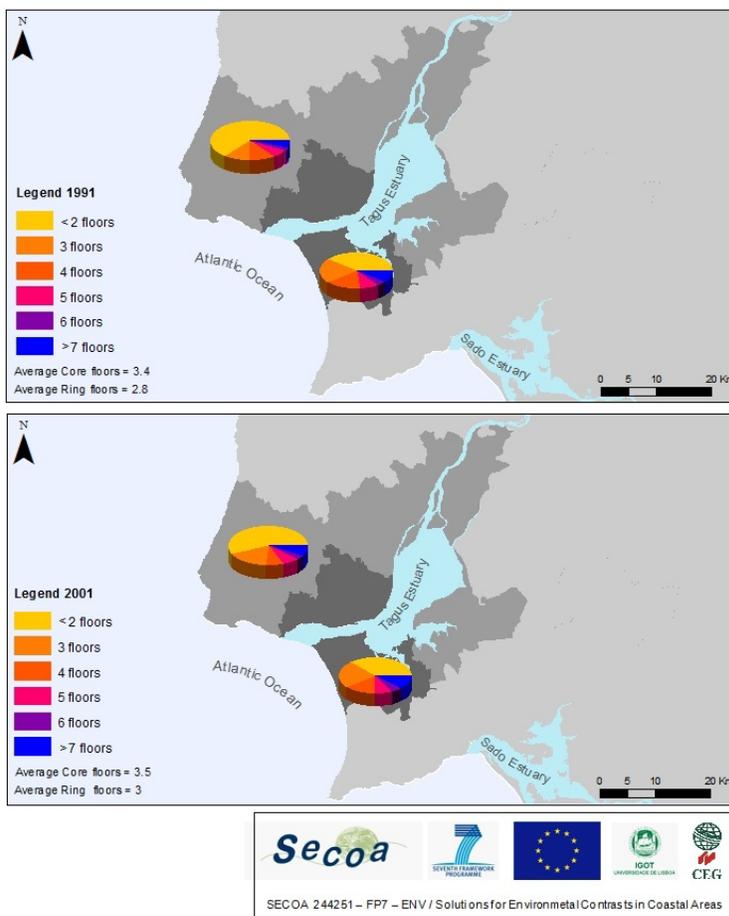
Urban development in the LMA is influenced simultaneously by intensification and extensification processes.

Intensification is more evident in the core where the number of apartments has increased more than the number of dwellings (core, 41% and 23%; ring, 16% and 13%). Consequently, the number of dwellings per building has increased in both the core and the ring. Urban height has also increased in both areas, but it is notable that there was a more significant increase in the ring (Figure 7.5). This reflects the fact that Lisbon municipality and the great majority of core municipalities have always had more floors per building, which explains a higher percentage of urban height in the core and the slight increase in this indicator. On the other hand, ring municipalities were, in 1991, predominantly characterized by an urban pattern of single family dwellings. Comparing 1991 and 2001, the construction of new buildings

* Source: National Statistics Institute (INE).

has contributed to changing these patterns and increasing the numbers of apartments building. There was also a remarkable decrease in the number of shanty or ‘temporary’ dwellings (ring - 71%; core -69%). This situation represents the result of a long term process of urban policies to eradicate temporary forms of housing, such as shanties. In LMA, ‘temporary’ dwellings had quickly expanded in the beginning of the 1960’s and the 1970’s, which is reflected in the substantial presence of shanty dwellings in 1991. There were approximately three times as many shanty or temporary dwellings in the core as in the ring, but the rates of decrease were broadly similar in the two zones.

Figure 7.5. Urban height (1991 and 2001), Lisbon*



The ring had experienced periods of intensification, such as the growth within the nodes of the highway system or around railway stations. It also experienced extensification, notably the increase in the area of land allocated to economic activity, which was far greater in the ring

* Source: National Statistics Institute (INE).

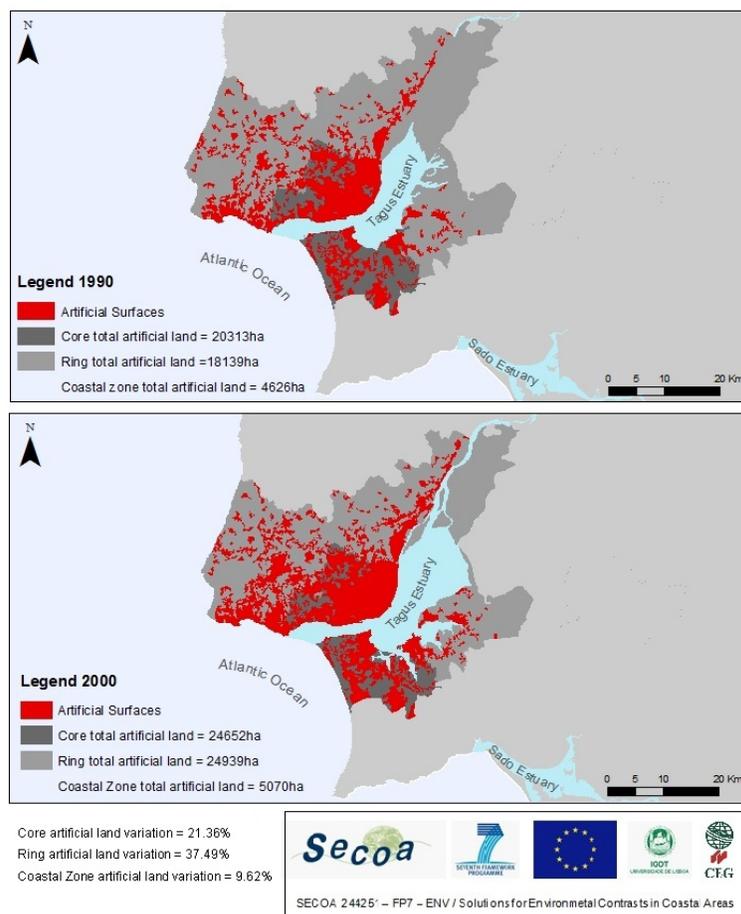
(+55%) than in the core (+14%). The increase in the area of land allocated to housing was greater in the ring (+30%) than in the core (+20%).

In this context, it is important to clarify two determinant concepts, the notion of the discontinuous urban fabric and the artificialization concept. The “discontinuous urban fabric” results from the third level of the Corine Land Cover taxonomy, directly associated with class number 11 – urban fabric. For example, the discontinuous urban fabric refers to constructed urban areas, transportation structures and artificial areas, which are surrounded by green areas, undeveloped lands and bare areas in a discontinuous pattern. It also includes discontinuous blocks of residential apartments, towns and villages, in which are visible several interstitial permeable spaces (gardens, lawns), (adapted from Corine Land Cover Technical guide, 2000).

The artificialization dimension is divided into: class 11 (urban fabric); class 12 (Industrial, commercial and transport units); class 13 (mine, dumps and construction sites); class 14 (artificial non-agricultural vegetated areas, such as urban green parks, leisure areas). This concept corresponds to all types of land that were mainly built for urban purposes (adapted from Corine Land Cover Technical guide, 2000).

The ring also experienced an increase in the area of land allocated to the ‘discontinuous urban fabric’, although this was broadly similar to the core (67% in the ring and 69% in the core). When analyzing urban extensification, artificial land is a concept that must be explained. It includes the variation in land uses between 1990 and 2000 in the following classes; class 11 (urban fabric); class 12 (industrial, commercial and transport units); class 13 (mine, dumps and construction sites); class 14 (artificial non-agricultural vegetated areas, such as urban green parks, leisure areas). This concept corresponds to all types of land that were mainly built for urban purposes (adapted from Corine Land Cover Technical guide, 2000). The artificialization of the land is more important in the ring: 59% of total change occurred in the ring, while only 4% was in the coastal zone, and 38% was in the core (see Figure 7.6).

Figure 7.6. Urban extensification/artificial land variation 1990-2000, Lisbon*



3.4.4 Housing changes

The growth of the supply of cheaper housing, providing better living conditions, in areas where accessibility to workplaces has improved in recent years, has led to population growth in some municipalities within the LMA, both in the core and in the ring. The total area of land allocated to housing has increased more in the ring, but currently has a similar value in the core (1990: 15.0 thousand ha; 2000: 18.0 thousand ha; 2006: 18.9 thousand ha) and the ring (1990: 13.7 thousand ha; 2000: 17.9 thousand ha; 2006: 19.0 thousand ha).

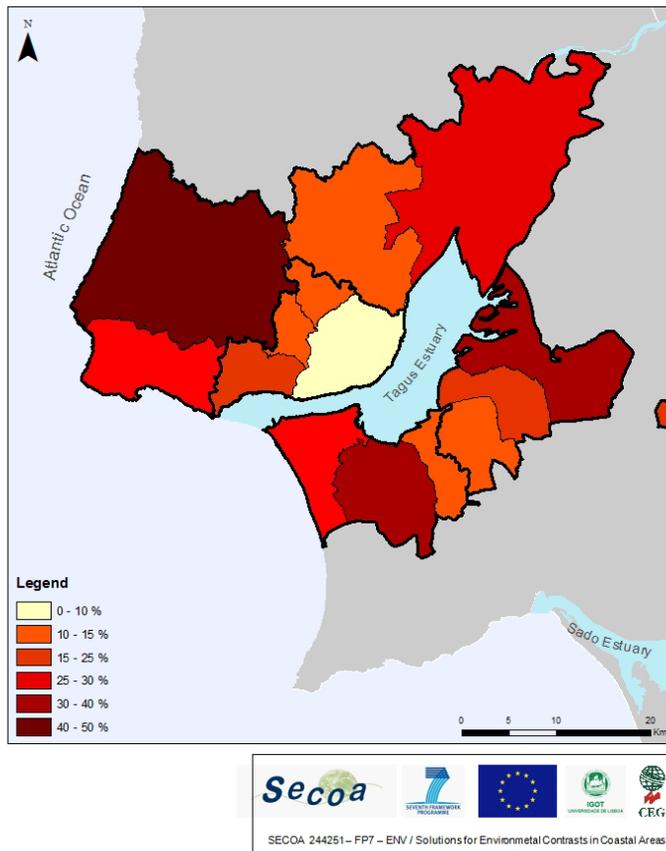
The core also had the highest rate of increase in number of dwellings (see Figure 7.7). The decrease in average family size reflects the growing number of people living alone (1991-2001: core, from 2.9 to 2.5; ring, from 3 to 2.7). These trends – such as the growth of households

* Source: CORINE 1990 and 2000.

and decrease in average family size - indicate that people living in the core have better economic conditions than people living in the ring.

The distribution of population, according to social status in 2001 shows that the differences between the core and the ring are mostly accounted for by the high social status group (professional and managerial), since they account for 24% of the population in the core municipalities, while in the ring they are only 17% of the total population.

Figure 7.7. Increase in number of dwellings 1991-2001, Lisbon*



* Source: National Statistics Institute (INE).

In summary, there have been a number of distinctive changes in housing in LMA:

- the number of apartments has increased more rapidly than the number of dwellings, especially in the core (from 1991 to 2001: core, apartments +41% and dwellings +23%; ring, apartments +16% and dwellings +13%);
- the number of dwellings per building have increased in both the core and the ring (+10% in the core and +12% in the ring);
- urban height has increased in both areas, but more rapidly in the ring;
- there has been a decline in the number of shanty or 'temporary' dwellings (ring -71%; core -69%).

Second homes have been one of the main causes of urban sprawl in the LMA. There are several types of second homes but weekend residences are predominant in the Lisbon Metropolitan Area. With regards to the proportion of seasonal dwellings, Almada (municipality of the core) and Cascais (municipality of the ring) are the two municipalities that stand out in the study area, and these are mostly owned and used by Lisbon residents. These second homes are located mainly on the waterfront and beach areas. Thus, while the south bank of the Tagus River is mainly chosen for weekend short-breaks, due to its accessibility, the Costa de Caparica stands out with 75% of its dwellings being for seasonal use.

4. Eastern Algarve

4.1 Overview of Urban Development

The Algarve is the most southern region of Portugal and has been the main catchment region for “sun and sea” tourism since the late 1960’s. In 2001, the Algarve had 400,000 inhabitants, with one half of that number, 225,000, living in the case study area. In the case study area, 99,000 people lived in the core and 126,000 in the ring area. The core area comprises Faro and Olhão municipalities while the ring includes Albufeira, Loulé, Tavira and São Brás de Alportel municipalities. A total of 156,000 thousand inhabitants lived in the coastal area, representing 67% of the total population of the study area. The coastal area comprises 16 parishes, 6 in the core area and 10 in the ring.

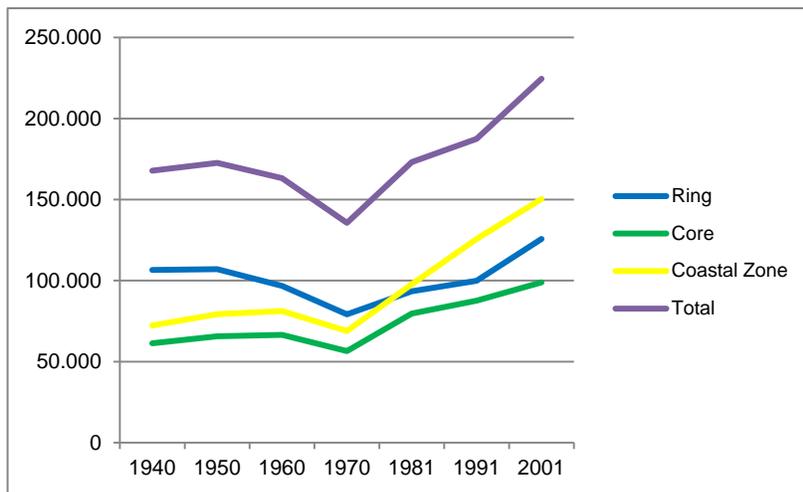
Figure 7.8. Eastern Algarve case study



From 1940 to 2001 the resident population in Eastern Algarve, the case study area, increased 34%. Until 1970, the Algarve region had lost a substantial amount of population, which was smaller in 1970 than in 1940. From 1970 until the present, the population has increased, particularly during the 1970's and the 1990's.

The expansion of tourism activities, and the return of the Portuguese from the former African colonies after 1975, explains its significant growth in the 1970s. In fact, the massive return of population from Africa mainly affected two regions: Lisbon Metropolitan Area and the Algarve. Additionally, during the mid 1960s, the Algarve started to become an international tourist destination, namely after the opening of Faro's airport in July 1965. These events led to the settlement of population in areas previously less populated, and the coastal zone was one of the areas that received more population. The Algarve also started to attract internal and international migrants. At the same time, fishing as an economic activity started to decline; but the scaling back of the canning industries was offset by the growth of tourism activity and the rapid rise in construction activity.

Figure 7.9. Evolution of the resident population in the Eastern Algarve, 1940-2001*



* Source: National Statistics Institute (INE) (1940-2001) *Population Census*.

During the 1990s, both internal and international migration contributed to population growth in the Algarve. These facts are associated with employment opportunities in construction, hotels and restaurants or personal services, mainly related to the growth of tourism and real estate activities.

Population growth in the Eastern Algarve between 1991 and 2001 was particularly striking, mainly in the municipalities of Albufeira (51%), São Brás de Alportel (33%), and Loulé (27%). Faro and Olhão increased 14% and 11%, respectively, and Tavira municipality by only 1%.

The urban growth in the Eastern Algarve has been concentrated in the coastal area since the 1970's. In 2001 the population living in the coastal area represented more than two thirds of the total population. The urbanization process especially affected the coastal parishes in the core and some ring areas. The recentralization of economic activities in the coastal areas, and the decrease of agricultural activities, explain the population decrease within the ring's countryside municipalities. However, amongst the areas outside the coastal area, the urban centre of Loulé stands out due to its attractiveness for economic activities and employment opportunities.

Population growth was particularly important in some coastal parishes, such as Albufeira, Olhos de Água, Quarteira and Almancil, linked to the increase in tourism and related activities. Sé and Montenegro parishes, which belong to Faro municipality urban area, had also registered a remarkable increase of population. This can be explained because Faro municipality is the regional administrative centre of the Algarve region; it is also where the Algarve University is located with nearly 10 000 students.

Globally, the population density in 2001 was 168.45 inhab./km² (300.62 inhab./km² in the core and 102.36 inhab./km² in the ring municipalities). The population has been increasing since 1991, by 15.76% overall (12.50% in the core and 36.12% in the ring). The highest population density values can be found in the coastal parishes, mainly in the traditional urban areas of Faro (Sé and Montenegro) and Olhão (Olhão, Quelfes and Fuzeta), but also Albufeira, Olhos de Água, and Quarteira. Outside the coastal area, São Pedro, São Clemente, and Ferreiras are the parishes with the highest population densities. The first of these belongs to Faro urban area, and the second belongs to Loulé urban area. Regarding Ferreiras parish, it is the main transport and logistics node of the Algarve region. It is located near the intersection of the A22, the longitudinal motorway of the Algarve, near the EN125, the longitudinal national road, and also the motorway A2 and IC1, the two main connections to the rest of the country. In addition, this node is located near the intersection of the regional and the national railway network.

The data presented above only include the resident population. As a year-round tourist destination, the daily average tourist number is 196 in the core, and 1609 tourists in the ring (2008). The tourist population has a significant impact on natural resources and urban land uses; tourist arrivals during the summer season (June, July and August) double or triple the resident population. Tourism demand is mainly concentrated in the coastal area where the tourist facilities are located. Albufeira, Olhos de Água and Quarteira are the parishes where this situation is most evident. Nevertheless, the urban and tourism sprawl all over the Algarve region has been a trend that the new Regional Spatial Plan seeks to understand and control.

4.2 Migration

The most important aspect of the human mobility in the Algarve region is its capacity to attract not only national but also international migrants. Due to the relative high level of accessibility and the dimensions of the study area, inter-regional permanent movements among the Algarve region have not been so significant. However, in the last three decades the Algarve has become an attractive region, attracting not only nationals but also new foreign residents. During the last two decades, whether in a stable or declining national demographic context, the net migration rate stood at 0.95%, both in the core and in the ring throughout the 1980s. In the course of the 1990s, its attractiveness was reinforced, pulling up the net migration rate to 1.29% in the core and 2.77% in the ring.

4.2.1 National migration

Job opportunities in construction, real estate, tourism activities and public services are the main attractiveness factors that underlie the national migration flow to the Eastern Algarve. With regards to the workers' professional characteristics, the area has attracted both non-skilled and skilled workers.

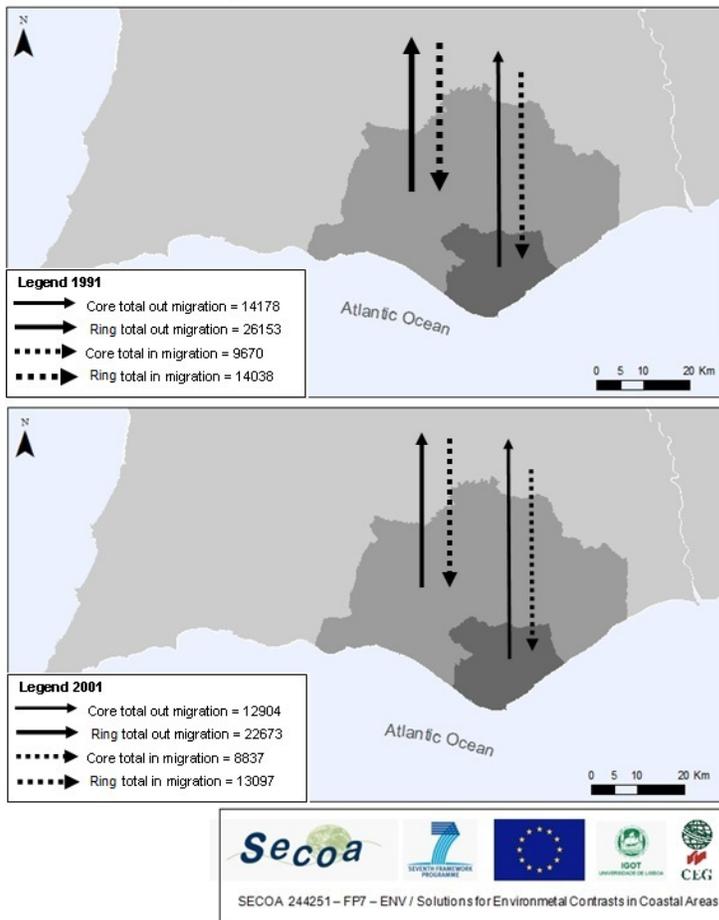
4.2.2 International migration

Migration had been strongly evident in the Algarve since the 1960s. In 1991, nearly 5,000 foreign citizens lived in the Eastern Algarve, representing 2.66% of the total population. Ten years later (in 2001) that number had increased 168%, and the foreign residents represented circa 6% of the total population (13,337 foreign residents). They live mainly in the ring area: 64% in 1991 and 72% in 2001. Therefore, there was a higher increase of net migration as a percentage of total population in the ring between 1991 and 2001.

The main reasons for international flows towards Algarve are (see Figure 7.10):

- retirement of some populations that seek climatic amenity and a affordable place to live;
- development of commercial and services activities targeted at foreign residents and foreign tourists, managed also by foreigners;
- broad development of activities related to tourism, retail and services.

Figure 7.10. Migration flows (in migration and out migration) 1991-2001, Eastern Algarve*



* Source: National Statistics Institute (INE).

4.3 Temporary Mobility

In 2001 there were 106,000 jobs in the study area, of which 44% were located in the core and 56% in the ring. The core municipality of Faro, and ring municipality of Loulé, are the main job clusters representing, in that order, 32% and 26% of all employment in the study area. Another important urban centre is Albufeira, located in the ring, which accounts for nearly 19% of employment. This form of employment distribution could explain the lower intensity of travel, related to work, between the core and the ring. They represent only 7.96% of the total journeys between the core and ring municipalities.

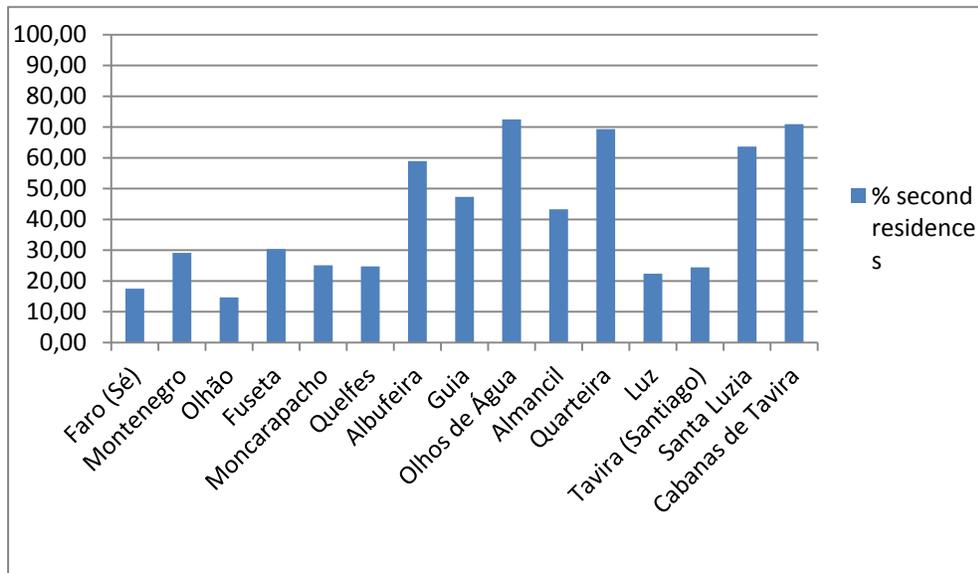
Tourism is the main economic activity for the majority of the municipalities in the region. Almancil and Quarteira (parishes of the coastal area of Loulé); Olhos de Água, Albufeira and Guia (parishes of the coastal area of Albufeira); Luz and Cabanas de Tavira (parishes of the coastal area of Tavira) are the parishes with a higher tourist function ratio and also have more tourism accommodation including hotels and resorts, apartments or villas. In 2008, the core received, on average, 196 tourists per day, while the ring had 1609. This recent trend shows an increase in the number of tourists in the ring (it was 1264 tourists per day in 2002) that clearly balances the decrease that can be seen in the core (it was 337 tourists per day in 2002).

The Algarve is the main tourist destination in Portugal, popular for domestic as well as overseas tourists due to its mild climate and beautiful beaches. This region was responsible for 2,739.4 million guests in 2009 (42% of the guests in all Portuguese hotels) and 6,478.7 million overnights (Tourism Statistics, 2006-2009 www.ine.pt).

Tourism is still growing in the Algarve region and the role of the study area's coastal area should be highlighted. Urban sprawl is affecting the region as a whole, with the second residence market being a target of both national and international demand. Figure 7.11 shows the proportion of second residences in the total of dwellings by parishes in 2001. Olhos de Água and Cabanas de Tavira, both located in the ring, are the parishes with the highest proportions of second residences: the first one is located in Albufeira municipality and here the proportion of second residences is 72.5%, while 71% of residences in Cabanas, located in Tavira municipality, are second homes. The impacts are stronger in the coastal area, but the urban sprawl is a problem that affects the region as a whole, mainly related to the development of the second residence market. Second homes are particularly important in the Algarve but the characteristics of the ownership of second residence are strongly differentiated. They range from the foreigners that make acquisitions of holiday homes and future retirement homes in southern Portugal, to nationals that acquire family vacation homes, or locals that have a

residence in an urban centre and want a second home in the region, as both a holiday place and as an investment. The existence of beaches, and other leisure and sports activities related to the sea and sun tourism packages, allowed second-homes to grow in the context of holiday taking (mostly in Albufeira).

Figure 7.11. *Proportion of second residences in Easter Algarve parishes in 2001**



Albufeira has a lower proportion of seasonal dwellings, despite a growth of 1% between 1991 and 2001 (Population Censuses 1991-2001, www.ine.pt). In contrast, the hotel dynamic is mostly present in Albufeira, indicating a tourism occupation type associated with holidays outside a direct ownership system. In this context, apart-hotels and tourist apartments have significant importance in the increase in accommodation capacity, representing 27% of the Algarve total (2009). Hotels have the higher occupancy rate, but the average night spent is higher in resorts and tourist apartments. Table 7.3 shows that, despite the international airport being located in Faro, Albufeira and Loulé have higher rates of foreign tourists. However, this trend is slightly decreasing in those municipalities and increasing in the core municipalities, Faro and Olhão.

Tourism accommodation statistics are only available at the municipality scale; therefore, some neighbouring municipalities of Albufeira were also analyzed. Tourist apartments existed in greater number, despite decreasing -15.3% in 2009, with 51 tourist apartments. Hotels and apart-hotels had a slight increase in 2002 of almost 5%. When compared with Olhão, hotels are

* Source: National Statistics Institute (INE).

giving place to apart-hotels in importance, as apart-hotels were almost inexistent in 2002; the hotels started to decline in 2009. Faro municipality increased its supply of hotel accommodation by 15%, which is one of the highest rates. It is important to draw attention to the fact that, despite Albufeira maintaining the same number of tourist resorts (10 in total), it had an increase of 396 beds between 2002 and 2009. Even when compared with other municipalities, the construction of tourist resorts has either stabilized or decreased. With regards to accommodation capacity, apart-hotels represented 12% of the total supply capacity in 2009. With the exception of tourist apartments, the remaining types of Albufeira establishments have increased their supply. In São Brás de Alportel, tourism is not relevant, which is why it is not included in Table 7.3.

Table 7.3. *Tourism accommodation growth by type, Eastern Algarve (%)**

| | Location/municipalities | Hotels | Apart-hotels | Tourist resort | Tourist apartments |
|------|-------------------------|-----------|--------------|----------------|--------------------|
| | | 2002-2009 | 2002-2009 | 2002-2009 | 2002-2009 |
| CORE | Algarve | 2.8 | 2.1 | -1.4 | -6.3 |
| | Faro | 15.0 | 0.0 | 0.0 | 0.0 |
| | Olhão | -25.0 | 25.0 | 0.0 | 0.0 |
| | Albufeira | 4.9 | 4.2 | 0.0 | -15.3 |
| RING | Loulé | 1.6 | 6.5 | -1.6 | -6.5 |
| | Tavira | 12.5 | -6.3 | -6.3 | 6.3 |

Students are an important element of temporary human mobility. The Algarve University has four campuses, three of which are located in Faro municipality (Gambelas, Penha and Saúde), in the core area, with the fourth being located in Portimão, in the western Algarve, outside the study area. In terms of students' temporary residence, the core has circa 9000 students, with the majority being from outside the Algarve region. Interchange mobility programs are also very important to the core's temporary mobility, since the Algarve University in Faro attracts about 1000 international students to live temporarily in the core.

* Source: Tourism Statistics (2002-2009).

In 2001, 92.05% of commuting displacements in the study area were within core or ring areas. Commuting from the ring to the core, or from the core to the ring, represent only 7.95% of nearly 100 000 commuter trips. Some strong commuting relations can be highlighted: a) within the core - between Olhão and Faro municipalities; b) within the ring - between São Brás de Alportel with Loulé.

Table 7.4. *Resident population commuting to work, 2001, Eastern Algarve**

| From – To | % |
|------------------|----------|
| CORE-CORE | 40.40 |
| CORE-RING | 3.68 |
| RING-CORE | 4.27 |
| RING-RING | 51.65 |

The mobility in the study area is, once again, affected by tourist demand. During the summer season, displacements increase significantly, not only because of the population increase, but also due to the tourists' different travel patterns. Traffic flows to coastal areas are quite important, especially during the morning and at the end of the afternoon, which corresponds to the beach influx. At night, displacements start at about 7 pm and last until late in the night. Restaurants, bars, clubs, and other recreational and cultural services are mainly located in the coastal areas of Albufeira, Loulé and Faro municipalities, and generate an intense flow of private cars.

In the study area, we can identify six main urban centres, three in the coastal ring (Tavira, Quarteira and Albufeira), two in the coastal core (Faro and Olhão) and one in the inland ring (Loulé). More than half of the population of the study area live in those urban centres, notably in the two core centres.

During the 1990s, the increase in urban centres was significant, especially the cases of Quarteira and Albufeira parishes. The strong relations among the urban centres of the core, extending further to Tavira, allowed a regional labour system to be identified, that has continuity in the north, with Loulé and São Brás de Alportel. On the other hand, Quarteira and Albufeira, are in a relatively autonomous position, mainly related to their second residence and tourism functions.

* Source: National Statistics Institute (INE) (2001) *Population Census*.

4.4 Mobility and Urbanization

4.4.1 Transport

Residential areas increased at the same rate as the growth of urban population and tourism activity. In ten years, the land area allocated to housing increased 26% overall, 34.4% in the ring and 10.5% in the core. The increase was supported by the motorway development, namely the A22 motorway opened in 1992, favoring regional accessibility.

*Table 7.5. Modal split on home-work and home-school commuting, Eastern Algarve, 2001 (%)**

| | Walking | Public Transport | Automobile | Moto/Byke |
|------|---------|------------------|------------|-----------|
| Core | 31,50 | 13,18 | 50,84 | 4,49 |
| Ring | 26,61 | 15,73 | 52,98 | 4,69 |

In terms of means of transportation, walking has great weight in daily mobility; especially for home-school displacements, although, car use is still predominant. Travel by car clearly leads long movements (70% of total motorized displacements), while public transport has a very modest share.

The majority of the displacements related to work and study purposes take less than 15 minutes, while displacements over 30 minutes represent less than 10%. This reveals a narrow area of employment influence.

* Source: National Statistics Institute (INE) (2001) *Population Census*.

Table 7.6. *Transport: arrivals of public transport and private motor vehicles, Eastern Algarve*

| | RING | CORE |
|--|-------|-------|
| Average Daily Number of Bus Arrivals (2010) | 659 | 353 |
| Average Daily Number of Train Arrivals (2010) | 69 | 65 |
| Average Daily Number of Ferry Arrivals (2010) | - | 105 |
| Average Daily Number of Private Motor Vehicles on the Roads (2001) | 39644 | 30698 |

The use of public transport is restricted by the service frequencies and the design of the network. Indeed, the volume of circulations is relatively low, regarding the importance of buses for travel in the national and interregional contexts. On the other hand, the design of the rail network does not promote its use, since the location of stations does not match the more populated area.

As expected, the average daily number of private motor vehicles is quite significant, not only due to residents' commuting, but also associated with the use made by the tourist population.

4.4.2 Population densities

The global population density was 79.1 inhab./km² in Algarve in 2001, which was below the national average (110.9 inhab./km²). The core has a population density of 300,6 inhab./km² and the ring 102.4 inhab./km², representing an increase of population density of 15,6% in the region between 1991 and 2001. When comparing the core and ring behaviour, the core increased 12.5%, while the ring increased 36.1%, which is more than twice the regional average.

The population density is unbalanced. The coastal parishes had the highest values: Sé (Faro), Fuzeta, Olhão and Quelfes (Olhão), Quarteira (Loulé) and Albufeira (Albufeira) had values above 420 inhab./km². This reinforces the weight of the temporary population; it must be noted that this coastal population has largely increased due to tourism flows, especially during the summer season.

4.4.3 Land use: extensification versus intensification

Urban development in the Eastern Algarve is marked not only by urban intensification processes, but is also characterized by expansions to the extensification of the area.

Intensification occurs in both core and ring, as evident in the number of dwellings and the number of floors per building. A slight difference can be seen between the core and the ring,

in which the core has a stronger intensity of land use. The number of shanty or temporary dwellings decreased notably, by 69.42% in the core and 71.18% in the ring, in line with the national trend.

There were no major changes in urban height in the period 1991-2001. Despite a similarity among the ring and the core in the average urban height (around 2.6 floors per building), the core had higher residential buildings, many of which were for residential and tourist purposes. The ring housing is mainly constituted of single family dwellings, which are more visible in the countryside municipalities of the ring.

The coastal zone has a significant percentage of land subject to urban extensification. This process is also visible along the road network and other infrastructures: e.g. next to the main road IC4, from Faro to Loulé, around the airport and university area, and connecting to Almonacid on the EN125.

The ring had a more meaningful extensification between 1990 and 2000, while land artificialization increased 47.78%. Within the core municipalities, the same index had increased about 15% and in coastal area by 18.58%. Housing allocation is largely in the ring municipalities, but compared with the core it only increased 0.78%, while the housing areas in the core increased 0.82%. The use of land for economic activities doubled in the ring, contributing to an average increase of 52% in the study area. The development of commercial centers, as retail surfaces, or logistics areas, is narrowly related to demand for second residences, which mainly affect the ring. The same happened with leisure infrastructures.

4.4.4 Housing changes

Housing growth in the Eastern Algarve is driven by the demographic increase and changes in family structures, and by an increase in the number of people living alone. In order to supply the demand for tourism, either as an economic activity or for the second home market, housing construction reached its peak in the 1990s.

As stated, the land allocated to housing increased 26% and the ring area, once again, was the more dynamic zone, increasing from 2,412 ha. in 1990 to 3,242 ha. in 2000. Moreover, there was an increase in the number of dwellings, which was higher in the ring (36.15%) than in the core (25.96%). Although growth was significant in Albufeira and São Brás de Alportel, the supply of dwellings in São Brás de Alportel with lower prices is targeted at the local population with lower family budgets, while the supply in Albufeira is targeted at the tourism sector.

5. Funchal Urban Area

5.1 Overview of Urban Development

The polarizing action exerted by Funchal on the island of Madeira assumes a greater intensity in the municipalities of Câmara de Lobos and Ribeira Brava in the west, and Santa Cruz and Machico in the East (Figure 7.12). The rural landscape of these four municipalities went through severe changes with the appearance of new residential areas to accommodate people that work in Funchal. Consequently there was an increase in the number of trips between the core and the ring which generated problems for traffic management. As a response to the traffic problems, in the 1980's a freeway began to be constructed from Machico to Ribeira Brava, which was completed in 2002. The five municipalities that comprise the Funchal Metropolitan Area occupy 45.3% of the territory; in 2008, they accounted for 84.6% (205,455 inhabitants) of the total island population.

Figure 7.12. *Funchal Urban Area*

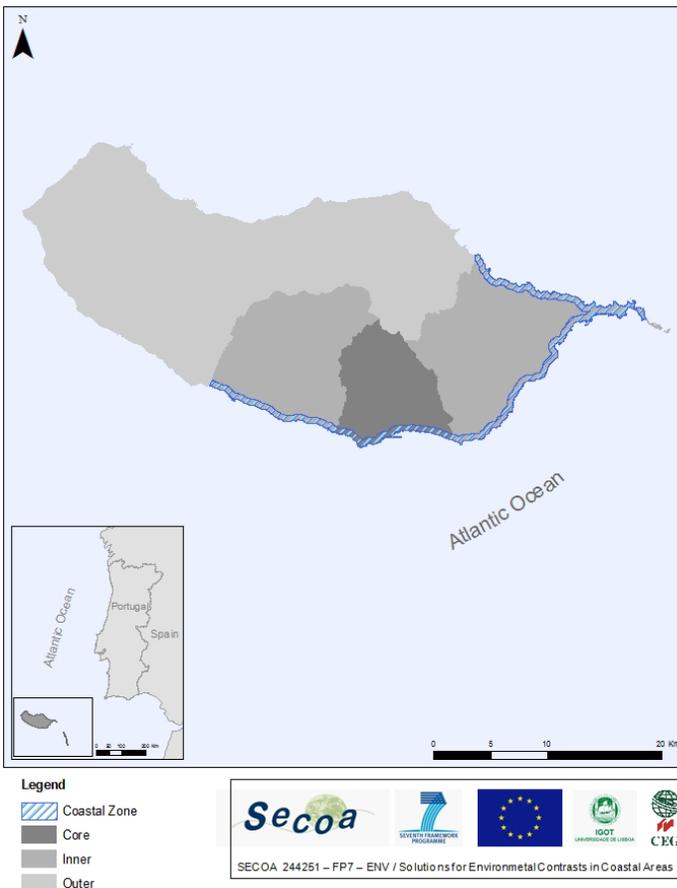


Table 7.7 shows the population density of Madeira (308.5 inhabitants per km² in 2008). The Funchal municipality stands out with an extremely high concentration of inhabitants (1,294.7 inhabitants per km²). Between 2001 and 2008 there was an increase of population in four municipalities - Câmara de Lobos (4.8%), Calheta (3.4%), Santa Cruz (3.1%) and Ribeira Brava (0.4%). In the remaining six municipalities there has been a decrease: Porto Moniz (-12.4%), Santana (-8.4%), Machico (-4.2%), Funchal itself (-2.6%), Ponta do Sol (-2.4%) and São Vicente (-1.4%).

Table 7.7. Population density in Madeira Island (N km⁻²)

| Municipalities | 2001 | 2008 | Growth rate (2001-2008) |
|-----------------|--------|--------|-------------------------|
| Calheta | 103.3 | 106.8 | 3.4 % |
| Câmara de Lobos | 660.9 | 692.7 | 4.8 % |
| Funchal | 1431.4 | 1294.7 | - 2.6 % |
| Machico | 321.2 | 307.8 | - 4.2% |
| Ponta do Sol | 185.5 | 181.0 | - 2.4 % |
| Porto Moniz | 36.4 | 31.9 | - 12.4 % |
| Ribeira Brava | 191.9 | 192.6 | 0.4 % |
| Santa Cruz | 441.7 | 455.5 | 3.1 % |
| Santana | 94.6 | 86.6 | - 8.4 % |
| São Vicente | 78.7 | 77.6 | - 1.4 % |
| Madeira Island | 314.6 | 308.5 | - 1.9 % |

The analysis to the evolution of the resident population shows that, with the exception of the period between 1981-1991, which had a slight growth of population, the ten municipalities of Madeira island have been losing population since the 1960's. Until the 1980's, the municipalities of Funchal, Câmara de Lobos and Machico were the only ones that had population growth. In 1981, Machico started to show a slight decrease in the resident population, while the municipality of Santa Cruz experienced growth. This difference can be explained by the strong investment made in urbanization, especially in the parishes of Camacha and Caniçò in the municipality of Santa Cruz.

In the west side of the ring there has been a positive evolution between 1991 and 2009 in the resident population in the municipality of Câmara de Lobos, and a decrease in the municipality of Ribeira Brava. From 1991 until 2009, the municipality of Funchal has had a decrease in its resident population. This difference can be explained by the strong investment made in building accommodation, especially in the municipalities of Santa Cruz and Câmara de Lobos. In conclusion, since 1991 the resident population has decreased in the core and in the ring, while increasing in the inner ring.

5.2 Migration

5.2.1 National migration

There is an important aspect of human inter-zonal mobility in the case study of FMA, which contributes to the flow of population from the ring towards the core. The main reasons are:

- the concentration of the most important social and economic activities (hospitals, hotels, schools, university, technological pole, shopping centres)
- houses with the same typology are less expensive in the ring than in the core;
- the rapid connection between the residential areas of the ring and the work, commerce and service areas in the core.

5.2.2 International migration

International migration is a recent phenomenon in the Funchal Metropolitan Area (FMA). Migrants come mainly from Brazil, Ukraine and some African countries, reversing a tendency whereby local people usually left the island for better living conditions and returned to Madeira for retirement. The main work activities were construction of roads and other public infrastructures paid for by EU funds. The values of net migration as a percentage of total population in 1991 and 2001 are higher in the ring than in the core. Net migration growth is also increasing more in the ring municipalities (2.2%) than in the core (1.5%).

Migrants tend to search for low price housing in the centre and the suburbs of Funchal and, simultaneously, to settle near the working places. Out migration is more evident in the ring between 1991 and 2001. Nevertheless, in this case study, the core includes only one municipality, being the reason for a higher outmigration in the ring in comparison to an

increase in the core. With regards to in-migration, it is greater in the core, increasing between 1991 and 2001, while in the ring municipalities it slightly decreased.

5.3 Temporary Mobility

Funchal is the main employment centre of the island. The main job opportunities in the municipality of Funchal are administrative activities, education, trade, building and tourism. This last named economic activity includes hotels and other tourism facilities. Considering all tourism activities, the concentration of the supply of accommodation in Funchal was a political decision. In 2006, the total number of tourism establishments in Madeira Island was 196 and in 2009 the total had increased to 200 establishments. In the same time period, there was an increase in the number of hotels from 53 in 2006 to 59 in 2009, and these are concentrated in the coastal zone, having a strong impact on the landscape.

Madeira's University is located in Funchal municipality and has the capacity of attract a significant number of students: in 1991 there were 2402 higher education students in the core, and in 2009 this increased to 3,574. A large part of those students come from the ring municipalities and they reside temporally in the core due to high transportation costs incurred in daily or weekly commuting.

In 2001, 65.2% of the resident population in the core commuted daily to work and/or to study, but only 5.2% commuted from the core to the ring. The vast majority of movements are either within or to the core. The movements inside the ring are 10.8%, a value that is lower than the movements between the ring and the core, 20.3%. This shows that the inhabitants of the ring's residential districts travel regularly outside their municipality for work.

Table 7.8. Resident population commuting daily to work and / or to study, 2001, Madeira Island*

| From - To | % |
|------------------|----------|
| CORE - RING | 5,2 |
| RING – CORE | 20,3 |
| RING – RING | 10,3 |
| CORE – CORE | 64,2 |

* Source: National Statistics Institute (INE) (2001) *Population Census*.

The traffic in Funchal Metropolitan Area is concentrated in two different time periods: at the start (24,500 trips/hour) and at the end (19,100 trips/hour) of the traditional working day. Although Funchal has a range of employment and other services, the journeys to work are very traditional, unlike in the Lisbon Metropolitan Area which has intense traffic flows during the night. Most trips start between 6:00 and 7:00 am, and then there is another peak in the late afternoon and evening, finishing at around 9:00 pm.

According to population projections for 2008, the population of Funchal has decreased since 2001: in terms of the resident population, the core lost -9.9% and the ring gained +9.4%. Functional dependence on Funchal is expected to remain unchanged since the municipalities with the more significant increases in population are mainly places of residence, lacking job opportunities. The supply of trade and services is more evenly spread throughout the Metropolitan Area; however, demand for skilled services has grown, and their supply is still concentrated in Funchal.

Madeira Island is one of the oldest tourism destinations in Europe with more than two centuries of history. Thousands of tourists return on an annual base. Madeira offers not only an excellent climate throughout the year, but also unique fauna and flora capable of attracting tourists on a non seasonal basis. Despite a slight decrease in the general hotel occupation rates, the supply of tourist accommodation is significantly higher in Funchal, which has a significant number of hotels and leisure activities (casino, marina, museums, and others). Table 7.9 shows an increase of tourist nights per 100 inhabitants from 2005 to 2008 in most municipalities. Funchal has the highest rate, but Ribeira Brava had experienced a significant change in the number of tourist overnights because of an increase in the accommodation capacity in pensions in this period. There were more workers (2001) in hotels and restaurants in Funchal as would be expected given its dynamic tourism features, than in the ring municipalities. Additionally, 50% of the employed people work in these services in Funchal (e.g. the Santa Cruz rate is 14%); some of those workers commute to Funchal to work in hotel facilities and other services related to tourism.

Table 7.9. *Tourism features, Madeira Island**

| year / location | Population working in hotels and restaurants | Tourist sleeps per 100 inhabit | |
|-----------------|--|--------------------------------|------|
| | 2001 | 2005 | 2008 |
| Madeira | 12230 | 2300 | 2512 |
| Funchal | 6138 | 4029 | 4227 |
| Santa Cruz | 1704 | 545 | 506 |
| Câmara de Lobos | 1420 | 118 | 400 |
| Ribeira Brava | 392 | 336 | 2711 |
| Machico | 882 | 468 | 664 |

Tourism apartments are the type of tourism facility that have been growing most rapidly compared to the others which faced a slight decrease, especially in new construction (Tourism Statistics, www.ine.pt). Further analysis reveal that major transformations occurred in the complementary forms of tourism accommodation, rather than in hotels, which were relatively unchanged (Sata Cruz; Ribeira Brava) or even slightly decreased (Funchal; Machico). There are five new tourist apartments in Funchal (2009) and six more pensions in Machico. Art-hotels increased in Santa Cruz (1) and there was also one more in Funchal, between 2006 and 2009.

* Source: Census 2001 and Tourism Statistics.

5.4 Mobility and Urbanization

5.4.1 Transport

The analysis of residential areas in Funchal reveals the existing differences within the core, notably in the parishes of Imaculado Coração de Maria, Santa Luzia and São Pedro. These parishes have higher densities of apartments and buildings. The parishes of Monte, Santa Maria Maior, Santo António and São Roque, are characterized by vast forested areas with steep slopes, and therefore have lower housing densities. Housing and land prices are increasing in the core. New and improved urban transportation is also evident: sections of regional roads 101, 102 and 107 and new motorways, designated by Cota 40 and Cota 200. This 225 Km addition to the road system has led to population growth in the ring municipalities, despite the increased travelling distances between places of work and residence. It is important to highlight that those populations have benefited from improvements in transport infrastructures and road networks.

5.4.2 Population densities

The settlement structure of Madeira Island reflects its geographical constraints. As such, it was defined on the south coast by the two dominant municipalities: Funchal (capital city of the region) and Machico. According to the population data, in 2004 Madeira Island has about 240,000 inhabitants, of whom almost 80% live on the southern coast between Machico and Ribeira Brava.

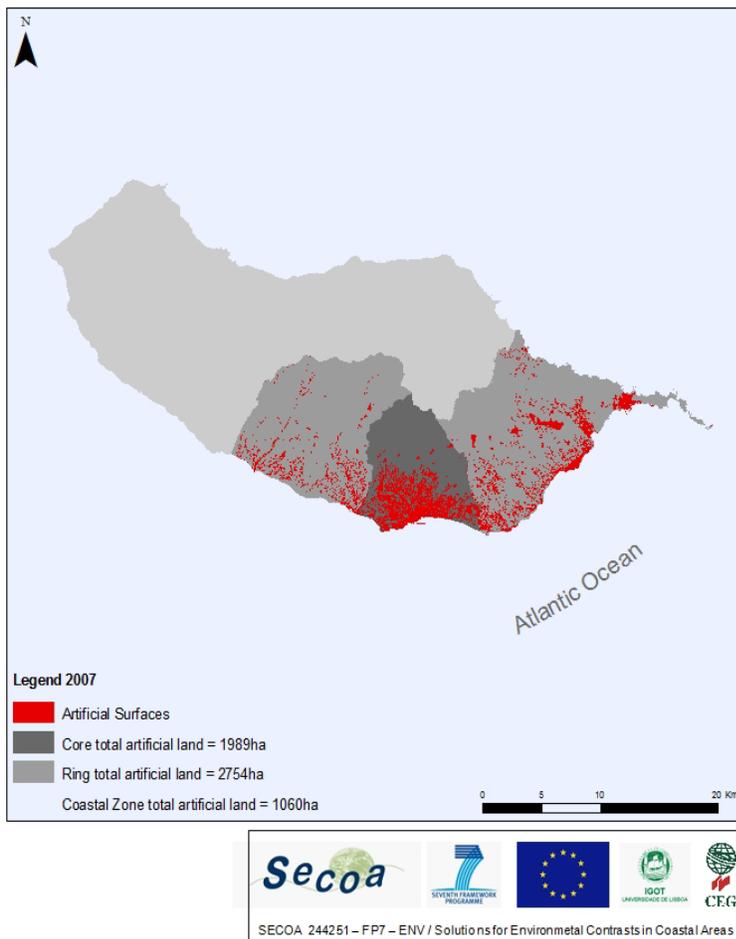
5.4.3 Land use: extensification versus intensification

Urban development in the FMA is simultaneously the result of intensification and extensification processes. Intensification is higher in the core, despite the increase in the number of dwellings per building both in the core and the ring. The number of shanties in the ring municipalities decreased between 1991 and 2001 (circa 140 shanties). However, greater absolute differences occurred in the core, with a reduction of 388 temporary homes.

The average urban height increased in both areas, but there was a more significant increase in the core, due to its more predominantly urban characteristics. New residential buildings in Funchal municipality tend to be multiple family dwellings, while the ring's dwellings stock includes relatively more single family dwellings, contributing to a decrease in the average urban height.

Extensification processes are stronger in the core than in the ring. In 2007, land artificialization is more significant in the ring (2,754 ha) than in the core (1,989 ha). Unfortunately, a lack of information does not allow comparisons with previous years. Artificial land variation in the year 2007 is clearly higher along the coastal zone. Funchal municipality and its coastal parishes can be highlighted in respect of urban extensification. Ribeira Brava and Câmara de Lobos municipalities (to the west of Funchal) had fewer artificial surfaces.

Figure 7.13. *Urban extensification/artificial land variation 2007, Madeira Island**



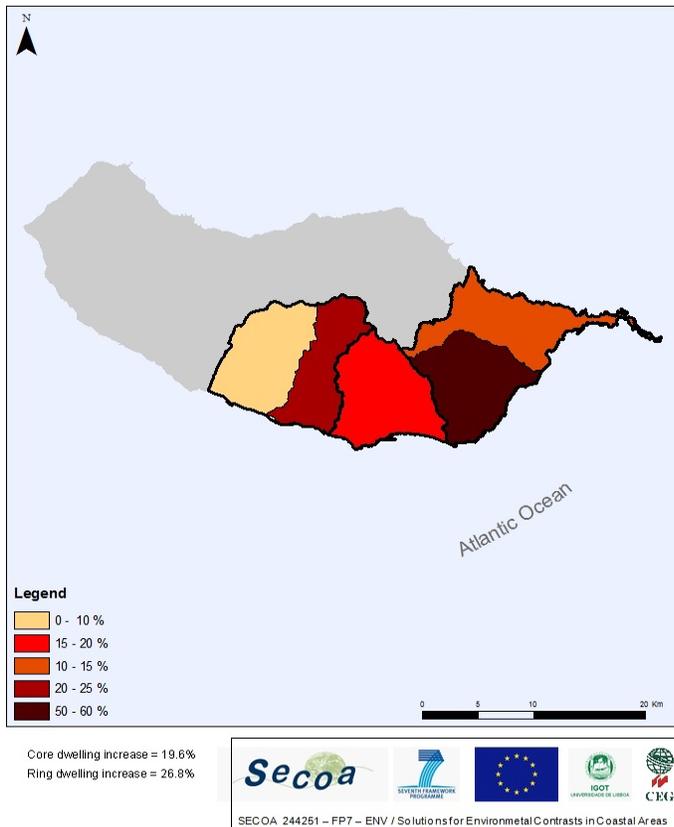
* Source: COSRAM, 2007

5.4.4 Housing changes

The supply of lower price housing has improved in recent years, providing better accessibility and better living conditions, which are reflected in a population increase in the core and ring municipalities. The ring had the highest rate of dwellings increase. Assuming that these evolutionary dynamics of the housing stock will match similar behaviour on the demand side, it is possible to draw some conclusions:

- although there is an ongoing depopulation process, the municipality of Funchal has experienced a remarkable dynamic construction of new housing. This allows us to perceive the existence of internal migration to the municipality itself, probably by the younger population;
- new road networks have played an important role in explaining the developments in Câmara de Lobos and Santa Cruz municipalities.

Figure 7.14. Increase in number of dwellings 1991-2001, Madeira Island*



* Source: National Statistics Institute (INE).

6. Conclusions: Human Mobility and Environmental Conflicts

Improvements to mobility conditions have promoted urbanization in the ring and in the core of the Metropolitan Area of Lisbon, excepting the city of Lisbon. The key factors in this situation have been the new systems of transport, modernization of public transportation, and improvements in transport infrastructure. There has also been an increase in the use of private vehicles. There have been increasing pressures on natural resources from increasing urbanization in the municipalities of the ring, and some of the core: this is evident in the increase in the land allocated to housing and economic activities in the MAL. The dispersal of places of residence did not decrease the strong functional dependence of the Metropolitan Area on Lisbon for work, leisure and consumption. In addition, there have been new opportunities for redevelopment in coastal areas in the core, related to a decline in the resident population and deindustrialization. New real estate investments have concentrated on the waterfront, but they may conflict with other land-uses. In contrast, the increase in second homes is distributed throughout the Metropolitan Area, being at the same time one of the main causes of urban sprawl.

In the Eastern Algarve, the transformations processes are guided by the same key factors. However, temporary population flows should be highlighted due to their major contribution to urban pressure. Seasonal demand contributes to a major concentration of population in the summer months (June, July and August), which increases the pressure on infrastructures and natural resources. These pressures result mainly from the ring and core urban growth, but have greater effects in the coastal areas, especially if seasonal use is taken into account (the key factor being access to and use of beaches).

The use of private vehicles for every day displacements is regular, due to an inefficient public transport supply and to disconnection between retailing and services in relation to the distribution of residential areas. These facts also contribute to urban sprawl, helped by real estate and tourism activities. Tourism is one of the most important economic activities, notably in Albufeira (45% overnights) and Loulé (24% overnights).

The framing of human mobility in Madeira Island has been different, with a strong polarization on Funchal municipality, representing the central place of work, consumption, leisure and tourism. Hotel occupancy is more significant in Funchal with higher rates of overnights and a higher capacity for accommodation provision. Additionally, Santa Cruz (a municipality in the ring) has the highest number of dwellings for seasonal use. Considering

urban mobility, there is a huge difference between the number of vehicles that circulate in the section of the freeway that crosses the core (50,000) and those that circulate in the ring (Ribeira Brava – 18,000 cars per day; Machico – 18,000 cars per day;). Private cars are the most frequently used mode of transportation since the public transport network is weak, mainly outside the core.

The coastal zone of the core is the area most in need of political attention, with regards to tourism pressures along the shoreline, tarnishing an area that faces the Natural Partial Reserve of Garajau and the creation of the Funchal Marine Eco-Park. The elaboration and implementation of the Coastal Zone Management Plan is the primary tool to interrupt cliffs artificiality process, to protect the indigenous vegetation associations and to preserve the natural small beaches.

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CHAPTER VIII.

Sweden: Urban Integration and Segregation Through Mobility in Two Harbour Cities

**Karl Bruckmeier
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1. Introduction

The total Swedish coastal zone (land until 5 km inland from the coastline, plus islands) has experienced a net population growth between 1996 and 2005 of 164,000 persons. In 2005, about 3,5 million of the total population of 9 million lived in the Swedish coastal zone. In Southern Sweden (including the two metropolitan areas studied in this chapter, Gothenburg and Malmö) the coastal population increased by 16,700 persons from 1996 to 2005. Only in Northern Sweden did the coastal population decrease in that period (a decrease of about 4,000 persons. Southern Sweden, and the coastal zone especially, are the areas of highest population concentration in Sweden, and the areas with slow population growth (today mainly realized through in-migration). Population growth in the three coastal metropolitan areas of Sweden (Stockholm, Gothenburg and Malmö) was higher between 1996 and 2005 in comparison with most inland municipalities: 7.7% for Stockholm, 5.9 % for Gothenburg, and 8.9% for Malmö (Boverket 2006: 37-38).

1.1 A Short Introduction to the Gothenburg Metropolitan Area

Gothenburg has been a Swedish town (by Royal privilege) since 1621. The city, at the mouth of the river Göta, was planned as Sweden's gateway to the West, around a fortress which dominated its development until the 19th century. In the 18th century fishing was a dominant economic activity. Since the foundation of the Swedish East India Company in 1731, overseas trade with East Asia contributed to the rapid development of the city. Between 1800 and 1900, when industrialization started, the number of inhabitants increased from about 12,000 to about 120,000. Until the early 20th century, sea transport and commerce were the main economic sectors. Rapid industrialization contributed after the first world war to strong in-migration and population growth (the main industries were metal products, car production, e.g. Volvo). The city area grew throughout the 20th century through consolidation (integration of surrounding municipalities, the last big municipal territorial reform being in the 1970s). After 1970, until the 1990s, the population level has decreased; only in the year 2000 (466,990) was it again higher than it had been in 1970, and since then it has been slowly growing (2009/10: 507 000). The second half of 20th century brought structural changes in the local economy (reduction of the importance of the harbour-related economy) (Göteborg 2010).

1.2 A Short Introduction to the Malmö Metropolitan Area

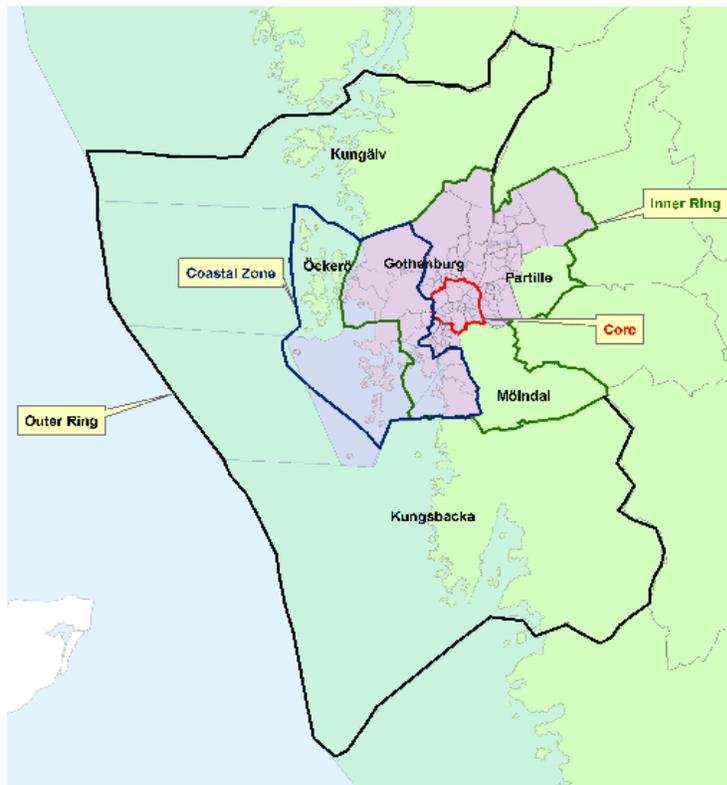
Malmö has been a Danish town for several hundred years, mainly developing through the rich fishing grounds in the Öresund, before it became Swedish in 1658 in the peace treaty of Roskilde. After that Malmö lost its economic dominance for a long time. Only at the end of 18th century was the port developed and, after that, the city grew during the 19th century. At the turn of 19-20th century the city was technically modernized (electricity etc.). Between the wars, and after World War II, the city grew until the 1970s when the economy (shipbuilding, textile industry) came into crisis and the number of inhabitants thereafter declined until 1995. With the building of the new Öresund bridge (opened in 2000) between Malmö and the Danish capital Copenhagen, the development of the city gained new momentum through higher mobility between Denmark and Sweden, establishment of new firms in the biotechnology and information technology sectors, and the development of Malmö University. All of this indicates the beginning of the integration of the two metropolitan areas of Malmö and Copenhagen to become one trans-boundary metropolitan area.

2. Methodology

Definitions of core, (inner and outer), ring and coastal zone have been adapted to administrative boundaries (at the level of municipal districts) to be able to use statistical data which are produced in the administrative processes.

The delimitation of the metropolitan areas does not include a number of municipalities located further inland, forming part of "Greater Gothenburg" and the "Skåne" region (in the case of Malmö), as these have less influence on development in the coastal areas. The definitions of the metropolitan areas are expressed in the following maps of the Gothenburg and Malmö metropolitan areas.

Figure 8.1. Delimitations of Gothenburg core, inner ring, outer ring, and coastal zone*



* Source: Adapted from Lantmäteriet and the City of Gothenburg by Per Knutsson.

Core: City centre of Gothenburg – including the sub-districts of the city centre and outer centre.

Inner ring: Outer parts of Gothenburg and Mölndal and Partille municipalities (c. 15-30 min travelling to the centre).

Coastal area: Gothenburg and its subdistricts with connection to the coast, including the Southern Archipelago south of Göta Älv estuary and Öckerö municipality north of the estuary

Outer ring: Kungälv, Öckerö, Kungsbacka municipalities (ca 45-60 min travelling to the centre).

Figure 8.2. *Delimitations of Malmö core, inner ring, and outer ring, and coastal zone**



The data calculated and compiled for this chapter allow for a description of the dynamics of human mobility, migration and urban development at the micro-local level of three different city zones in Gothenburg – core, inner ring, and coastal zone. They give

* Source: Adapted from Lantmäteriet and the City of Gothenburg by Per Knutsson.

information and trends that sometimes cannot be understood in their specificity without comparison with the development dynamics at the level of the whole city or metropolitan area, and furthermore, by comparisons with different cities or municipalities on the Swedish coast.

We have included in this chapter some complementary statistical information about mobility patterns and trends in Gothenburg metropolitan area or the whole city (from other reports prepared for WPs 1,2,3,4 of the SECOA project). For a comparative picture of mobility dynamics, including land use, building and population developments in all Swedish coastal communities, we refer to the report Boverket (2006) which includes statistical analyses and maps. These data are not included in the chapter, but references are made to them at several points in the following discussion.

For both Swedish case study areas the term "temporary migrants" includes a heterogeneity of groups with different motives and reasons for their mobility – commuters or work place related mobility, tourists, and other seasonal or temporary residents. The latter include summer cottage owners who often live during the summer months in their cottage and commute to work from there instead of from their apartment in the city. The following groups, mainly related to occupational mobility, can be identified (not all of these groups are socially significant groups and data are not easily found for them):

- (a) Higher education students from outside the area. These add a significant number of inhabitants in both areas. However, their residential status as temporary or permanent depends on their studies. In Sweden this is not as simple as being defined as "after their degree/final examination", as there are many forms of studying temporarily, interrupting studies, returning to studies after some time etc.
- (b) Temporary or seasonal workers, for example, during the peak tourist season or with temporarily limited work contracts (e.g. working for a shorter or longer time for a firm or a project undertaken in the region, temporary workers hired between firms). This category is relevant but difficult to quantify.
- (c) People informally living in a dwelling without being resident there (they may be formally registered residents in other municipalities): this category is somewhat unclear, and there are no reliable data available.
- (d) Refugees or asylum seeking foreign-born people with an insecure residential status: figures need to be collected and calculated additionally for this group.
- (e) People living and working illegally in the area ("paperless people", "informal economy"): no figures are available.

3. The Gothenburg Metropolitan Area

3.1 Overview of Urban Development

The city of Gothenburg has grown rapidly through population growth and in-migration from the surrounding countryside, and from the rest of Sweden, since the 19th century. In the 20th century, the growth of population/inhabitants slowed down, and in the second half of the century Gothenburg even lost population during several decades. The patterns of growth (in time and size) reflect, at a local level, the classical "demographic transition" in Europe during industrialization and modernization. In the 20th century, the growth of the municipality of Gothenburg was also influenced by administrative reforms including consolidation of municipalities, which brought for Gothenburg, in the 1970s, enlargement through inclusion of formerly independent surrounding communes. With that reform all Swedish municipalities have become relatively large territorial structures with differentiated settlement structures that include, in all cases, more densely populated settlement cores, settlement with individual houses spread over large areas, and non-populated areas.

*Table 8.1. Residents, households, and cars in the Gothenburg metropolitan area**

| 2000 | Core | Inner Ring | Outer Ring | Coastal Zone |
|----------------------------------|----------|------------|------------|--------------|
| Number of Residents | 134,277 | 443,561 | 118,618 | 68,036 |
| Number of Households | 60,330** | 264,530 | 56,404 | N/A*** |
| Mean size of Households | 1,40 | 1,74 | 2,22 | N/A*** |
| Number of Cars | 36,454 | 157,297 | 61,437 | 30,414 |
| Number of Cars per 100 residents | 26 | 34 | 49 | 42 |
| 2005 | | | | |
| Number of Residents | 140,603 | 459,213 | 125,245 | 72,114 |
| Number of Households | 59,573** | 258,310 | 53,274 | N/A*** |
| Mean size of Households | 1,37 | 1,72 | 2,23 | N/A*** |
| Number of Cars | 34,330 | 154,091 | 57,173 | 28,009 |

* Source: Swedish National Office of Statistics, SCB.

** The number of households is not available at Sub-City District Committee level, which means that the number of households in 3 SCDCs are not included in the total number. Consequently, the total number of household of the CORE indicated is somewhat lower than the actual number of households in the CORE.

*** Since the number of households is not available at Sub-City District Committee level, the number of households in the coastal zone is not available.

Between 2000 and 2005 the number of inhabitants has slowly grown in all zones. From 2000 to 2009 the population in the core and coastal zone increased 11 %, and in the inner ring 14 % (see Table 8.2). Generally, this supports the assumption of continuous population growth in all zones or a relative decentralization of the population that is no longer concentrating in only one zone but is spreading over the whole city and beyond its administrative boundaries. A more detailed analysis at sub-district levels may show that there are still local areas of dense building (high houses etc.) where relatively more people move in than occurs in other areas where the settlement structure is less dense (one family houses etc.). Population growth in the city and its suburban areas is associated with the building of new flats, and this directs to some degree the mobility and population growth. The assumption of relative decentralization should therefore be differentiated to take into account the patterns of settlement density in different local areas.

The mean size of households in the different zones has not changed significantly over the years; the figures for 2000 and 2005 indicate that households with more members are found outside the core (this can be interpreted as families with children being more likely to live outside the core).

Table 8.2. Population increase in Gothenburg 2000 – 2009.*

| Metropolitan Area | Population 2000 | Population 2005 | Population 2009 | Population increase in % | Population increase per year |
|--------------------------|----------------------------|----------------------------|----------------------------|-------------------------------------|---|
| CORE | 134 277 | 140 603 | 149 093 | 11,03% | 1481,6 |
| INNER RING | 443 561 | 459 213 | 507 418 | 14,40% | 6385,7 |
| COASTAL ZONE | 79 863 | 84 345 | 88 448 | 10,75% | 858,5 |

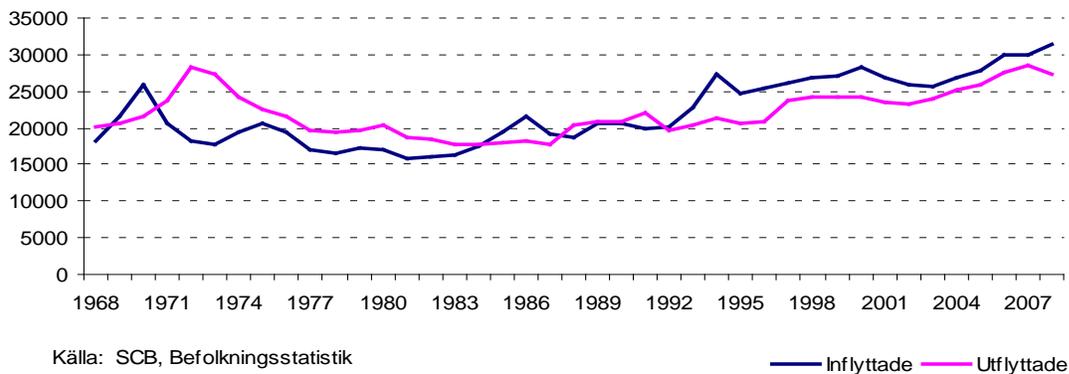
* Source: Municipality of Gothenburg 2010.

3.2 Migration

In the "first modernity" phase, during industrialization, migration to and mobility in the city was mainly a local and national phenomenon. In the "second" or late modernity phase (to use the terminology of Beck and Giddens), migration included more international in-migration to the city of Gothenburg, as shown in the statistical figures below. Emigration from Sweden to North America was significant in the 19th and early 20th century, and as Gothenburg was the largest Swedish harbour on the West coast, most emigrant ships sailed from there.

The long term trend of in- and outmigration from Gothenburg is as follows: since 1992 in-migration has been continually higher than out-migration, but the figures for in- and outmigration have remained rather close to each other since the mid 1970s (see Figure 8.3).

Figure 8.3. *In- and outmigration 1968-2008***



The number of foreign inhabitants has always been below 10% of the total population. However, changes in the urban population show significant differences according to the areas of origin (see Figure 8.4):

- the number of inhabitants from other Scandinavian countries has continually and significantly decreased (from c. 23,000 in 1970 to c. 9,000 in 2009) – it is the only foreign inhabitant group which has reduced in size, as all other groups increased;

* Source: Statistical Yearbook Gothenburg 2010, Diagram 4.29.

** Legend: blue = in-migration, red = out-migration.

- the number of inhabitants from other European countries has slowly grown (from about 12,000 in 1970 to about 15,000 in 2009);
- the number of inhabitants of African origin has strongly increased from nearly zero in 1970 to about 5,000 in 2009);
- the number of inhabitants of North American origin has doubled but remains low (from about 600 in 1970 to about 1,200 in 2009);
- the number of inhabitants of South American origin has grown (from about 150 in 1970 to about 1,200 in 2009) but remains low;
- the number of inhabitants of Asian origin has strongly grown (from about 1,000 in 1970 to about 12,000 in 2009) and is the second largest group after inhabitants from other European countries.

In the inner ring, the share of the population born abroad ranges between 8% and 57% amongst the city districts.

Table 8.3. *Foreign citizens 1970-2009**

| Citizenship | 1970 | % of total | 1980 | % of total | 1990 | % of total | 2009 | % of total |
|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Nordic countries | 23 177 | 61,25% | 20 666 | 52,15% | 14 850 | 33,20% | 8 694 | 19,30% |
| Danmark | 3 325 | | 2 456 | | 1 970 | | 1 557 | |
| Finland | 15 273 | | 13 915 | | 7 678 | | 4 078 | |
| Island | 277 | | 753 | | 871 | | 405 | |
| Norge | 4 302 | | 3 542 | | 4 331 | | 2 654 | |
| The rest of Europe | 12 296 | 32,49% | 12 769 | 32,22% | 13 104 | 29,30% | 15 395 | 34,17% |
| Bosnien-Hercegovina ¹ | - | | - | | - | | 1 181 | |
| Frankrike | 122 | | 181 | | 263 | | 768 | |
| Grekland | 655 | | 959 | | 406 | | 344 | |
| Italien | 905 | | 544 | | 439 | | 537 | |
| Jugoslavien ¹ | 4 950 | | 5 679 | | 6 073 | | - | |
| Kroatien ¹ | - | | - | | - | | 372 | |
| Makedonien ¹ | - | | - | | - | | 321 | |
| Nederländerna | 292 | | 253 | | 220 | | 455 | |
| Polen | 507 | | 1 212 | | 1 462 | | 2 485 | |

* Source: Göteborg (2011).

| | | | | | | | | |
|---------------------------------|---------------|--------------|---------------|--------------|---------------|---------------|---------------|---------------|
| Portugal | 249 | | 469 | | 579 | | 340 | |
| Rumänien | .. | | .. | | 399 | | 968 | |
| Ryssland/Sovjetunionen | .. | | .. | | 150 | | 390 | |
| Serbien-Montenegro ¹ | - | | - | | - | | 376 | |
| Spanien | 346 | | 312 | | 288 | | 445 | |
| Storbritannien | 606 | | 913 | | 961 | | 1 512 | |
| Tyskland | 1 642 | | 1 044 | | 942 | | 1 514 | |
| Ungern | 557 | | 368 | | 243 | | 423 | |
| Österrike | 366 | | 215 | | 200 | | 211 | |
| Africa | 223 | 0,59% | 704 | 1,78% | 1 706 | 3,81% | 4 863 | 10,80% |
| Etiopien | - | | 58 | | 612 | | 269 | |
| Somalia | - | | 14 | | 141 | | 2 510 | |
| North America | 555 | 1,47% | 561 | 1,42% | 870 | 1,95% | 1 214 | 2,69% |
| USA | 479 | | 454 | | 596 | | 690 | |
| South America | 140 | 0,37% | 1 379 | 3,48% | 1 800 | 4,02% | 1 224 | 2,72% |
| Chile | 16 | | 568 | | 1 109 | | 488 | |
| Uruguay | 4 | | 361 | | 104 | | 23 | |
| Asia | 951 | 2,51% | 3 202 | 8,08% | 11 531 | 25,78% | 12 044 | 26,74% |
| Afghanistan | .. | | .. | | 30 | | 472 | |
| Indien | .. | | .. | | .. | | 639 | |
| Irak | 8 | | 25 | | 649 | | 4 023 | |
| Iran | 38 | | 215 | | 5 130 | | 1 920 | |
| Folkrepubliken Kina | 40 | | 105 | | 258 | | 1 432 | |
| Libanon | 23 | | 63 | | 440 | | 219 | |
| Pakistan | .. | | .. | | .. | | 491 | |
| Syrien | .. | | .. | | 237 | | 198 | |
| Thailand | 16 | | 57 | | 174 | | 813 | |
| Turkiet | 553 | | 1 946 | | 3 145 | | 1 077 | |
| Vietnam | 1 | | - | | 433 | | 227 | |
| Oceania | 29 | 0,08% | 68 | 0,17% | 128 | 0,29% | 219 | 0,49% |
| Records missing | 472 | | 282 | | 734 | | 1 395 | |
| Total | 37 843 | | 39 631 | | 44 723 | | 45 048 | |

How these population development trends, measured at city level, change at the intra-city levels of core, inner ring and coastal area, is not precisely represented in the statistical information calculated below. However, statistics at the intra-city levels show that 16 % of the population in the core, 22 % of the population in the inner ring, and 7 % of the population in the coastal zone were born abroad (City of Gothenburg 2010). There are however significant differences between different city- and sub-city districts.

Table 8.4. *Migration from abroad to the different zones of the city**

| | 2000 | |
|---|---------------------------------|---|
| | Migration from Abroad in number | Migration from abroad as % of total migration |
| To Core | 1309 | 7,22% |
| To Inner Ring | 4553 | 11,04% |
| To Coastal Zone | 417 | 8,09% |
| TOTAL <i>Errore. Il segnalibro non è definito.</i> | 6279 | |
| | 2009 | |
| | Migration from Abroad in number | Migration from abroad as % of total migration |
| To Core | 2066 | 6,90% |
| To Inner Ring | 6103 | 11,78% |
| To Coastal Zone | 499 | 8,28% |
| TOTAL** | 8668 | |

The differences in the migrant population in different zones do not necessarily express generally known trends of mobility (e.g. migrants usually move to inner urban areas with more opportunities for jobs, or densely built areas with cheap flats etc.). The mobility and spreading of the migrant population across the different parts of the city is influenced by more complex patterns of social segregation and integration that cannot be read from the statistical information in any simple manner. Furthermore, it should be taken into account that the different city zones defined for this study are not homogeneous in terms of settlement, work

* Source: own calculation based on statistics from the City of Gothenburg.

** The total number of foreign migrants to the three zones above.

places, and other urban and spatial functions (leisure time infrastructure, green areas etc.). In fact these zones are internally differentiated while the geographical size of the zones also varies strongly. In particular, the ring and coastal zone include large areas with differing structures of settlement and land use, which would require a comparison of different sub-districts and local areas to understand fully the mobility and residence patterns of the migrant population.

3.2.1 In- and outmigration: core, ring, coastal zone

More detailed data are available for the Gothenburg area than for Malmö (in Gothenburg, the data is specified at sub-district levels). The years for which data have been calculated from the available statistics are 2000, 2005 and 2009: some general figures for quantitative changes in migration and population growth (see 1.1, 1.5) have been calculated for all years from 2000-2009.

In- and outmigration data in the years 2000 and 2009 show, for the different parts of the city, a rather small change in the migration balance (in-migration minus out-migration). However, the balance figures do not show the significant quantitative and qualitative changes in the population structure through in- and outmigration: the dominant pattern at all levels of the three city zones - core, inner ring and coastal area - is that relatively large numbers of people move in and out every year, but the resulting net changes in the population level as a result of such mobility are limited (Table 8.5).

Table 8.5. Migration from Sweden to the different city zones*

| 2000 | | | |
|-----------------|----------------------------|---------------------------------|---|
| | Migration from Sweden in % | Migration from Sweden in number | Migration from Sweden as % of total migration |
| To Core | 32,22% | 6303 | 34,76% |
| To Inner Ring | 62,82% | 12 291 | 29,81% |
| To Coastal Zone | 4,96% | 970 | 18,82% |
| TOTAL** | 100% | 19564 | |
| 2009 | | | |
| | Migration from Sweden in % | Migration from Sweden in number | Migration from Sweden as % of total migration |
| To Core | 37,19% | 7867 | 26,29% |
| To Inner Ring | 58,50% | 12376 | 23,88% |
| To Coastal Zone | 4,32% | 913 | 15,15% |
| TOTAL** | 100% | 21156 | |

| 2000 | | | |
|-----------------|------------------------|-----------------------------|---|
| | Migration from OR in % | Migration from OR in number | Migration from OR as % of total migration |
| To Core | 11,79% | 232 | 1,28% |
| To Inner Ring | 55,21% | 1086 | 2,63% |
| To Coastal Zone | 32,99% | 649 | 12,59% |
| TOTAL** | 100% | 1967 | |
| 2009 | | | |
| | Migration from OR in % | Migration from OR in number | Migration from OR as % of total migration |
| To Core | 39,06% | 1428 | 4,77% |
| To Inner Ring | 33,53% | 1226 | 2,37% |
| To Coastal Zone | 27,41% | 1002 | 16,63% |
| TOTAL** | 100% | 3656 | |

* Source: own calculation based on Gothenburg Municipality (2010).

| 2000 | | | |
|-----------------|---------------------------|--------------------------------|--|
| | Migration from CZ in % | Migration from CZ in number | Migration from CZ as % of total migration |
| To Core | 29,03% | 515 | 2,84% |
| To Inner Ring | 62,46% | 1 108 | 2,69% |
| To Coastal Zone | 8,51% | 151 | 2,93% |
| TOTAL** | 100% | 1774 | |
| 2009 | | | |
| | Migration from CZ in % | Migration from CZ in number | Migration from CZ as % of total migration |
| To Core | 36,19% | 871 | 2,91% |
| To Inner Ring | 57,29% | 1379 | 2,66% |
| To Coastal Zone | 6,52% | 157 | 2,60% |
| TOTAL** | 100% | 2407 | |

| 2000 | | | |
|-----------------|---------------------------|--------------------------------|--|
| | Migration from IR in % | Migration from IR in number | Migration from IR as % of total migration |
| To Core | 26,81% | 7095 | 39,13% |
| To Inner Ring | 67,55% | 17874 | 43,35% |
| To Coastal Zone | 5,64% | 1492 | 28,94% |
| TOTAL** | 100% | 26461 | |
| 2009 | | | |
| | Migration from IR in % | Migration from IR in number | Migration from IR as % of total migration |
| To Core | 23,69% | 8419 | 28,13% |
| To Inner Ring | 71,16% | 25286 | 48,80% |
| To Coastal Zone | 5,15% | 1831 | 30,38% |
| TOTAL** | 100% | 35536 | |

| 2000 | | | |
|-------------------|--------------------------|-------------------------------|---|
| | Migration from Core in % | Migration from Core in number | Migration from Core as % of total migration |
| To Core | 31,60% | 2677 | 14,76% |
| To Inner Ring | 50,98% | 4 319 | 10,48% |
| To Coastal Zone | 17,42% | 1476 | 28,63% |
| TOTAL** | 100% | 8472 | |
| 2009 | | | |
| | Migration from Core in % | Migration from Core in number | Migration from Core as % of total migration |
| Till Core | 56,73% | 9 277 | 31,00% |
| Till Inner Ring | 33,33% | 5 450 | 10,52% |
| Till Coastal Zone | 9,94% | 1 625 | 26,96% |
| TOTAL** | 100% | 16 352 | |

In the core the net migration in 2000 (675 persons) accounted for 0,5 % of the total population, and 1,36 % in 2009 (222 persons). In the inner ring the net migration in 2000 (3677 persons) accounted for 0,83 % of the total population, and 0,53 % in 2009 (2679 persons). In the coastal area net migration in 2000 (655 persons) accounted for 0,82 % of the total population, and 0,35 % in 2009 (308 persons).

The in-/out-migration trends from one zone to another in Gothenburg show several salient trends for 2000 and 2009:

- "micro-mobility" within the core and inner ring is rather high in both years;
- "micro-mobility" inside the coastal zone is rather low as is out-migration from the coastal zone in both years;
- in-migration from core and inner ring to the coastal zone is rather high in both years;

** Total in column 2 = sum of percentages of core, inner ring and coastal zone; in column 3 = total as absolute number migrants to the core, inner ring and coastal zone.

- in-migration by foreigners and from other parts of Sweden to the coastal zone of Gothenburg is, in both years, relatively limited – movement into Gothenburg from other parts of Sweden and by foreigners is mainly directed to the core and the inner ring (both years).

The statistically observable trends do not give a very clear message – beyond the basic one that the coastal zone is an attractive place for living. Mobility in this zone seems to be "socially controlled": those who live there already (their income, social class and status) influence the status of the area in terms of its exclusive character (also in terms of real estate prizes – who can afford to live there?) that is, where wealthier parts of the population and members of the economic, political, scientific elite have their residence. This creates a selective mobility in the coastal zone in terms of in-migration and mobility that is influenced by fact whether one is part of a residential group that has long since lived in an area. Furthermore, there is a need to take into account the fact that the coastal zone of Gothenburg includes a number of densely populated archipelago islands that are areas where people's families have lived for generations.

The housing/flat types that are dominant in the different zones (the coastal zones have, in both years, low percentage of 1- and 2-room flats, but high number of 4- and 5-room flats that can also be individual houses) support this impression that the coastal zone is "the extended West End" of Gothenburg ("West End" meaning the phenomenon known from many European cities: the environmentally cleaner part of the city where the well-off citizen live and stay). Together with further knowledge about mobility patterns and motives from the mobility surveys in Gothenburg and Malmö we hypothesize that the statistical figures are part of a more complex mobility pattern that includes several successive long-distance and local moves: moving into the city as newcomers (from other municipalities in the region and in Sweden or from abroad) means that one probably moves to the core or inner ring, to a flat of limited size; having lived in the city for some time one tries to improve ones' living conditions both in terms of the size of the flat and the area to live – and finally one may succeed to move into the coastal zone where expensive and attractive houses and flats can be found. This is an idealized and simplified description of mobility patterns, but still catches relevant part of observable mobility trends and directions. Two parts of the inner ring (Mölnä and Partille) are areas where in-migration occurs from nearly all other parts of Gothenburg area.

3.2.2 Origins of net- and in-migration

The figures for the years 2000 and 2009 (see Tables 8.4 and 8.5, information about the origins of migration from other zones in the city and from outside the city) show for both years that the migration/mobility from core to core, and from core to inner ring, are quantitatively dominant. People move more often from the core and inner ring to the coastal zone whereas the reverse movement is rather limited; an explanation for this may be that the inner parts of the city are smaller and densely populated, whereas the new building of flats and the creation of residential areas is more likely to occur in the outer parts of the city. The detailed in- and outmigration numbers at sub-district levels for years 2000 and 2009 show these patterns – with local variations – in refined form.

3.2.3 Social composition of in-migration v outmigration

No exact statistical data are available, from the published statistics for Gothenburg, about the social composition (age, social class, ethnicity) of in- and outmigration at the level of the sub-city zones. The city of Gothenburg has not carried out periodical migration surveys such as those found in the city of Malmö (see later in this chapter). Information about social structures - age, social class, ethnicity - is not found at the level of the zones for in- and out-movement of social groups. Some other indicators - income levels, number of cars per 100 inhabitants, mean size of households, income levels, employment and unemployment, and education level - that have been calculated for all zones, for 2000 and 2005, should be seen as indicators that can give some information about the social composition of the population in every zone and its change over the years. However, these are not necessarily the same for the in- and out-migrating parts of the population.

3.2.4 Population change and net migration

The population of Gothenburg has grown, since the year 2000, by an average of about 4,000 every year, and in 2009 by 6000 persons. The percentage contribution of (net-)migration to the total population growth in the different city zones is relatively limited - below 1% in all three zones in the year 2000; in the year 2009 it was somewhat higher (1.36%) only in the core. The figures for population growth in the three zones for the years 2000, 2005 and 2009 do not

show significant differences in growth rates. For example, the coastal area does not show significantly higher rates of population growth than the other two zones (see Table 8.6 and 8.7).

Table 8.6. Population change and net migration*

| Metropolitan Area | Net migration | Net migration as % of total population | Net migration | Net migration as % of total population |
|-------------------|---------------|--|---------------|--|
| | 2000 | 2000 | 2009 | 2009 |
| CORE | 675 | 0,50% | 2 022 | 1,36% |
| INNER RING | 3677 | 0,83% | 2679 | 0,53% |
| COASTAL ZONE | 655 | 0,82% | 308 | 0,35% |

Table 8.7. Population change and net migration 2000-2005-2009, different zones of Gothenburg*

| Metropolitan Area | Population 2000 | Population 2005 | Population 2009 | Population increase | Net migration | Net migration as | Net migration | Net migration as |
|-------------------|-----------------|-----------------|-----------------|---------------------|---------------|-----------------------|---------------|-----------------------|
| | | | | per year | 2000 | % of total population | 2009 | % of total population |
| CORE | 134 277 | 140 603 | 149 093 | 1481,6 | 675 | 0,50% | 2 022 | 1,36% |
| INNER RING | 443 561 | 459 213 | 507 418 | 6385,7 | 3677 | 0,83% | 2679 | 0,53% |
| COASTAL ZONE | 79 863 | 84 345 | 88 448 | 858,5 | 655 | 0,82% | 308 | 0,35% |

A comparison of the social composition of different city-districts in the core (see Table 8.7), inner ring and coastal zones shows that city- and sub-city districts with a high share of the population with a foreign background (e.g. experiencing sustained in-migration by persons born in a country other than Sweden) are also characterized by low levels of mean income and low education levels.

* Source: own calculation based on national and Gothenburg statistics.

Table 8.8. Income, origin of inhabitants and education levels for different parts of Gothenburg city*

| City District | Mean Income 1000 SEK | % of population with foreign Background | % of population with post-college education |
|-------------------------|-------------------------|--|--|
| 1 Gunnared | 157,0 | 68,9 | 22,1 |
| 2 Lärjedalen | 157,4 | 65,4 | 24,0 |
| 3 Kortedala | 181,8 | 38,6 | 35,9 |
| 4 Bergsjön | 124,8 | 73,4 | 22,1 |
| 5 Härlanda | 227,7 | 16,1 | 53,5 |
| 6 Örgryte | 250,3 | 16,1 | 56,3 |
| 7 Centrum | 240,4 | 19,1 | 63,5 |
| 8 Linnéstaden | 253,1 | 16,7 | 62,5 |
| 9 Majorna | 213,6 | 15,7 | 56,0 |
| 10 Högsbo | 199,1 | 20,0 | 45,6 |
| 11 Älvsborg | 317,8 | 10,2 | 59,9 |
| 12 Frölunda | 178,4 | 32,9 | 34,5 |
| 13 Askim | 322,7 | 12,6 | 55,8 |
| 14 Tynnered | 238,4 | 26,6 | 38,8 |
| 15 Södra Skärgården | 231,4 | 5,4 | 45,2 |
| 16 Torslanda | 288,3 | 8,5 | 42,7 |
| 17 Biskopsgården | 170,3 | 52,6 | 25,5 |
| 18 Lundby | 217,2 | 27,0 | 42,4 |
| 19 Tuve-Säve | 229,5 | 25,1 | 30,3 |
| 20 Backa | 208,3 | 37,2 | 32,0 |
| 21 Kärra-Rödbo | 243,0 | 17,3 | 27,6 |
| Total Gothenburg | 223,1 | 28,6 | 45,2 |

* Source: City of Gothenburg (2010).

3.3 Temporary Mobility

Data about permanent and temporary populations and movements are less exact and detailed compared to migration: the latter are regularly included in the official statistics. Therefore, data for the former are more often indications and estimates from different sources.

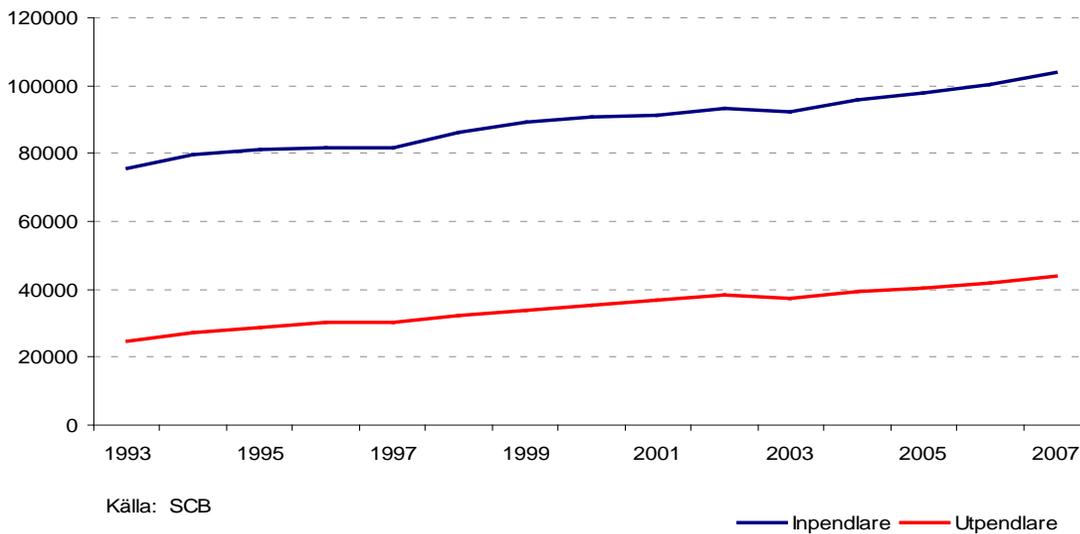
The categories of "temporary migrants" and "temporary residents" are umbrella terms that need to be specified for each country and study area with regard to the realities of mobility forms in that area, and how these are measured in defined categories in public statistics. For both Swedish case study areas the term "temporary migrants" includes heterogeneous groups with different motives and reasons for mobility – commuters or work place related mobility, tourists, and other seasonal or temporary residents that include summer cottage owners who often live during the summer months in their cottage and commute to work from there instead of from their city apartments. The following groups, mainly including work related mobility, may be identified (but note that not all of these groups are "socially significant" and data are not easily found):

1. Higher education students from outside the area. These add a significant number of inhabitants in both areas. However, their residential status as temporary or permanent depends on their studies. In Sweden this is not as simple as being defined as "after their degree/final examination", as there are many forms of studying temporarily, interrupting studies, returning to studies after some time etc..
2. Temporary or seasonal workers, e.g. during the peak tourist season or with temporarily limited work contracts (e.g. working for a shorter or longer time for a firm or a project undertaken in the region, temporary workers hired between firms),. This category is relevant but difficult to quantify.
3. People informally living in a dwelling without being resident there (they may be formally registered residents in other municipalities). This category is somewhat unclear, and there are no reliable data available.
4. Refugees or asylum seekers with an insecure residential status.
5. People living and working illegally in the area ("paperless people", "informal economy"); no figures available.

3.3.1 Commuters

The figures given below for commuting at the level of the different city zones should be seen in context of the following data about commuting at the metropolitan level, across the city boundaries. The information about commuting at the levels of city zones is less precise.

Figure 8.4. Commuting to/from Gothenburg 1993 – 2007* **



The number of commuters to Gothenburg has, in the past two decades, been significantly higher (between 80,000 and 100,000 annually) than the number commuting from Gothenburg to other places (between 20,000 and 40,000). However, commuting in both directions is slowly and continually increasing. A reasonable assumption for understanding the high and increasing level of commuting to Gothenburg is that significant parts of the working population (families with children) live in - or have moved to - the suburban areas close to Gothenburg, which are attractive for different reasons (quality of life, contact with nature etc.).

* Source: Göteborg (2010, diagram 8.13).

** Legend: Blue = incoming, Red = Outgoing.

Table 8.9. Gothenburg – commuting to/from the city according to municipality, 2007* **

| Kommun | Inpendling | Utpendling | Netto pendling | Andel som pendlar till Göteborg | Andel göteborgare som pendlar till |
|------------------------------|---------------|--------------|----------------|---------------------------------|------------------------------------|
| Ale | 6 173 | 1003 | 5170 | 45.6 | 0.4 |
| Alingsås | 3 052 | 592 | 2460 | 16.9 | 0.2 |
| Härryda | 7 522 | 3173 | 4349 | 44.8 | 1.3 |
| Kungsbacka | 13 097 | 2647 | 10450 | 36.1 | 1.1 |
| Kungälv | 8 089 | 2381 | 5708 | 40.2 | 1.0 |
| Lerum | 8 978 | 1317 | 7661 | 47.7 | 0.5 |
| Lilla Edet | 1 161 | 161 | 1000 | 19.0 | 0.1 |
| Mölnådal | 15 203 | 11951 | 3252 | 50.1 | 4.9 |
| Partille | 9 458 | 3256 | 6202 | 57.1 | 1.3 |
| Stenungsund | 3 067 | 846 | 2221 | 26.2 | 0.4 |
| Tjörn | 1 439 | 222 | 1217 | 19.4 | 0.1 |
| Öckerö | 2 898 | 354 | 2544 | 47.6 | 0.1 |
| Förorterna | 80137 | 27903 | 52234 | 39.7 | 11.5 |
| Bollebygd | 1006 | 114 | 892 | 23.5 | 0.0 |
| Borås | 2085 | 1488 | 597 | 4.3 | 0.6 |
| Falkenberg | 396 | 134 | 262 | 2.1 | 0.1 |
| Halmstad | 442 | 249 | 193 | 1.0 | 0.1 |
| Jönköping | 331 | 239 | 92 | 0.5 | 0.1 |
| Karlstad | 254 | 149 | 105 | 0.6 | 0.1 |
| Lidköping | 234 | 113 | 121 | 1.3 | 0.0 |
| Linköping | 202 | 153 | 49 | 0.3 | 0.1 |
| Lund | 209 | 168 | 41 | 0.4 | 0.1 |
| Lysekil | 258 | 89 | 169 | 3.8 | 0.0 |
| Malmö | 464 | 416 | 48 | 0.4 | 0.2 |
| Mark | 1679 | 306 | 1373 | 10.4 | 0.1 |
| Orust | 1039 | 164 | 875 | 13.8 | 0.1 |
| Skövde | 334 | 227 | 107 | 1.3 | 0.1 |
| Stockholm | 1234 | 2649 | -1415 | 0.3 | 1.1 |
| Trollhättan | 1073 | 529 | 544 | 4.2 | 0.2 |
| Uddevalla | 1283 | 505 | 778 | 5.4 | 0.2 |
| Ulricehamn | 224 | 50 | 174 | 2.0 | 0.0 |
| Varberg | 1420 | 502 | 918 | 5.0 | 0.2 |
| Värgårda | 330 | 140 | 190 | 5.9 | 0.1 |
| Vänersborg | 506 | 278 | 228 | 2.9 | 0.1 |
| Riket utom förorterna | 23645 | 15839 | 7806 | 0.6 | 6.6 |
| Totalt | 103782 | 43742 | 60040 | 2.4 | 18.1 |

Källa: SCB

* Source: Göteborg 2010, table 8.12.

** Legend: **Headline** – Municipality, Incoming commuters, Outgoing commuters, Net commuting, percentage of commuters to Gothenburg, percentage of Gothenburg inhabitants commuting to other areas.

Column – Municipalities close to Gothenburg (followed by names of these Municipalities), Sum of municipalities close to Gothenburg, Municipalities in the rest of Sweden, Sum of municipalities in the rest of Sweden (excluding municipalities close to Gothenburg).

Table 8.10. Commuting to and from Gothenburg*

| | Commuters to Gothenburg 1998 | Commuters from Gothenburg 1998 | Net 1998 |
|--------------|------------------------------|--------------------------------|--------------|
| Suburbs | 65 386 | 20 235 | 45 151 |
| Region | 14126 | 4085 | 10041 |
| National | 6520 | 5821 | 699 |
| Total | 86032 | 30141 | 55891 |

| | Commuters to Gothenburg 2002 | Commuters from Gothenburg 2002 | Net 2002 |
|--------------|------------------------------|--------------------------------|--------------|
| Suburbs | 69062 | 24422 | 44640 |
| Region | 15955 | 5038 | 10917 |
| National | 8353 | 8681 | -328 |
| Total | 93370 | 38141 | 55229 |

| | Commuters to Gothenburg 2008 | Commuters from Gothenburg 2008 | Net 2008 |
|--------------------------------------|------------------------------|--------------------------------|--------------|
| Suburbs | 81057 | 28817 | 52240 |
| Region | | | |
| National | 24518 | 15093 | 8615 |
| Total | 105575 | 44720 | 60855 |
| Increase in % 1998 - 2008 | 13% | 17% | 10% |

The main information source about transport and transport development for the metropolitan area of Gothenburg is the "Kollektivtrafikprogram för Göteborgsregionen", adopted in 2009 by the municipalities in the region ("kommunalförbund"), which aims to improve collective transport in the city and region and to shift transport from private car use/individual to collective transport. The long-term goal is to double the number of collective transport users from about half a million daily users in 2009 to about 1 million daily users in 2025. The measures to achieve the goals are described in the plan.

* Source: Own calculation, Municipality of Gothenburg (2010).

The statistical yearbooks of Gothenburg do not give precise data about commuting or mobility at the levels of the districts of the city and therefore it is not possible to recalculate these for the core, inner ring and coastal zone. Commuting is usually understood as commuting across the community borders, and short distance commuting between the different zones may be seen as a specific phenomenon. An indication of daily mobility is the day population (the number of jobs) in relation to the night population (the total residential population). A low ratio of the day population in relation to the night population can indicate higher, daily outward mobility. A high ratio of day population in relation to night population can indicate a higher, daily inward mobility. However, the ratio is only a preliminary indication since temporary inwards and outwards mobility also depends on the social composition of an area, the type of employment available, the age structure of the population, and family structures (who moves – children, women, men ?).

*Table 8.11. Night-/day population for Gothenburg, 2000 and 2005**

| YEAR | PART OF GOTHENBURG | NIGHT POPULATION | DAY POPULATION | RATIO |
|-------|--------------------|------------------|----------------|-------|
| 2000 | CORE | 134277 | 113783 | 85% |
| 2000 | INNER RING | 443561 | 168199 | 38% |
| 2000 | COASTAL ZONE | 68036 | 59316 | 87% |
| 2000 | OUTER RING | 118618 | 55547 | 47% |
| <hr/> | | | | |
| YEAR | PART OF GOTHENBURG | NIGHT POPULATION | DAY POPULATION | RATIO |
| 2005 | CORE | 140603 | 121825 | 87% |
| 2005 | INNER RING | 459213 | 183833 | 40% |
| 2005 | COASTAL ZONE | 72114 | 43977 | 61% |
| 2005 | OUTER RING | 125245 | 59714 | 48% |

From the available numbers of the "day population" and the "night population" an indication is given of work places available in the zone in relation to their populations. The figures for the years 2000 and 2005 indicate that, in most zones, out-movement during the day has decreased somewhat. Only in the coastal zone has it increased strongly – far more people left the coastal zone daily in 2005 (29%) than in 2000 (12%). This can be understood in terms of

* Source: own calculation based on Gothenburg Municipality (2010).

the coastal zone having assumed more of the character of a "dormitory town" over the years, becoming less a "working town".

The relative changes between night/day populations do vary strongly between the zones for both years:

- The difference is lowest in the core. In both years the day population is about 85% of the night population: there seems to be a large number of work places in the core, suggesting high levels of daily inwards commuting from other parts of the Gothenburg metropolitan area and region.
- The inner ring is the zone with the highest daily mobility and also the zone with the highest population in absolute numbers: 62 % of the residents in 2000 and 60% in 2005 leave the zone during the day, that is, they work in another zone of the city or outside the city. The inner ring is most clearly a "dormitory area".

The coastal zone was much more of a residential area in 2000 with most of the people staying there day and night (87%), but this was less pronounced in 2005 (61%). This significant change within 5 years can probably be explained by the continuing move out of industries etc. from the coast to other areas. The coast is, more and more, becoming an area for daily commuting rather than a place where you live and work.

- The outer ring is also a zone with high daily mobility: the day population is less than half of the residential population.

Although the figures do not state where people move to and the reasons for their mobility (the population figures include not only the population in the working age groups, but also younger and retired individuals) but the character of the different zones is quite clear. The core is relatively balanced in terms of population figures, which indicates that there are many working places located in the core. In all other zones far less people stay during the day than during the night which may indicate there is a lower number of work places in this zone in relation to the residential population numbers, but also higher mobility and commuting from these zones to other zones, or to outside the city.

3.3.2 Tourists

No exact figures are available from published statistics for tourist stays in the different city zones. The figures below are about tourism at regional and city levels. The figures calculated for the region of Västra Götaland, where Gothenburg is located (Tillväxtverket 2010,) indicate that the number of overnight stays (tourist and commercial travelers, counted in "guest nights") has continually grown every year between 2004 and 2010, with higher rates of growth before 2008 when the global economic crisis began. In 2010 there was again growth of overnight stays of 4.5%. The absolute number of traveler (tourists and commercial travelers) stays is higher in the Västra Götaland region (4-5 millions) than in the Scania region (about 3 million).

The tourists are very heterogeneous in terms of type and duration of stay: local, national and foreign tourists, and tourists staying in various forms of accommodation (hotels, hostels, camping grounds and "mobile homes"/trailers). The difference between tourists and temporary residents can also be blurred.

A study of development problems in the Swedish coastal areas (Boverket 2006: 25) gives the following picture of the Swedish West coast:

- The pressure in the coastal zone through tourism and temporary residence is high along the Northern part (from the Norwegian border to the South of Gothenburg) but not that high in the Southern parts and in the Malmö area.
- Areas under high pressure through tourism and second homes are nearly always identical with coastal areas of high cultural or environmental value and heritage.
- Nowhere along the Swedish West coast are there "remote rural areas" characterized by decreasing population and outmigration, resulting in problems for the municipalities in maintaining social and technical infrastructure and services.

A recent national study of tourism in Sweden (Tillväxtverket 2010: 29ff) gives the following information and figures for 2008 and 2009:

- Sweden has the highest number of overnight stays of visitors in Scandinavia, and the number has grown by about 37% between 1995 and 2009, and by about 2% between 2008 and 2009 ;
- Between 1998 and 2009 the 3 metropolitan areas of Sweden – Stockholm. Gothenburg and Malmö – experienced an increase of 40% in the number of stays of at least one overnight, with the figure being 43% in the Gothenburg area);

- 45 % of the overnight stays in 2009 are during the summer months from June to August (in 2008: 44%) – the period with predominantly tourist visitors and less conference or commercial travelers;
- The percentage of Swedish tourists is highest in the Gothenburg region (Västra Götaland: 15.9% of annual Swedish tourists in 2009), higher than in the Stockholm region (15.6%) and Scania where Malmö is located (9.1%);
- A national Swedish tourist spent in 2009 an average of 432 SEK per day, a commercial traveller 2162 SEK.

The location of hotels in the metropolitan area of Gothenburg shows that the city is not a typical coastal tourism area with hotels concentrated close to the beach or in the coastal zone, but instead these are distributed over the whole area, being concentrated in the core and inner ring.

Table 8.12. Tourism establishments Gothenburg: capacity and overnight stays 2008***

| Månad | Uthyrdarum (1000-tal) | Kapacitetutnyttjande, % | | | Gästnätter (1000-tal) | | |
|------------------|-----------------------|-------------------------|----------------|---------------|-----------------------|----------------|-----------|
| | | Totalt | Måndag-Torsdag | Fredag-Söndag | Sverige | Utlandet Antal | % |
| Januari | 119 | 57 | 64 | 47 | 165 | 42 | 25 |
| Februarj | 112 | 56 | 65 | 45 | 151 | 41 | 27 |
| Mars | 132 | 61 | 73 | 47 | 182 | 63 | 35 |
| April | 144 | 68 | 76 | 56 | 189 | 49 | 26 |
| Maj | 164 | 75 | 86 | 63 | 241 | 67 | 28 |
| Juni | 144 | 68 | 75 | 59 | 219 | 76 | 35 |
| Juli | 174 | 79 | 79 | 78 | 351 | 106 | 30 |
| Augusti | 149 | 67 | 72 | 62 | 247 | 74 | 30 |
| September | 168 | 77 | 85 | 65 | 219 | 71 | 32 |
| Oktober | 148 | 65 | 76 | 50 | 198 | 50 | 25 |
| November | 143 | 65 | 74 | 55 | 196 | 46 | 23 |
| December | 104 | 52 | 55 | 48 | 157 | 43 | 27 |
| Hela året | 1703 | 66 | 74 | 56 | 2506 | 727 | 29 |

* Source: Göteborg (2010: table 12.22).

** Legend: **Headline** - Month – rooms hired (in 1000s) – capacity used (totally, Monday - Thursday, Friday – Sunday), Guest nights in 1000s (Swedish, Foreign and % of foreign guest nights).

Column – Months and Sum for the whole year.

Table 8.13. *Hotel rooms and overnight stays in Gothenburg 2004-2008** **

| Rum, gästnätter m m | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| Disponibla (1000-tal) | | | | | |
| Rum | 2394 | 2442 | 2495 | 2515 | 2572 |
| Bäddar | 4736 | 4868 | 5092 | 5150 | 5271 |
| Belagda (1000-tal) | | | | | |
| Rum | 1432 | 2442 | 1639 | 1676 | 1703 |
| Bäddar | 2104 | 4868 | 2396 | 2494 | 2506 |
| Kapacitetsutnyttjande, % | | | | | |
| Rum | 60 | 63 | 66 | 67 | 66 |
| Bäddar | 45 | 47 | 47 | 48 | 48 |
| Gästnätter (1000-tal), totalt | | | | | |
| Sverige | 1384 | 1529 | 1622 | 1725 | 1778 |
| Övriga Norden | 244 | 260 | 255 | 231 | 238 |
| Övriga Europa | 295 | 310 | 324 | 312 | 319 |
| Övriga världen | 182 | 189 | 195 | 226 | 170 |

Källa: SCB (bearbetad av Turismens Utredningsinstitut)

As the statistics show, the larger shares of the tourists and visitors in Gothenburg are Swedish, while less than one third are foreign visitors. Further data about other tourism establishments (camping grounds, mobile homes) are not available from the statistical yearbook.

* Source: Göteborg (2010: table 12.20).

** Legend: **Headline** - Room, guest nights etc. – years (2004-2008).

Column - Room, guest nights etc – Available rooms, beds in 1000s – Used rooms, beds in 1000s, Capacity used in %, rooms, beds – Guest nights, total in Gothenburg, Sweden, rest of Northern countries, rest of Europe, rest of the world.

3.3.3 Cultural activities

From the published statistics we find no detailed information about the use of the different sub-city zones for cultural purposes. Only aggregate statistics are available in the following tables – visits of museums in Gothenburg, visits of theaters and opera, visits of amusement park Liseberg (sources: Gothenburg statistics).

Table 8.14. Visits to museums, 2005-2009, in Gothenburg*

| Muséer, m m | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|----------------|----------------|----------------|----------------|----------------|
| Göteborgs kommunala museer | 553 265 | 612 729 | 536 269 | 572 888 | 685 420 |
| Göteborgs stadsmuseum | 165 308 | 167 912 | 145 308 | 161 628 | 184 138 |
| Göteborgs konstmuseum | 163 600 | 248 198 | 170 218 | 143 272 | 229 812 |
| Göteborgs konsthall | 56 911 | 34 183 | 39 196 | 49 042 | 37 540 |
| Röhsska museet | 82 344 | 74 662 | 82 221 | 108 859 | 110 895 |
| Sjöfartsmuseet ¹ | 85 102 | 87 774 | 99 326 | 110 087 | 123 035 |
| Botaniska trädgården² | 325 900 | 468 150 | 548 100 | 586 500 | 605 100 |
| Växthusen | 61 100 | 55 200 | 69 500 | 84 700 | 82 400 |
| Palmhuset | 62 000 | 60 000 | 3 | 3 | 3 |

* Source: Göteborgs Muséer och Botaniska trädgården.

Table 8.15. *Vistits to specific theaters and opera, 2005-2009**

| Föreställningar m m | Spelår | | | | |
|------------------------------|--------|--------|--------|--------|--------|
| | 2005 | 2006 | 2007 | 2008 | 2009 |
| Göteborgs stadsteater | | | | | |
| Föreställningar | 590 | 577 | 590 | 702 | 633 |
| Besökande | 103530 | 112547 | 91784 | 122407 | 124977 |
| Besökande per föreställning | 175 | 195 | 156 | 174 | 197 |
| Stora scenen | | | | | |
| Föreställningar | 144 | 157 | 145 | 153 | 182 |
| Besökande | 52772 | 56784 | 47990 | 56641 | 70588 |
| Besökande per föreställning | 366 | 362 | 331 | 370 | 388 |
| Backa teater | | | | | |
| Föreställningar | 205 | 155 | 113 | 215 | 148 |
| Besökande | 20468 | 19867 | 9957 | 32893 | 18096 |
| Besökande per föreställning | 100 | 128 | 88 | 153 | 122 |
| Folkteatern | | | | | |
| Föreställningar | 507 | 498 | 441 | 221 | 222 |
| Besökande | 51152 | 49431 | 49640 | 39076 | 12001 |
| Besökande per föreställning | 101 | 99 | 113 | 177 | 54 |
| Järntorgsscenen | | | | | |
| Föreställningar | 131 | 137 | 92 | 394 | 1 |
| Besökande | 28069 | 29172 | 17703 | 50056 | |
| Besökande per föreställning | 214 | 213 | 192 | 127 | |
| GöteborgsOperan AB | | | | | |
| Föreställningar | 347 | 388 | 314 | 335 | 359 |
| Besökande | 232355 | 239459 | 246442 | 240276 | 221638 |
| Besökande per föreställning | 670 | 617 | 785 | 717 | 617 |
| Huvudscenen | | | | | |
| Föreställningar | 193 | 192 | 190 | 192 | 189 |
| Besökande | 201350 | 198160 | 208220 | 204006 | 191899 |
| Besökande per föreställning | 1043 | 1032 | 1096 | 1063 | 1015 |

* Source: Göteborgs stadsteater, Folkteatern och Göteborgs Operan.

The information from a recent study about tourism in Sweden (Tillväxtverket 2010) gives only the following information about numbers of annual visitors to major cultural events/features in the city, but no further indication of cultural activities in the different city zones (see Table 8.17). Figures are also available for the years 2000-2006 (see Västsvenska Turistrådet 2007: 42), but do not give a significantly more differentiated picture. For some features the numbers of annual visitors are continually growing, but for others, e.g. Liseberg amusement park, there was a slow reduction in visitors over the years 2000-2006.

Table 8.16. Liseberg AB, 2005-2009* **

| Besök m m | 2005 | 2006 | 2007 | 2008 | 2009 |
|-------------------------------|--------|--------|--------|--------|--------|
| Öppetdagar | 162 | 162 | 164 | 160 | 159 |
| Besökare, 1 000-tal | 3 116 | 2 929 | 3 139 | 2 960 | 3 046 |
| Medeltal besökare/dag | 19 234 | 18 080 | 19 140 | 18 500 | 19 157 |
| Attraktioner | 35 | 35 | 35 | 36 | 35 |
| Åkfrekvens, 1 000-tal | 15 732 | 15 075 | 15 613 | 14 878 | 14 193 |
| Omsättning ¹ , Mkr | 794 | 769 | 841 | 831 | 895 |

* Source: Liseberg AB.

** Legend: **Column** – Number of days opened, Visitors in 1000 persons, Mean number of visitors/day, Attractions, Frequency of rides on attractions, Turnover in million SEK.

Table 8.17. *Attendance at major cultural events/features in Gothenburg in 2009 and changes since 2008**

| | |
|--|-------------------------------|
| 1 Liseberg Göteborg (amusement park) | 3 100 000 (+100 000 or 0,3%) |
| 2 Folkets Park Malmö (peoples' park) | 2 650 000 (+20 000 or 0,8%) |
| 3 Kulturhuset Stockholm (cultural center) | 2 323 835 (-228 995 or -9,0%) |
| 4 Sälens skidanläggningar 2 Malung (ski tourism) | 2 074 001 (+164 000 or 8,6%) |
| 5 Fyrishov Uppsala | 1 778 000 (+71 000 or 4,2%) |
| 6 Skansen Stockholm | 1 405 128 (+52 883 or 3,9%) |
| 7 Globe Arena Stockholm | 1 300 000 (-17 429 or -1,3%) |
| 8 Eriksdalsbadet Stockholm (bathing) | 1 267 036 (+50 008 or 4,1%) |
| 9 Gröna Lund Stockholm | 1 248 135 (+134 383 or 12,1%) |
| 10 Vasamuseét Stockholm (ship museum) | 1 154 615 (+10 211 or 0,9%) |
| 11 Svenska Mässan Göteborg (fair center) | 1 145 349 (-23 885 or -2,0%) |
| 12 Stockholmsmässan Stockholm (fair center) | 1 142 524 (-106 907 or -8,6%) |
| 13 Åre/Duved Åre | 1 088 001 (+33 000 or 3,1%) |
| 14 Rosvalla Nyköping | 934 000 (+14 000 or 1,5%) |
| 15 Domkyrkan i Lund (cathedral) | 780 000 (+80 000 or 11,4%) |
| 16 Söderåsen, naturomr. Svalöv | m fl 750 000 (- -) |
| 17 Ales Stenar Ystad | 750 000 (- -) |
| 18 Gustavsvik bad Örebro | 700 000 (+90 000 or 14,8%) |
| 19 Scandinavium Göteborg | 679 489 (-144 061 or -17,5%) |
| 20 Kolmårdens djurpark Norrköping | 621 352 (+85 352 or 15,9%) |
| 21 Naturhist. riksmuséet Stockholm | 620 141 (+273 524 or 78,9%) |
| 22 Kungliga slottet, Totalt Stockholm | 615 000 (+119 653 or 24,2%) |
| 23 Botaniska trädgården Göteborg (botan. garden) | 605 100 (+18 600 or 3,2%) |
| 24 Uppsala Domkyrka Uppsala | 600 000 (- -) |
| 25 Moderna museét Stockholm | 592 000 (+92 000 or 18,4%) |
| 26 Idre Fjäll Älvdalen | 548 000 (+80 000 or 17,1%) |
| 27 Vemdalen/Klövsjö Härjedalen | 548 000 (+46 000 or 9,2%) |
| 28 Dunkers Kulturhus Helsingborg | 540 100 (+ 1 100 or 2,0%) |
| 29 Universeum Göteborg (museum) | 524 034 (+19 034 or 3,8%) |
| 30 Malmö Arena Malmö | 515 000 (- -) |

* Source: Tillväxtverket (2010: 36).

3.3.4 Marine border recreational usage

Table 8.18. Harbours for leisure time boats, Gothenburg 2009* **

| Platser | Saltholmen | Björ-Landa | Fiske Bäck | Hins-holms-kilen | Hovås båthamn | Killings-holmen | Styrsö | Tors-Landa | Lindholmen | Rosen-lunds-kanal | Samt-liga |
|-------------|------------|------------|------------|------------------|---------------|-----------------|--------|------------|------------|-------------------|-----------|
| Förtöjning | 1 058 | 2 419 | 933 | 1 528 | 544 | 186 | 34 | 388 | 99 | 52 | 7 241 |
| Uppläggning | 251 | 1 448 | 770 | 865 | 257 | 8 | - | 690 | 28 | 1 | 4 318 |
| Hytter | 240 | 223 | 282 | 272 | 68 | 20 | - | 120 | - | - | 1 225 |

A recent study about trends in Swedish tourism (Tilväxtverket 2010: 50) indicates that the number of overnight stays of foreign yachts/private boats in Swedish harbors decreased strongly within one year (nearly 40%), while the total number of yacht visits (Swedish and foreign) reduced only 7.9 % between 2008 and 2009. A potential explanation for that may be that within this year the global financial and economic crisis had already effected that kind of travelling.

Table 8.19. Overnight stays in guest harbors (private recreational boats), according to nationality in 2009***

| Nationality | Nights | Percentage |
|--------------------------|----------------|--------------|
| Sweden | 867606 | 60.8 |
| Norway | 165530 | 11.6 |
| Germany | 154118 | 10.8 |
| Denmark | 138418 | 9.7 |
| Netherlands | 34271 | 2.4 |
| Finland | 29964 | 2.1 |
| Europe, rest | 31365 | 2.2 |
| Other parts of the world | 5709 | 0.4 |
| Total | 1426981 | 100.0 |

* Source: Göteborgsregionens Fritidshamnar AB, GREFAB.

** Legend - **Headline** – Harbours for leisure time boats in Gothenburg, Column – Availability of space for mooring, availability of space on land for boats during winter, availability of cabins.

*** Source: Tillväxtverket (2010: 50, own translation).

3.3.5 Temporary Mobility

Detailed figures of temporary mobility for the different sub-city zones are not available. The general picture for Swedish coastal areas, also valid for Gothenburg metropolitan area, is as follows.

The main element of temporary mobility, excepting commuting, is temporary residence at the coast; that is the seasonal residence of Swedes in summer houses/cottages owned by persons or families with a permanent residence in a municipality or city close by. Many Swedish families own such summer cottages, and many of these cottages are found in the coastal zone. They are not spread out as individual cottages over the coastal landscape (a phenomenon that is more common in Norway, where there are less restrictions on building and the location of summer cottages), but in concentrated settlements of the village type (called "colonies"; there are also "colony lots" in some areas inside cities). Summer cottages in Gothenburg are mainly found in the coastal suburban areas and in neighbouring municipalities. The archipelago islands in the coastal zone of Gothenburg are densely settled and part of the city, being less for temporary residence (although there may be many tourist and daytime visitors to the islands during the holiday season).

These seasonal residents can also be seen as a special form of (local) tourism. For the municipalities at the coast both phenomena, temporary residents and national or foreign tourists in the coastal zone, mainly during the summer season, constitute one broader group. In the areas where bathing places and summer cottages can be found along the coast, the number of temporary residents (described above) and tourists during the summer season may be much higher than the permanently resident population at the coast or the coastal municipalities. In the smaller coastal communities along the attractive Bohuslän coast, that is North of Gothenburg as far as the Norwegian border, the number of temporary residents plus tourists in the holiday season can be up to ten times higher than the permanent population. This causes a lot of resource use pressure and problems in terms of drinking water procurement, wastewater disposal, transport and services.

3.4 Mobility and Urbanization

3.4.1 Levels of public and private transport flows

The general information available (Göteborg stadskansliet 2009) indicates that private car traffic across the city boundaries declined in 2009 for the first time since 1993. The city administration's policy of sustainable development encourages environment-friendly modes of transport which has resulted in growing use of collective transport and "green" cars.

Table 8.20. Number of cars per 100 residents 2000 and 2005, and road network*

| Part of Gothenburg metropolitan area | 2000 | 2005 | Change 2000 - 2005 in % |
|---|---------------------------|-----------------------------|---------------------------------|
| CORE | 26 | 26 | 0% |
| INNER RING | 35 | 34 | -3% |
| OUTER RING | 48 | 49 | 2% |
| COASTAL ZONE | 41 | 42 | 2% |
| | | | |
| Municipality | Total Road length km 2005 | Total road surface km2 2005 | Road Surface as % of total land |
| Gothenburg (inner ring and core) | 2637 | 1970 | 4,38% |
| Mölnadal (inner ring Gothenburg) | 609 | 440 | 3,00% |
| Partille (inner ring Gothenburg) | 242 | 170 | 2,97% |
| Kungälv (Outer Ring Gothenburg) | 1059 | 630 | 1,73% |
| Kungsbacka (Outer Ring Gothenburg) | 2011 | 1250 | 2,04% |
| Öckerö (Outer Ring and Coastal Zone Gothenburg) | 138 | 90 | 3,47% |

3.4.2 Relationships: population mobility and land use changes

The data calculated for in-/outmigration in the three city zones, and the data calculated earlier in the project for WP 3 regarding land use for 2000 and 2005, and land use changes in that period, cannot simply be "overlaid" to identify connections between the forms and motives of human mobility and land use changes. The latter happen predominantly through planning and urban development. The figures for changes between the years in both datasets are different

* Source: Own calculations based on national and Gothenburg statistics.

and complex, almost not allowing for further interpretation of relationships between mobility and land use change. Additional information is required to establish relationships between population mobility and land use change, although the understanding of the interrelations between both processes of change is not always complicated. Some connections are intuitively clear – for instance, the long-term direction of human mobility through land use planning that implies decisions about land use for agriculture, economic development, industry, green areas, housing, and areas of new building. Although closeness to work may be an important motive for the choice of area of residence, it is not always "closeness to the workplace" that is important for where one lives and whether one moves. Mobility surveys show that combinations of several factors – good socio-cultural environment, being close to nature, a good environment for children, closeness to social service institutions and work, etc. – constitute "subjective" explanations for mobility.

Some data may be found in municipal planning materials. According to the current plan for Gothenburg, new housing areas should be located in already existing urban centres with good access to public transport. This policy is directly aimed at increasing population density in specific public transport hubs in Gothenburg, in order to increase travel by public transport. This is an example where the problems of increasing car traffic due to urban sprawl has triggered a response whereby land for residential areas is strategically planned close to public transport hubs.

*Table 8.21. Land use in Gothenburg 2000 and 2005**

| | | Core | Inner Ring | Outer Ring | Coastal Zone |
|--|------------|--------|------------|------------|--------------|
| Industrial or Commercial Units 2000 % | Gothenburg | 20,94% | 5,73% | 0,54% | 6,70% |
| Industrial or Commercial Units 2005 % | Gothenburg | 20,94% | 5,95% | 0,56% | 7,17% |
| Port Area 2000 % | Gothenburg | 3,72% | 0 | 0 | 0 |
| Port Area 2005 % | Gothenburg | 3,72% | 0,06% | 0 | 0,19% |
| Road and Rail Networks 2000 % | Gothenburg | 2,40% | 1,15% | 0,62% | 0 |
| Road and Rail Networks 2005 % | Gothenburg | 3,98% | 1,15% | 0,67% | 0 |
| Discountinous Urban Fabric 2000 % | Gothenburg | 28,62% | 17,81% | 7,21% | 26,32% |
| Discountinous Urban Fabric 2005 % | Gothenburg | 42,55% | 19,03% | 7,26% | 29,85% |

* Source: Own calculations based on national and Gothenburg statistics.

The available data on land use change that may be related to mobility are presented above. The most obvious land use changes related to mobility are the road and rail networks, which have increased in the core and outer ring. It can be hypothesized that increasing land use for industry and commerce as well as ports will further increase mobility. In Gothenburg, the share of industrial or commercial units in the total land area has increased in the inner ring, outer ring and coastal zone. Land used for ports has increased in the inner ring and coastal zone.

Finally, changes in the urban fabric may be affected by mobility patterns, and may in turn affect mobility pattern. A more dense urban fabric might, for example, decrease the need for car transport as the high share of urban fabric in the core in relation to total land correlates with a low number of cars per 100 residents. The significant increase of urban fabric in the core, inner ring and coastal zone could therefore be expected to generate a decrease in the number of cars per 100 residents. However, it should be noted that the huge increase in the discontinuous urban fabric in the core can be explained by a change in the classification of the continuous and discontinuous urban fabric, whereby the continuous urban fabric has dramatically decreased and the discontinuous fabric has dramatically increased. While the number of cars per 100 residents has decreased slightly in the inner ring (from 35 to 34), it has remained the same in the core and increased from 41 to 42 in the coastal zone (see Table 8.20).

3.4.3 Relationships - population mobility and housing change

The information available about population changes, changes of household and mobility in and between the three different city zones present a somewhat complicated picture with the following patterns:

- In the long run the population in most zones has increased (slowly) but the number of single households has increased more, especially outside the core – which implies changes in lifestyles and housing. For example, more persons live permanently in one person households, and families with children move from rented flats into individual houses.
- The Swedish legal regulation for residence and housing (differentiating between different types of rights such as renting a flat, having a flat in a condominium, owning a flat or house individually) makes the changes between forms of housing relatively complex.

- The present general city plan directs new housing to areas that are public transport hubs, especially in the core and the centre as well as northern inner ring, a trend that is already visible in housing statistics. Through this planning policy the aim is to decrease the need for car transport and increase public transport.

3.4.4 Relationships - human mobility and urban population densities

Some information can be found in figures about population density, but these say little about the relationships between mobility and population density:

Table 8.22. *Area, population, population density in different zones of Gothenburg**

| | Core | Inner Ring | Outer Ring | Coastal Zone |
|--|-------------|-------------------|-------------------|---------------------|
| Total Area (hektar) | 3 370 | 63 024 | 100 206 | 18 145 |
| Number of Residents 2000 | 134277 | 443561 | 118618 | 68036 |
| Population Density (pers./hektar) 2000 | 39,84 | 7,04 | 1,18 | 3,75 |
| Number of Residents 2008 | 149043 | 477 205 | | 88 448 |
| Population Density (pers./hektar) 2008 | 44,22 | 7,57 | | 4,87 |

3.4.5 Mobility and household size

The changes in household size in connection with mobility at the level of the different zones cannot be identified from the secondary statistical data, although something is known from mobility studies by city planners, and from experience of the municipal administration: e.g. that changes of housing and mobility happen when there are changes in the household or family, or that when young people living in the core form a family they often move to other parts of the metropolitan area, where there are more larger apartments and houses.

* Source: own calculations based on Municipality of Gothenburg (2010.)

4. The Malmö Metropolitan Area

4.1 Overview of Urban Development

Southern Sweden, and the coastal zone especially, are the areas of highest population concentration in Sweden and the areas with slow population growth, currently evident mainly through in-migration. The population growth in the three coastal metropolitan areas of Sweden was relatively high between 1996 and 2005, higher than in most inland municipalities: 7.7% for Stockholm 5.9 % for Gothenburg and 8.9% for Malmö.

Table 8.23. Total land and number of residents in the different zones in Malmö*

| | CORE | INNER RING | OUTER RING | COASTAL ZONE |
|---------------------------------|--------------|--------------|-------------|--------------|
| Total Area (hectar) | 1 356 | 16 104 | 52 600 | 3 004 |
| Number of Residents 2000 | 99880 | 172732 | 86280 | 25716 |
| Persons per hectar | 73,67 | 10,73 | 1,64 | 8,56 |
| Number of Residents 2008 | 115761 | 181549 | | 34512 |
| Persons per hectar | 85,38 | 11,27 | | 11,49 |

The data indicate there is relative centralization since the increase in population density is much higher in the core than in the inner ring and coastal zone. It is, however, difficult to separate the trends in the different zones in analytical terms of absolute or relative (de-) centralisation. The increase in the coastal zone could also be seen as a centralisation, since the coastal zone overlaps with central Malmö to a large extent.

* Source: SCB and Municipality of Malmö (2010).

4.2 Migration

4.2.1 In- and outmigration

In- and outmigration surveys have been carried out in Malmö several times, and below we summarize the trends from 2004. The source is Malmö (2005) and a similar study was undertaken in 2001, published 2002. The 2005 report compares the trends in 2000 and 2004.

The households of in-migrants are relatively small with about 25% being one-person-households. In-migrating households are mainly from the region Scania and from Denmark. Danish in-migration has strongly increased in recent years. The education level of newcomers is higher than that of residents, a trend that became even stronger after 2001. In-migration is often connected with changing forms of housing, from small houses to houses with several families, from renting of flats to condominium/owning of flats. The size of the flat has often declined with in-migration. The dominant motive for moving to the city is to have access to its opportunities. Also important are closeness to Copenhagen, to the coast, to bathing places and parks. The motives for Danish newcomers differ from Swedish ones insofar as they seek good flats at low prices, and for them the rapid collective transport to Copenhagen is important. About 25% of the newcomers have already previously lived in Malmö. Most are satisfied with their in-migration (more than in the prior survey) and want to stay for a longer time. The most sought after flats are located in the center or at the coast.

4.2.2 Out-migration household survey 2005 - summary of results:

Families with children are especially likely to leave the city as are young people. The form of housing change softens with moving out – more than two thirds of the households move into small houses (in comparison, only 13 % had a small house in the city). The trend has been stronger since 2000. Moving out also implies that flats are less rented and more often likely to be owned, also a stronger trend since 2000.

The out-migrants had often lived for a long time in Malmö. The most important motive for moving is a good socio-cultural environment, without disturbance and good conditions for children to grow up, but also the search for a type of flat one wants to live in, a bigger flat. The costs of housing are important but less so municipal services and collective transport. If the conditions sought could have been found in Malmö, more than one third of the out-migrants

would have stayed. Nearly 60 percent of those moving out did not find an acceptable flat. Less out-migrants than in the earlier survey said that they wanted to move back.

In- and outmigration in the years 2000 and 2007 (see Table 8.24) shows, for the different parts of the city, a rather low change in net migration although the numbers of in- and out-migrants are relatively high.

Table 8.24. In-, out-, net migration in Malmö*

| | Population 2000 | In-migration 2000 | Out-migration 2000 | Net-migration 2000 | Net-migration 2000 as % of popul. |
|--------------|----------------------------|------------------------------|-------------------------------|-------------------------------|--|
| CORE | 99880 | 19395 | -18418 | 977 | 0,98% |
| INNER RING | 272612 | 15755 | -13204 | 2551 | 0,94% |
| COASTAL ZONE | 25716 | 3119 | -2781 | 338 | 1,31% |
| OUTER RING | 86280 | 4858 | -4378 | 480 | 0,56% |
| | Population 2007 | In-migration 2007 | Out-migration 2007 | Net-migration 2007 | Net-migration 2007 as % of popul. |
| CORE | 115042 | 22467 | -22 493 | -26 | -0,02% |
| INNER RING | 292 196 | 21789 | -18154 | 3635 | 1,24% |
| COASTAL ZONE | 32534 | 6162 | -4382 | 1780 | 5,47% |
| OUTER RING | 92945 | 5892 | -4883 | 1009 | 1,09% |
| COASTAL ZONE | 32534 | 6162 | -4382 | 1780 | 5,47% |
| OUTER RING | 92945 | 5892 | -4883 | 1009 | 1,09% |

* Source: Own calculation based on Municipality of Malmö (2010).

- In the core in-migration is somewhat higher than outmigration in 2000, but about the same in 2007.
- In the inner ring the net-migration is close to 1% of the total population in 2000 and somewhat higher in 2007 (1.24 %),
- In the outer ring net-migration constituted 0,56 % in 2000 and 1,09 % in 2007.
- Only in the coastal area has the situation changed significantly – the net-migration in 2000 was 1.31 % but was 5.47% in 2007. The coastal area has higher in-migration in Malmö compared to Gothenburg. The reason for this is that the central coastal zone of Malmö has witnessed a marked increase in the availability of housing, which increased by 31 % from 2000 to 2009.
- In the core, the share of in- and out migration of the total population is especially high, being 20 % in each case in 2007, compared to the inner ring where the share in 2007 was 7% and 6% respectively, indicating a high level of mobility in and out of the core.

Recent mobility (2009) to and from the municipality of Malmö (core, part of the inner ring, coastal zone) has the following characteristics:

- More people moved from the surrounding region to Malmö than the other way round.
- National migration (from other parts of Sweden to Malmö) was higher than outmigration from Malmö to other parts of Sweden.
- About double as many foreigners moved to Malmö than were leaving the city. In terms of net migration, foreigners constituted the highest number of in-migrants and contributed significantly to population growth in the city.

Table 8.25. Migration balance Malmö, 2010*

| | Migration to Malmö | Migration from Malmö | Net Migration |
|----------------------|--------------------|----------------------|---------------|
| Regional migration | 5906 | 4869 | 1037 |
| Outer Ring Migration | 1514 | 2169 | -655 |
| National Migration | 5497 | 4328 | 1169 |
| Foreign Migration | 7856 | 3649 | 4207 |

4.2.3 Origins of net- and in-migration

There are no statistics showing the origins of net- and in-migration in the core, inner ring and coastal zone. Table 8.25 shows the origin of in-migration to the municipality of Malmö (core, parts of the inner ring, coastal zone). The table shows that foreign migration to Malmö was larger than migration from the outer ring, region and other parts of Sweden, respectively.

4.2.4 Social composition of in-migration v outmigration

Detailed data for the age classes of the migrants are not available but some estimates (also for the social and ethnic structure of migrants) can be made from the migration surveys available for Malmö city. Information about the social structures - age, social class, ethnicity - of the in-migrants and out-migrants is not found at the level of the different zones. Some other indicators - income level, number of cars per 100 inhabitants, mean size of households, income levels, employment and unemployment, education level - that have been calculated for all zones for the years 2000 and 2005 can be seen as indicators that can give information about the social composition of the population in every zone and its change over those years. They may give information which shows the characteristic situation and trends in the different zones, but this is not necessarily the same for the in- and out-moving groups.

The calculation of the educational level of inhabitants in the different zones and the level of income of the inhabitants in the different zones are as follows:

* Source: Municipality of Malmö (2010).

Table 8.26. *Population of Malmö, aged 20-64 years, education levels***

malmo.se | Kommun & politik | Statistik om Malmö | 09. Stadsdelar | Utbildningsnivå

Befolkning 20-64 år efter utbildningsnivå 2009

| | Förgymnasial | Gymnasial | Eftergymnasial - Forskarutbildning | Total | Andel % |
|-----------------------|---------------|---------------|---------------------------------------|----------------|------------|
| Centrum | 2 581 | 10 162 | 18 538 | 32 550 | 4 |
| Södra Innerstaden | 3 238 | 8 840 | 11 969 | 25 299 | 5 |
| Västra Innerstaden | 1 395 | 7 049 | 11 944 | 20 728 | 2 |
| Limhamn- Bunkeflo | 1 828 | 8 384 | 11 273 | 22 407 | 4 |
| Hyllie | 2 956 | 7 755 | 5 633 | 17 161 | 5 |
| Fosie | 5 427 | 11 496 | 6 396 | 25 382 | 8 |
| Oxie | 1 194 | 3 526 | 1 916 | 7 086 | 6 |
| Rosengård | 3 757 | 4 923 | 2 573 | 12 596 | 11 |
| Husie | 1 588 | 5 157 | 3 658 | 10 671 | 3 |
| Kirseberg | 1 482 | 4 075 | 3 214 | 9 252 | 5 |
| Malmö | 25 799 | 71 774 | 77 331 | 184 385 | 5 |

Table 8.26 shows that the level of education is high in the core (Centrum, Södra Innerstaden and Västra Innerstaden) and in the coastal zone (Centrum, Västra Innerstaden and Limhamn – Bunkeflo), and low in specific parts of the inner ring (Rosengård, Oxie). In Malmö, as well as in Gothenburg, the level of income tends to be low in those areas where the share of the inhabitants with a foreign background is relatively high (see Table 8.27).

The number of foreign inhabitants in Malmö changed between 2000 and 2009. The number of foreign inhabitants was much higher in the core and inner ring (20-30%, in both zones and slowly growing in that period) than in the coastal zone. An explanation for that seems to be the dense building structure in the inner parts of the city where more flats at lower prices are available for immigrants and less wealthy parts of the population. The percentage of foreign inhabitants in the coastal zone was significantly lower compared to the core and inner ring, but increased significantly from 9% in 2000 to 15% in 2009.

* Source: Statistics of Malmö.

** Legend: Förgymnasial = without secondary school, Gymnasial = with secondary school, Eftergymnasial/forskarutbildning = High school or research education.

Table 8.27. *Average income, 2000 and 2005**

| | CORE | INNER RING | OUTER RING | COASTAL ZONE |
|----------------------------|---------------|---------------|---------------|---------------|
| Average Income 2000 | 164213 | 161802 | 219288 | 256029 |
| Average Income 2005 | 183890 | 190930 | 245216 | 292973 |
| Increase in % | 12% | 18% | 12% | 14% |

As Table 8.27 shows, the mean income of the inner ring has increased more than in the other metropolitan areas of Malmö, possibly due to a change in the social composition of in-migration to the inner ring. The table also indicates significant differences in the social composition of the four metropolitan areas with large differences in their mean incomes.

4.2.5 Population change and net migration

There is no detailed statistical information available from published statistics about population change and net migration at the levels of the sub-city zones. The general picture available for the whole city of Malmö is that the population is slowly growing as also is in-migration. Population change is largely a result of in-migration

Since the opening of the Öresund Bridge to Copenhagen in 2000, Malmö has attracted a significant number of Danish inhabitants. The number of Danish inhabitants in Malmö has more than doubled between 2000 (about 4000, 1.3% of the total city population) and 2009 (about 9000, 3.1% of the total city population). A study of mobility and segregation (Malmö stadskontoret 2007) shows that Danish inhabitants, a relatively wealthy group, are concentrated in several parts of the city (see Tables 5 and 6, p.35 of this study): mainly in the located in the southern parts of the city with relatively few in the core and the coastal zone.

* Source: own calculation, national and Malmö statistics.

4.3 Temporary Mobility

An indication of daily mobility is the ratio of the day population (the number of jobs) to the night population (the total residential population). A low ratio of day population in relation to night population can indicate a higher, daily out-migration rate. In contrast, a high ratio of day population in relation to night population can indicate a higher, daily in-migration. However, the ratio is only a preliminary indication since daily and other temporary in- and out-migrations also depend on the social composition of an area and the type of employment available. The figures do not relate to other forms of temporary migration but only to daily mobility/commuting.

*Table 8.28. Day and night populations in Malmö for different city zones**

| YEAR | PART OF MALMÖ | NIGHT POPULATION | DAY POPULATION | RATIO |
|------|---------------|---------------------|-------------------|-------|
| 2000 | CORE | 99880 | 57009 | 57% |
| 2000 | INNER RING | 172732 | 78287 | 45% |
| 2000 | COASTAL ZONE | 25716 | 14693 | 57% |
| 2000 | OUTER RING | 86280 | 21206 | 25% |
| YEAR | PART OF MALMÖ | NIGHT POPULATION | DAY POPULATION | RATIO |
| 2005 | CORE | 105470 | 57673 | 55% |
| 2005 | INNER RING | 178992 | 85744 | 48% |
| 2005 | COASTAL ZONE | 29108 | 17117 | 59% |
| 2005 | OUTER RING | 89894 | 22848 | 25% |

* Source: Authors' calculation, national and Malmö statistics.

4.3.1 Commuters

From 2005 onwards the number of commuters (incoming and outgoing) in the Malmö area has been increasing more rapidly, with the number of incoming commuters being more than double that for outgoing movements. The growth of commuter numbers supports the impression of a rapidly growing and dynamic area, but also that there are transport problems and pressures on transport infrastructure resulting from commuting – a source of manifold potential conflicts.

Table 8.29. *Commuting to and from Malmö (work related)**

| | Commuters to Malmö | Commuters from Malmö | Commuting net |
|------|---------------------------|-----------------------------|----------------------|
| 1995 | 43 636 | 15 053 | 28 585 |
| 1996 | 43 837 | 15 741 | 28 096 |
| 1997 | 42 661 | 16 016 | 26 645 |
| 1998 | 46 296 | 17 440 | 28 856 |
| 1999 | 47 890 | 18 309 | 29 581 |
| 2000 | 49 444 | 19 778 | 29 666 |
| 2001 | 50 473 | 20 188 | 30 285 |
| 2002 | 51 329 | 21 311 | 30 018 |
| 2003 | 49 862 | 21 773 | 28 089 |
| 2004 | 50 613 | 22 875 | 27 738 |
| 2005 | 52 916 | 23 899 | 29 017 |
| 2006 | 54 727 | 25 033 | 29 694 |
| 2007 | 58 206 | 26 070 | 32 136 |
| 2008 | 59 626 | 26 800 | 32 826 |

* Source: Swedish National Office of Statistics, SCB AMPAK.

The statistical yearbooks of Malmö do not give exact data about commuting or mobility at the level of the districts of the city such that could be used to recalculate data for the core, inner ring and coastal zone. Commuting is usually understood as commuting across the community borders; short distance commuting between the different zones may be seen as a specific phenomenon.

An indication of daily, short-term migration and mobility is the ratio of day population (employment) to the night population (the total residential population). The figures for the years 2000 and 2005 indicate that the level of daily movement out of every zone has not changed significantly between the two years, and there is no general trend observable that the level of mobility has increased or decreased significantly. However, in two zones, the inner ring and coastal zone, daily mobility has increased modestly (1-3%) from 2000 to 2005.

The day/night population ratios do, however, vary between the zones, for both years:

- The ratio is highest in the core and coastal zone, indicating daily commuting into these metropolitan areas. However the ratio for the core of Malmö is significantly lower than for the core of Gothenburg.
- The ratio for the outer ring zone was in both years, 2000 and 2005, low in relation to the other three metropolitan zones, indicating daily commuting from the outer ring to the inner ring, core and coastal zone.

Although the figures do not indicated where people move to, and for what specific reasons, the character of the different zones is rather clear. All zones have significant levels of population moving out daily, mainly for employment reasons. The highest percentage of population leaving daily is in the outer ring, suggesting that this is a "dormitory town".

The statistical figures about the day/night population need to be interpreted cautiously. They give an indication of the relation between the working population and the total (residential) population. Comparing the ratios between the day/night population in the different sub-city zones of Malmö and Gothenburg shows that the difference in the core of Gothenburg is not as high as in Malmö, which indicates that commuting to the core in Malmö is relatively less than in Gothenburg . In other words, there are less workplaces in the core of Malmö in relation to its population than in Gothenburg.

Another indication of commuting is provided by examining the rates of traffic on specific roads in the Malmö metropolitan areas. However, traffic flows on specific roads are continuously affected by changes in the road systems (new roads, regulations etc.). A decrease in the traffic flow on particular roads might, for example, be explained by an increase in traffic on an alternative route. Table 8.30 shows the traffic flows on selected roads in Malmö.

*Table 8.30. Traffic flows on selected roads in Malmö**

| Road | 2000 | 2005 | 2009 | Change 2000 - 2009 in % |
|---------------------|-------------|-------------|-------------|--------------------------------|
| Amiralsgatan (1) | 24 200 | 22 900 | 21 300 | -12% |
| Sallerupsvägen (2) | 50 200 | 52 700 | 55 200 | 10% |
| Ystadvägen (3) | 36 000 | 42 300 | 43 000 | 19% |
| Köpenhamnsvägen (4) | 10 500 | 12 100 | 11 400 | 9% |

(1) Road connecting the central inner ring and core.

(2) Road connecting inner ring with core and outer ring and further south.

(3) Road connecting core with inner ring, outer ring and further south.

(4) Road connecting the central inner ring with the coastal zone.

Statistics on commuting by public transport (bus) show an increase in the volume of travel in Malmö from 21,700,000 trips in 2000 to 34,100,000 in 2010, an increase of 57 %*. There are several explanations for the large increase in commuting, two obvious ones being: part of the increase can be attributed to the population increase in Malmö metropolitan area; another reason can be the bridge to Copenhagen which was opened in 2000 and has facilitated commuting between the two cities.

* Source: Statistics Malmö.

* Source: <http://www.skanetrafiken.se/templates/InformationPage.aspx?id=31704&epslanguage=SV>

4.3.2 Tourists

The study of development problems in the Swedish coastal areas (Boverket 2006: 25) gives the following general picture of the Swedish West coast:

- The pressure in the coastal zone through tourism and temporary residence is high along the northern part (from the Norwegian border to South of Gothenburg), and is not that high in the southern parts and in the Malmö area.
- Areas under high pressure through tourism and second homes are nearly always coastal areas of high cultural or environmental value and heritage.
- Nowhere along the Swedish West coast can be found the phenomenon of "remote rural areas", characterized by decreasing population and outmigration, with municipalities facing problems in maintaining social and technical infrastructures and services.

The recent national study of tourism in Sweden (Tillväxtverket 2010: 29ff) gives, for the year 2009 (and changes since 2008), the following information and figures (see sheet 2.4 Tourism):

- Sweden has the highest number of overnight stays of visitors in Scandinavia: the number has grown about 37% between 1995 and 2009, and by 2% between 2008 and 2009;
- Between 1998 and 2009 the three metropolitan areas of Sweden – Stockholm, Gothenburg and Malmö – experienced an increase of overnight stays of 40% or more (43% in the Gothenburg area);
- 45 % of the overnight stays in 2009 were during the summer months, from June to August (in 2008: 44%): this is the season with predominantly tourist visitors, and less conference or commercial travelers;
- The percentage of Swedish tourists is highest in the Gothenburg region (Västra Götaland: 15.9% of annual Swedish tourists in 2009), higher than in the Stockholm region (15.6%) and in Scania where Malmö is located (9.1%);

- A national Swedish tourist spent an average of 432 SEK per day in 2009, while a commercial traveler spent 2162 SEK.

The figures calculated for the region of Scania, where Malmö is located (Tillväxtverket 2010), indicate that the number of overnight stays (tourists and commercial travelers) has continually grown for the period 2003 to 2010, with strong growth until 2007. In 2008 and 2010 the growth in numbers was below 1%, while in 2009 it was 3.2%, so for recent years the figures indicate that the general economic crisis is visible in reduced tourist numbers. The absolute number of traveler (tourists and commercial travelers) overnight stays is lower in the Scania region (about 3 million in recent years) than in the Gothenburg area where it is 4-5 million. As living standards and price levels are higher in Denmark than in Sweden, the opening of the bridge between Copenhagen and Malmö may not only have allowed for more commuting between the two cities, also for more Danish shopping tourism in Malmö.

4.3.3 Cultural visits

From the published statistics there is no detailed information about the use of the different sub-city zones for cultural purposes. The information provided in a recent study about tourism in Sweden (Tillväxtverket 2010) gives only the following limited information about annual numbers of visitors to major cultural events/features in the city, but no further indication of cultural activities in the different city zones (see Table 8.31).

Table 8.31. *Attendance at major cultural events/features in Malmö in 2009, and changes 2008-9****Information about Malmö marked in the list of most-visited events/features in Sweden:**

| | |
|---|-------------------------------|
| 1 Liseberg Göteborg (amusement park) | 3 100 000 (+100 000 or 0,3%) |
| 2 Folkets Park Malmö (peoples' park) | 2 650 000 (+20 000 or 0,8%) |
| 3 Kulturhuset Stockholm (cultural center) | 2 323 835 (-228 995 or -9,0%) |
| 4 Sä lens skidanläggningar 2 Malung (ski tourism) | 2 074 0001 (+164 000 or 8,6%) |
| 5 Fyrishov Uppsala | 1 778 000 (+71 000 or 4,2%) |
| 6 Skansen Stockholm | 1 405 128 (+52 883 or 3,9%) |
| 7 Globe Arena Stockholm | 1 300 000 (-17 429 or -1,3%) |
| 8 Eriksdalsbadet Stockholm (bathing) | 1 267 036 (+50 008 or 4,1%) |
| 9 Gröna Lund Stockholm | 1 248 135 (+134 383 or 12,1%) |
| 10 Vasamuseét Stockholm (ship museum) | 1 154 615 (+10 211 or 0,9%) |
| 11 Svenska Mässan Göteborg (fair center) | 1 145 349 (-23 885 or -2,0%) |
| 12 Stockholmsmässan Stockholm (fair center) | 1 142 524 (-106 907 or -8,6%) |
| 13 Åre/Duved Åre | 1 088 001 (+33 000 or 3,1%) |
| 14 Rosvalla Nyköping | 934 000 (+14 000 or 1,5%) |
| 15 Domekyrkan i Lund (cathedral) | 780 000 (+80 000 or 11,4%) |
| 16 Söderåsen, naturomr. Svalöv | m fl 750 000 (- -) |
| 17 Ales Stenar Ystad | 750 000 (- -) |
| 18 Gustavsvik bad Örebro | 700 000 (+90 000 or 14,8%) |
| 19 Scandinavium Göteborg | 679 489 (-144 061 or -17,5%) |
| 20 Kolmårdens djurpark Norrköping | 621 352 (+85 352 or 15,9%) |
| 21 Naturhist. riksmuséet Stockholm | 620 141 (+273 524 or 78,9%) |
| 22 Kungliga slottet, Totalt Stockholm | 615 000 (+119 653 or 24,2%) |
| 23 Botaniska trädgården Göteborg | 605 100 (+18 600 or 3,2%) |
| 24 Uppsala Domkyrka Uppsala | 600 000 (- -) |
| 25 Moderna museét Stockholm | 592 000 (+92 000 or 18,4%) |
| 26 Idre Fjäll Älvdalen | 548 001 (+80 000 or 17,1%) |
| 27 Vemdalen/Klöv sjö Härjedalen | 548 001 (+46 000 or 9,2%) |
| 28 Dunkers Kulturhus Helsingborg | 540 100 (+ 1 100 or 2,0%) |
| 29 Universeum Göteborg | 524 034 (+19 034 or 3,8%) |
| 30 Malmö Arena Malmö | 515 000 (- -) |

* Source: Tillväxtverket (2010: 36).

Table 8.32 shows that more than 60% of the people staying in private boats overnight in Malmö harbors are Swedish, and amongst the foreign boat visitors the largest numbers are from the countries around the Baltic Sea and Scandinavia. The significant decrease of foreign visitors from 2008 to 2009 seems to be a consequence of the global financial and economic crisis since 2008.

*Table 8.32. Overnight stays in guest harbors (private recreational boats), according to nationality in 2009**

| Nationality | Nights | Percentage | 09/08 percent |
|--------------------------|-----------------|-------------------|----------------------|
| Sweden | 867606 | 60.8 | -0.7 |
| Germany | 154118 | 10.8 | -46.8 |
| Denmark | 138418 | 9.7 | -24.9 |
| Netherlands | 34271 | 2.4 | -34.9 |
| Finland | 29964 | 2.1 | 1.8 |
| Europe, rest | 31365 | 2.2 | -43.8 |
| Other parts of the world | 5709 | 0.4 | -59.1 |
| Total | 1.426981 | 100 | -7,9 |

4.4 Mobility and Urbanization

4.4.1 Relationships - population mobility and land use changes

The data calculated for in-/outmigration in the three city zones and the land use data for the years 2000 and 2005, and land use changes in that period, cannot simply be "overlaid" to identify connections between the forms and motives of human mobility and land use change. The latter happens predominantly through planning and urban development. The figures for changes between the years in both datasets are differing and complex, and almost do not allow for further interpretation of relationships between mobility and land use changes. Additional information is required to establish relationships between population mobility and land use change, although understanding of the interrelations between both processes of change is not always complicated. Some connections are intuitively clear – for instance, the long-term directing of human mobility through land use planning, that is through decisions about land use for agriculture, economic development, industry, green areas, housing, areas of new building.

* Source: Tillväxtverket (2010: 50), own translation.

Although closeness to work may be an important motive for the choice of the area to live, it is not always being "close to the workplace" that is important for where one lives and whether one moves. Mobility surveys show that combinations of several factors – a good socio-cultural environment, being close to nature, a good environment for children, closeness to social service institutions and work, etc. – together constitute the "subjective" explanations for mobility.

*Table 8.33. Data related to land use in Malmö**

| | | Core | Inner Ring | Outer Ring |
|--|-------|---------------|---------------|--------------|
| Industrial or Commercial Units 2000 % | Malmö | 6,79% | 5,43% | 0,43% |
| Industrial or Commercial Units 2005 % | Malmö | 6,79% | 6,75% | 0,47% |
| Road and Rail Networks 2000 % | Malmö | 2,66% | 6,30% | 0,92% |
| Road and Rail Networks 2005 % | Malmö | 2,66% | 6,56% | 0,94% |
| Discountinous Urban Fabric 2000 % | Malmö | 63,74% | 23,22% | 7,52% |
| Discountinous Urban Fabric 2005 % | Malmö | 63,74% | 25,31% | 7,80% |

The available data on land use change that may be related to mobility are presented above. The most obvious land use change related to mobility is in the road and rail networks, which have increased in the inner ring and core. It can be hypothesized that increasing land use for industry and commerce will further increase mobility. In Malmö, the share of industrial or commercial units in the total land use has increased in both the inner ring and the outer ring. Finally, changes in the urban fabric may be affected by mobility patterns, and may in turn affect the mobility pattern. A more dense urban fabric might, for example, decrease the need for car transport as the high share of urban fabric in the core in relation to total land correlates with a low number of cars per 100 residents. The increasing share of the urban fabric in the inner ring could therefore be expected to generate a decrease in the number of cars per 100 residents in the inner ring. However, the statistics for the inner ring show an increase from 44 to 46 cars per 100 residents.

* Source: own calculation based on national and Malmö statistics.

4.4.2 Relationships - population mobility and housing change

The information available about population changes, changes of household and mobility in and between the three different city zones gives a somewhat complicated picture with the following patterns:

- In the long run the number of people in most zones has increased (slowly) but the number of single households has increased more, especially outside the core. This implies changes in lifestyles and housing – e.g. more persons live permanently in one person households, families with children moving from rented flats into individual houses, etc.
- The Swedish legal regulation for residence and housing (differentiating between different types of rights such as renting a flat, having a flat in a condominium, owning a flat or house individually) makes the changes between different forms of housing somewhat complex.

The conclusion is, that the increase in housing in Malmö is primarily located in the central coastal zone (an increase of 31 % between 2000 and 2008). This will increase migration to the coastal zone and probably also the mobility between the coastal zone and other parts of Malmö.

4.4.3 Relationships - human mobility and urban population densities

Figures for population density and number of cars show that there is a correlation between high population density and low numbers of cars per 100 inhabitants (see Table 8.34).

Table 8.34. Population density and number of cars*

| | | | | | |
|--|--------------|--------------|--------------|-------------|--------------|
| Total Area (hektar) | Malmö | 1 356 | 16 104 | 52 600 | 3 004 |
| Number of Residents 2000 | Malmö | 99880 | 172732 | 86280 | 25716 |
| Population Density (pers./hektar) 2000 | Malmö | 73,67 | 10,73 | 1,64 | 8,56 |
| Number of Residents 2008 | Malmö | 115761 | 181549 | | 34512 |
| Population Density (pers./hektar) 2008 | Malmö | 85,38 | 11,27 | | 11,49 |

| Time Frame A: 2000 | | | | | |
|---|------------------------|-------------|-------------------|-------------------|---------------------|
| | Case Study Name | Core | Inner Ring | Outer Ring | Coastal Zone |
| Number of Cars | Malmö | 23795 | 76618 | 45325 | 9605 |
| Number of Cars per 100 residents | Malmö | 24 | 44 | 52 | 37 |
| Number of Households | Malmö | 59845 | 72760 | 37921 | 13169 |
| Mean size of Households | Malmö | 1,66 | 2,37 | 2,28 | 1,95 |
| Number of Residents | Malmö | 99880 | 172732 | 86280 | 25716 |
| Time Frame B: 2005 | | | | | |
| | Case Study Name | Core | Inner Ring | Outer Ring | Coastal Zone |
| Number of Cars | Malmö | 26220 | 82834 | 47295 | 11318 |
| Number of Cars per 100 residents | Malmö | 25 | 46 | 53 | 39 |
| Number of Households | Malmö | 63010 | 75228 | 39632 | 15393 |
| Mean size of Households | Malmö | 1,67 | 2,38 | 2,27 | 1,89 |
| Number of Residents | Malmö | 105470 | 178992 | 89894 | 29108 |

* Sources: own calculations based on national and Malmö statistics.

4.4.4 Mobility and household size

The only information available indicates that the core of Malmö has the highest number of small apartments (see spreadsheet on housing, conclusion), and that the core has lower numbers of cars per 100 inhabitants. We can also say – referring to mobility surveys from Malmö city – that when young people living in the core form a family, they often move to other parts of the metropolitan area, where there are more, larger apartments, and houses.

5. Conclusion: Main human environmental conflicts resulting from human mobility

Urban integration and segregation as a consequence of human mobility is connected with manifold social and other conflicts. Both processes should be seen as conflict-related, not only segregation which may be perceived as conflicting in respect of integration. The identification of these manifold conflicts requires further analysis and other sources in addition to the statistical data collected for this analysis. The statistics show tensions and conflicts sometimes at an abstract level, but not the social reality of perceived and actually happening conflicts, for which in-depth case studies are required. Such studies have been carried out in both metropolitan areas in a more specific work package that is devoted to conflict analysis (Secoa Work Package 4).

Human mobility is primarily seen as a social process with many forms and causes, among which economic and livelihood issues are salient. As one of the aims of the Secoa project is to study the interaction between socio-economic and environmental processes, environment related conflicts are one of the focus themes. Such conflicts are, as is more visible in the detailed conflicts studied in Work Package 4, in manifold ways connected with social, cultural and economic conflicts and the reasons for such conflicts. This multidimensionality of conflicts seems characteristic, especially in metropolitan coastal areas. The following identification of potential environmental conflicts related to human mobility in urban areas is a first step towards in-depth conflict analysis, to connect the research themes of urban mobility, natural resource use and environmental conflicts.

For the assessment of the impact of human mobility and urbanization on the natural environment in coastal areas, the investigation of mobility patterns within both metropolitan areas provides a context; further analyses need to be done in later tasks and research. The statistical data produced for the different migration and human mobility aspects described in

the first three parts of the report do not yet give a clear picture of the (environmental) conflicts implied in human mobility – in terms of conflicts between different social or resource user groups, different forms of use, or transport related problems and conflicts. The conflicts that can be "read" into the statistics are diffuse or latent phenomena, more potential than manifest conflicts between specific groups. Furthermore, the conflicts can be overlapping with many other types of conflicts (multidimensional conflicts) when they become manifest conflicts, so that the causal significance of human mobility in these conflicts becomes a matter of inexact assessment and valuation. A widespread pattern of social conflicts related to human mobility is that of social and ethnic segregation that may be reinforced through environmental or natural resource use conflicts – as characteristically discussed under headings such as "environmental justice" or "environmental discrimination". Mobility related conflicts may not directly be connected to environmental or resource use problems, but indirectly through various "mediating factors" that influence land and resource use in urban areas: the urban and physical planning processes, building and housing policies, infrastructure and urban development processes.

5.1 Gothenburg

5.1.1 Potential human environmental conflicts resulting from human mobility

Simple indicators of potential conflicts can, for example, be: the location and concentration of new building and residential areas – mobility is directed and limited by the scarce resource of houses or flats. In metropolitan areas such as Gothenburg, with continuous in-migration and population growth, there is nearly always a critical shortage of apartments for new inhabitants.

Some information about mobility related environmental or resource use conflicts is available from sources other than standard secondary statistics (non-periodic studies etc.), especially from surveys including those on mobility phenomena that the city of Gothenburg has undertaken, or recent scientific studies. Much of that information starts from diagnoses of segregation and its conflicting effects. The following information is from such a study (Göteborgs Stadskansli 2009).

The study avoids talking about conflicts but gives a detailed diagnosis of urban development problems that may give rise to resource and mobility related conflicts: The dramatic deterioration of the economy since the global financial crisis in 2008 brought growing segregation and disparity in the employment and incomes of different groups of inhabitants,

with particularly severe consequences mainly for those who were already in a critical economic and employment situation. Unemployment is expected to be at the 11% level in 2010 and 2011 and thereafter will only decline slowly. The number of households receiving public economic support increased in 2009 (after several years of reduction). Car traffic across the city boundaries also declined for the first time since 1993. The high rate of construction of new apartments (in 2008 there were 2,600, the highest number since 1975, while there were more than 30,000 new flats from 1996 to 2008) is not enough to meet the needs of the growing population and is now reduced. The lack of available apartments means that real estate prices are expected to stay high (they have grown since the end of the 1990s); however the prices may fall in some years when unemployment remains high and the interest rate may be reduced by the national bank.

The results from this study and our analysis of the statistical data about human mobility, in the three zones of the core, inner ring and coastal zone of Gothenburg city, support the following list of human-environment conflicts in Gothenburg resulting from mobility:

1. In the coastal zone: A "classic" conflict about human mobility and the environment in both Gothenburg and Malmö – and along the whole West coast – relates to the transformation of summer houses into houses for permanent residence. This often happened without permission: owners of summer houses rebuilt these to make them usable for permanent residence and moved in permanently. The municipal administrations along the coast did at first try to block that process, but after some time gave up. Such conflicts continue today but are less important.

2. In Gothenburg there is increasing demand for more houses in the southern coastal zone, which so far has been restricted by the municipality due to limitations in both public transport and road capacity. This could develop into a conflict between the high demand and economic return from housing investments in the southern coastal zone and the current planning strategy to increase new housing close to public transportation hubs located primarily in the core and in the central as well as northern inner ring.

- The ongoing increase of residential areas in the core and central inner ring will probably create conflicts between the interests of the inhabitants of these new residential areas, the existing harbor activities close to these areas and the strategic transportation routes that cut across these areas. Furthermore, new residential areas constructed on the northern shore of the Göta River may increase the need for mobility across the river.

This, in turn, may create conflicts in terms of the use of the Göta River between personal transport across the river and the transportation of goods along the river.

5.2 Malmö

5.2.1 Potential human environmental conflicts resulting from human mobility

Some information about mobility related environmental or resource use conflicts is available from other sources but statistics (non-periodical studies etc.), especially from surveys including those on mobility phenomena that the city of Malmö has undertaken repeatedly, show that the administration is aware of the manifold problems and conflicts related to mobility: much of that information starts from diagnoses of segregation and its conflicting effects.

5.2.2 Malmö – social polarization and segregation

Mathias Wallin (2010: 46) summarizes the results of his study on social polarization and segregation as follows:

- Socioeconomic segregation and social residents on have grown in Malmö between 1992 and 2006, with the differences between the richest and the poorest areas being persistently greater.
- Areas with similar socioeconomic index values tend to become more and more clustered, which implies that "poor" or "rich" areas are more and more marked and visible in the urban space.
- There is a very strong connection between the socioeconomic index value of a specific area and its form of housing. The negative connection between private renting and the socioeconomic index value is especially clear.
- Less strong is the connection between areas where rights of renting have been transformed into ownership rights and the development of these areas in terms of their socioeconomic index value. It can be argued that areas with high degrees of transformation are significantly richer.

A study by the Malmö City Planning Office (2007) shows in detail the problems of segregation, of in- and outmigration from Malmö, and how segregation can be affected by urban planning – it includes detailed data from all parts of the city and for different social and ethnic groups of inhabitants. Regarding conflicts, or their mitigation, one aspect mentioned is the interaction between green areas and built-up areas in the city (p. 77): In the municipal plan ("översiktsplan"), parks and green areas are mentioned cautiously. They can function as "public living rooms" instead of barriers that strengthen segregation – but this is not self-evident and the space should allow for active common use or complementary building (as happened with areas in Rosengård and Hyllie) to reduce segregation and isolation. Experience says that there is always resistance to initiatives to complement areas with high levels of owner occupied houses through a programme to build rented flats (there are examples in Annestad and Bunkeflostrand, with strong protests from the existing residents). The mix of groups living in an area and the status of that area do not always require activities in the form of planning and new building or changing buildings. Segregation has a counterpart in gentrification that can also happen when an area close by is renewed (example Bulltofta).

5.3 Human-environment conflicts resulting from mobility

The results for the studies presented above and our analysis of the statistical data about human mobility in the three zones of core, inner ring and coastal zone of Malmö city support the argument that the following important human-environment conflicts result from mobility:

1. In the coastal zone: A "classical" conflict about human mobility and the environment in both the areas of Gothenburg and Malmö – and along the whole West coast – is the transformation of summer houses into houses for permanent residence which often happened without permission: owners of summer houses rebuilt these to make them usable for permanent residence and then occupied them. The municipal administrations along the coast at first tried to block that process, but after some time gave up. Such conflicts continue today but are less important.

- The increase in mobility (as migration and commuting, and for shopping and recreation) between Malmö and Copenhagen as a result of the new highway and railroad bridge between Malmö and Copenhagen can be expected to generate increasing pressure on and competition for natural resources. Conflicts may result, for example, from

increasing demands for residential areas in Malmö, particularly along the coast, and in terms of increasing recreational use of fragile coastal areas.

Conflicts that are not yet sufficiently visible or manifest today, but can be foreseen as increasing and intensifying in future, are conflicts relating to climate change and its consequences of sea level rise, inundations, and extreme weather situations. Such conflicts can arise in the low elevation zones, especially where the density of buildings, residential and recreational building is high as it is in parts of both coastal metropolitan areas.

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CHAPTER IX.

The UK: Mobility, Internationalization and Polarization in Thames Gateway and Portsmouth

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1. Introduction: Two Contrasting Case Studies

The broad objective of this chapter is to analyse the influence of human mobility on urban development in two UK case studies, Portsmouth and Thames Gateway, taking into account the broad range of mobilities that characterize urban areas. In keeping with the general research methods in this programme of research, functional regions provide the territorial framework for the analysis: these are based on the analysis of employment densities and journeys to work at the scale of small area statistical units. This is particularly appropriate in the case of a study of flows, wherein one of the most significant shaper of urban social relationships is the pattern of journeys to work. In effect, this recognizes the way in which the economic and social dimensions of urban lives are shaped by mobilities which are played out in a broader spatial framework.

It is important to note that both metropolitan regions are located in the South East of the UK, which remains – according to virtually all indicators – the dynamic heart of the UK economy, and at the core of both internal and international migrations. The two regions are, however, very differently constituted. Portsmouth has a relatively clearly defined urban core reflecting its location on a peninsula, bounded by low hills and protected rural areas. The metropolitan ring, however, is less clearly defined because of overlapping zones of influence in relation to other metropolitan regions, such as Southampton. However, its definition is still far more straightforward than that for Thames Gateway which intersects, but only constitutes a relatively small proportion of, the London metropolitan region. The western parts lie within the London core, including significant parts of the regenerated London Docklands, while most of Thames Gateway lies within the ring of the metropolitan region. However, some of the outer eastern regions gravitate more to the urban centres of the Medway towns than to London, in terms of commuting, and are treated as a residual and less integrated zone in this study.

2. Methodology

2.1 An approach to defining metropolitan regions

A common methodology was adopted for defining both metropolitan areas. The two cores were defined with reference to the destination of commuting inflows, using lower super output statistical data (LSOA) – that is small area statistics. At the LSOA level, Portsmouth had a number of employment hotspots, while London had two (very large) such foci. At local authority district (LAD) level, this slightly patchy effect is removed, providing coherent cores.

The rings were produced via an enhancement of a recommended methodology set out by UK Government for mapping city regions (Robson et al 2006). This required the identification of all LADs having 25%+ of their external commuters (ie working outside the local authority) travelling to a pre-designated core (defined by density of employment). In each case study, this boundary was superimposed over that of the commuting zone containing the core: this has a greater effect in the Portsmouth than the Thames Gateway case studies.

In summary, the definitions employed are as follows:

Core. This is the economic and employment core of each case study. The LAD boundary has been used to define this area for Portsmouth. For Thames Gateway, this has been defined as the City of London LAD and the 7 surrounding LADs. These 8 Local Authority Districts contain two clusters of LSOAs with very high (250,000 +) commuter inflows: one within Westminster, the City and the West End, and the other being Canary Wharf, the heart of urban regeneration in London's east end. The use of LADs (rather than LSOAs) as building blocks means that this area can be treated as a single large core, which is appropriate given the scale of the associated ring.

Ring. This represents the “functional economic area” that is strongly tied to the core. It has been determined by examining 2001 Census commuting data at two scales: LADs (using a threshold of 25% of each area's external journeys), and LSOAs (using Commuting Zones built up from these small statistical areas).

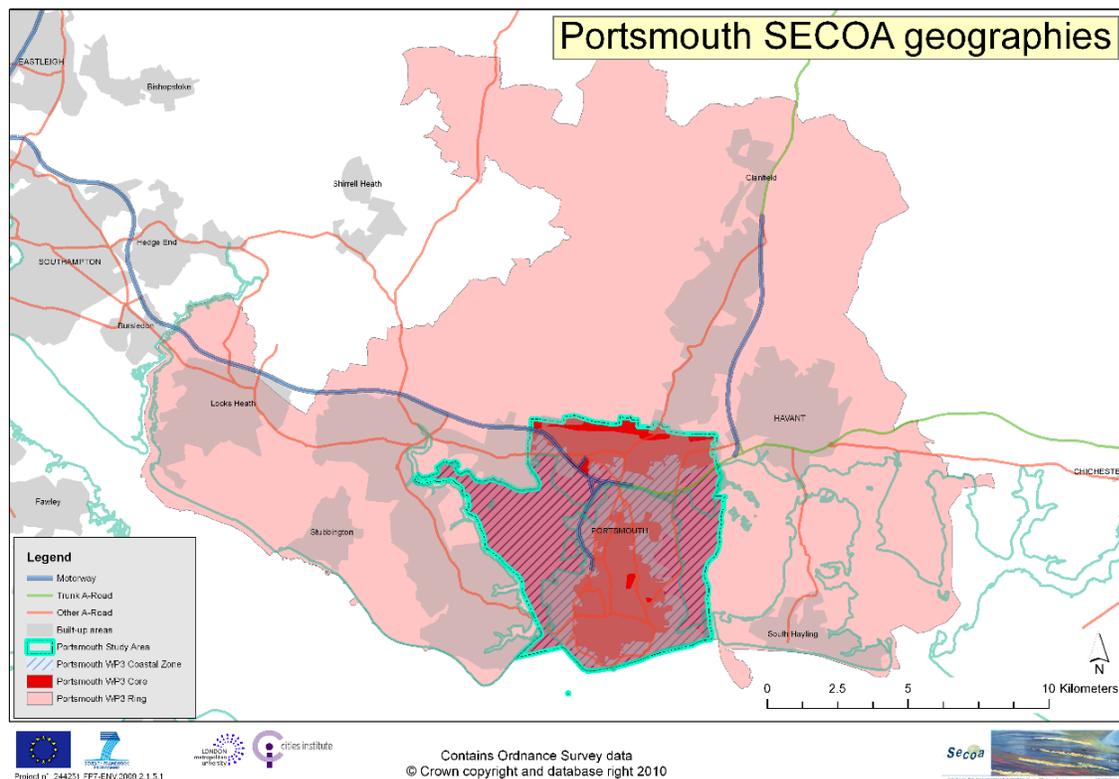
Coastal Strip. This represents the area in (more-or-less) direct contact with the coastline of the core and ring. The high water mark was buffered (100m) and all LSOAs within the study area that touch the resulting polygon have been defined as being in the coastal strip. Note that as some LSOAs extend further inland than others, this results in a rather uneven coastal zone in appearance, although it is consistent in terms of morphology and in terms of the population coverage.

Outer Gateway. This is the portion of the Thames Gateway study area that lies beyond the core and ring, using the definitions set out above.

2.2 Portsmouth definitions

The core of Portsmouth is relatively tightly defined (Figure 9.1) and accords with the local authority boundary. It represents a dense cluster of employment that is linked by journey to work flows to the surrounding metropolitan ring. The ring extends more to the north than to the east or west, where it is constrained by rival metropolitan core regions, notably of Southampton. Within the ring there are a number of significant urban settlements, notably Havant and Clanfield to the north, Locks Heath and Stubbington to the west, and South Hayling to the east. In parts of the ring, there are also significant commuter flows to adjoining metropolitan regions, and the proximity of Southampton is especially evident in Figure 9.1. A number of important transport routes contribute to defining the extent of the ring, most notably the east-west motorway that borders the northern edge of the core of Portsmouth.

Figure 9.1. The geographies of the core, ring and coastal zones in the Portsmouth metropolitan region

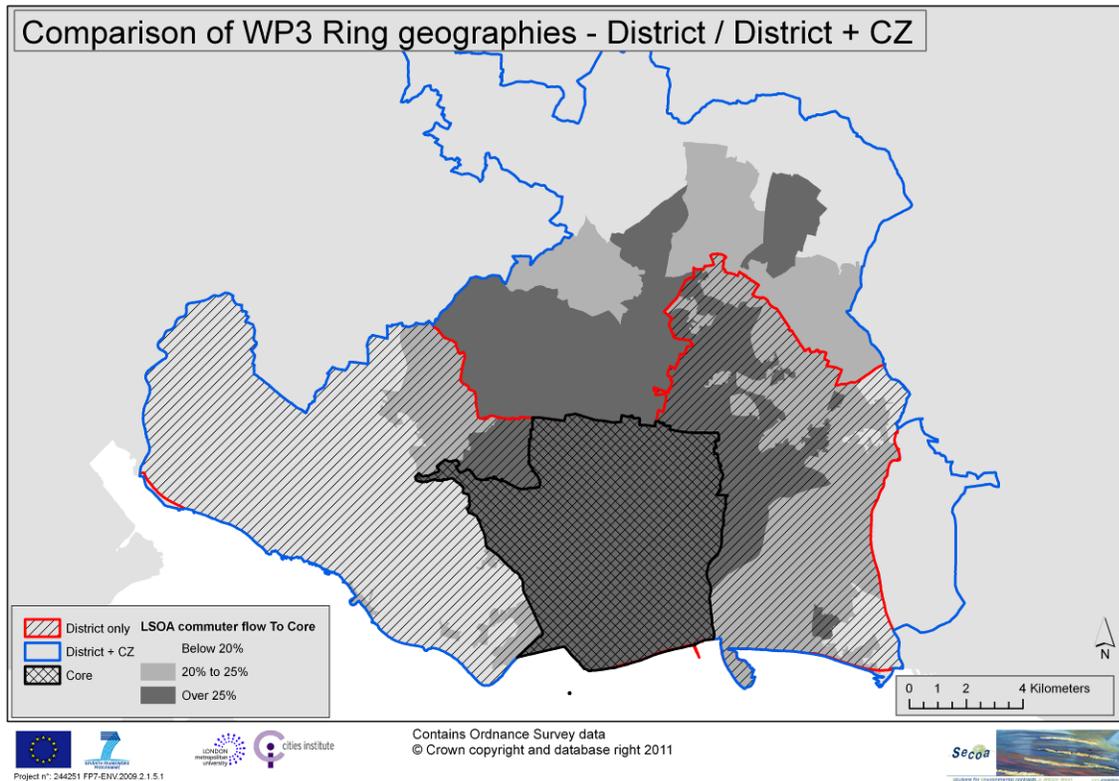


The coastal ring in the Portsmouth region is unusual, reflecting the historic reclamation of large areas around what had once been an island. That island constitutes the effective centre within 100 metres of a surrounding ‘doughnut’ of low lying areas that represent the coastal

zone. This is an important feature in determining both the patterns of development and the distribution of flood related risks in the metropolitan region.

A more detailed breakdown of journey to work flows in terms of both districts and super output areas is shown in Figure 9.2.

Figure 9.2. Comparison of the geographies of the Portsmouth ring: definitions based on districts only versus districts plus small area data (super output area data) constituting a Commuter Zone (CZ)



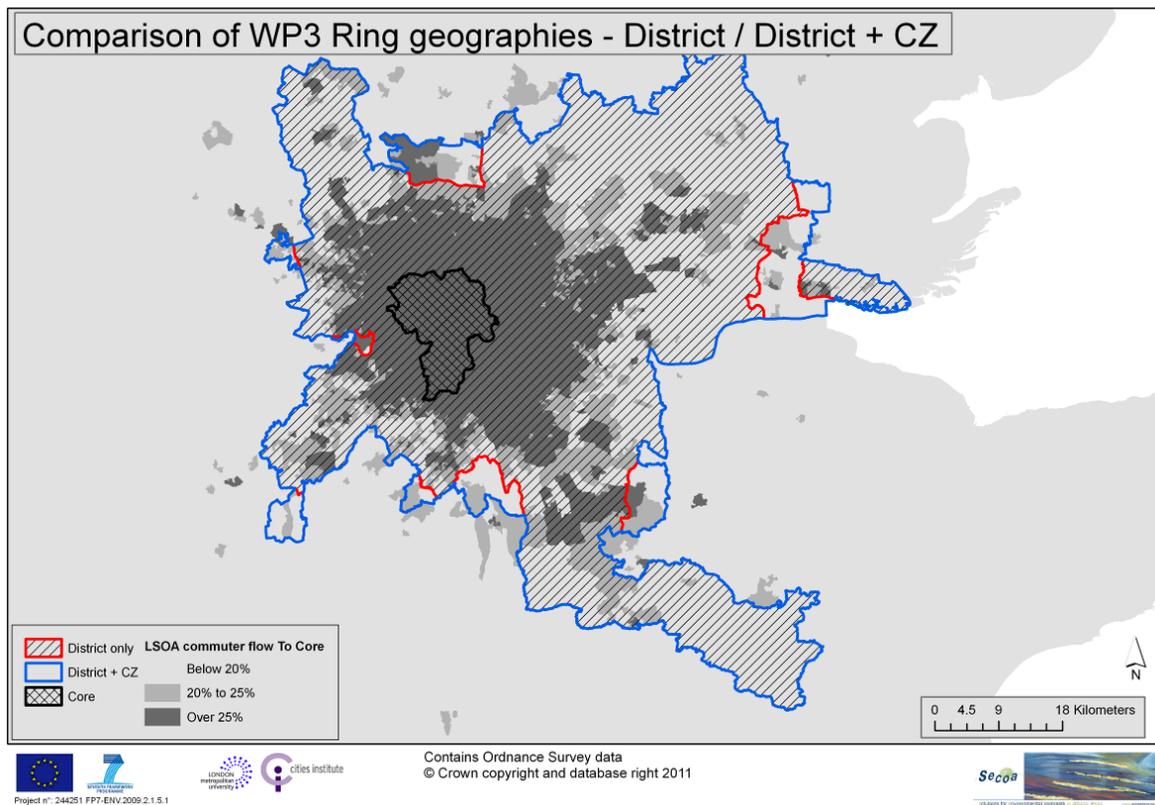
2.3 Thames Gateway definitions

The core of Thames Gateway, based on district level data for London boroughs, is a relatively small proportion of the total area of the metropolitan region, illustrating the immense employment concentrations in this area, and their ability to generate and sustain enormous commuting flows from the ring (Figure 9.3). As mentioned above, there are two main foci within this. One is based on Westminster, the City and the West End (effectively lying outside the Thames Gateway case study). The other is Canary Wharf, (within the Thames Gateway case study) at the heart of the regeneration of London Docklands.

Several major transport routes define accessibility in the metropolitan region, most of which radiate outwards from London. These have a significant influence in shaping the geography of the metropolitan region, especially the extension of the more densely built-up area beyond Seven Oaks to Tunbridge Wells. The orbital London motorway, the M25, also dissects the river. The Queen Elizabeth bridge on the M25 is the last down river road crossing of the Thames which means that the outer parts of Thames Gateway, lying on the north and south sides of the Thames estuary, are relatively poorly connected to each other. Most of Thames Gateway lies within the coastal zone of the London Metropolitan region, as defined in this study.

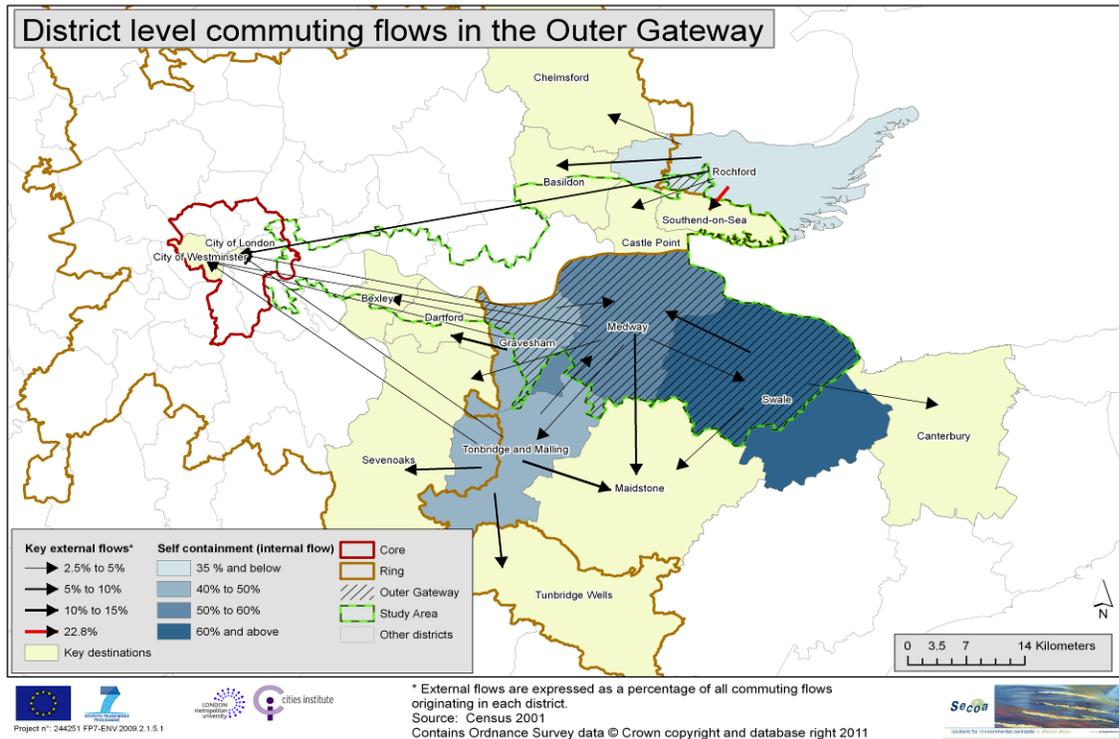
These definitions are based on the latest available journey to work data, for 2001. It means that they fail to capture the effects of more recent changes in housing development, population, transport and commuting.

Figure 9.4. Comparison of the geographies of the London Metropolitan ring: definitions based on districts only, versus districts plus small area data*



* CZ = commuting zone.

Figure 9.5. District level commuting flows in the Outer Gateway



2.4 Data on human mobility and urbanization in the metropolitan regions

As a general rule, data were compiled at the lowest available statistical geography (i.e. Output Area / Lower Super Output Area). When collating statistics at LAD or Ward level, it was necessary to take into account those areas that only fall partly within the case study geographies (Ring, Core and Coastal Zone).

Where the data being collated refer to a count (e.g. number of households with cars) as opposed to a rate (e.g. % of households with cars) the contribution of these areas has been weighted by referring to the distribution of three key pieces of information for two time points (2001 and 2008):

- Target Area Population: the population within a Ward /LAD that is inside the target geography.
- Host Area Population: the total population of the Ward /LAD
- Percentage: the percentage of the total population that is inside the target geography.

The percentage figure is used as a weighting. The 2001 percentage figures is used for data referring to 2001 to 2004, and the 2008 percentage for data referring from 2005 onwards.

Note should also be made of the assumptions made in a number of the data sets that are used in these case studies.

- 1) In the absence of change data on socio-economic status in the last decade, we have instead used Experian geo-demographic data. This has meant that informed judgments have had to be made about the 'socio economic status' of the Experian lifestyle groups derived from modeling census, area, residence, consumption and other data.. While these are not produced to measure status or income differences alone, they have been grouped by the research team into what broadly constitute 'higher', 'medium', and 'lower' categories.
- 2) Calculation of second homes and number of dwellings for the second time period in both case studies has required partial estimation as there are gaps in the 2007 dataset from which the results are drawn: the Vacant Dwellings Count 2007, Communities and Local Government. This is one of a two year run of data dependent on local authority returns to central government which unfortunately has not been continued. Using the 2001 census as a baseline, we calculated the proportions of dwellings in each zone (Ring, Core and Coastal Zone) of both case studies and for each local authority with missing data in the 2007 dataset. These proportions were used to adjust the 2007 dataset.
- 3) Migration data at lower scale geographies is limited - and is not available for international migration. This is problematic because net increases in migration have been largely shaped by international not internal (UK) migration in both our case studies. The internal migration data are drawn from the English Local Authority to Local Authority matrix, and therefore do not take account of migration from elsewhere in the UK. International migration data at local authority district level is only available from 2003 to 2008 and only at ward level. In both the international and internal migration data, local authority data has been proportioned by the size of 2001(T1) and 2008(T2) population shares respectively in each zone.

3. Portsmouth

3.1 Overview of Urban Growth and Development

Portsmouth is located on the southern coast of England, approximately 112km south west of London. Most of the city lies on Portsea Island, bordering Portsmouth Harbour in the west and Langstone Harbour in the east. This was historically an island, but over a long time period land reclamation has made it, effectively, a peninsula. The City of Portsmouth' which constitutes the core of the metropolitan region, has an administrative area of 6,019 ha (60.19 km²), of which 4,028 ha (40.28 km²) is land and 1,991 ha (19.91 km²) comprise Portsmouth (1,431 ha) and Langstone (537 ha) harbours.

Historically, Portsmouth's development has been driven by its port functions. Construction of the first docks started in 1212, and it has been an important naval port for centuries. The port is still the focus of present day economic activity, including shipbuilding, the commercial port and waterfront regeneration related to retailing, leisure and tourism. These constitute important foci of mobility both for work and leisure purposes (Atkinson 1999).

The core of Portsmouth is a compact coastal urban region which occupies a highly constrained physical site and, in consequence, has very high population densities by national standards. The ring in contrast is more unevenly developed, with areas of intense development near the coast, in adjacent areas, and along the principal transport axes, both to the north and east-west. Development is particularly intense to the west of the city, in the direction of Southampton, and there is no clear divide between the built up areas of these two metropolitan regions. In contrast, much of the northern part of the ring constitutes highly protected rural areas. The coast is relatively densely developed, dating from rapid suburbanization in the early twentieth century, which was grafted onto a more historical settlement pattern.

The population of the core had been in relatively long term decline but reversed in the 1990s, and increased from 188,800 in 1999 to an estimated 203,503 in 2009, an increase of 7.78% (Table 9.1). In contrast, the population of the ring fell slightly in this decade from 344,539 to 341,698, that is by -4.27%. The metropolitan region has therefore experienced absolute centralization in the last decade – an unusual feature for a mature urban region in Northern Europe. The population of the ring decreased modestly, reflecting urban regeneration in the core and continuing constraints on residential development in much of the ring, as well as population increase from natural change and particularly from migration. Between 2003 and 2009 the population in the core increased by 10,700, of which 9,900 was accounted for by net

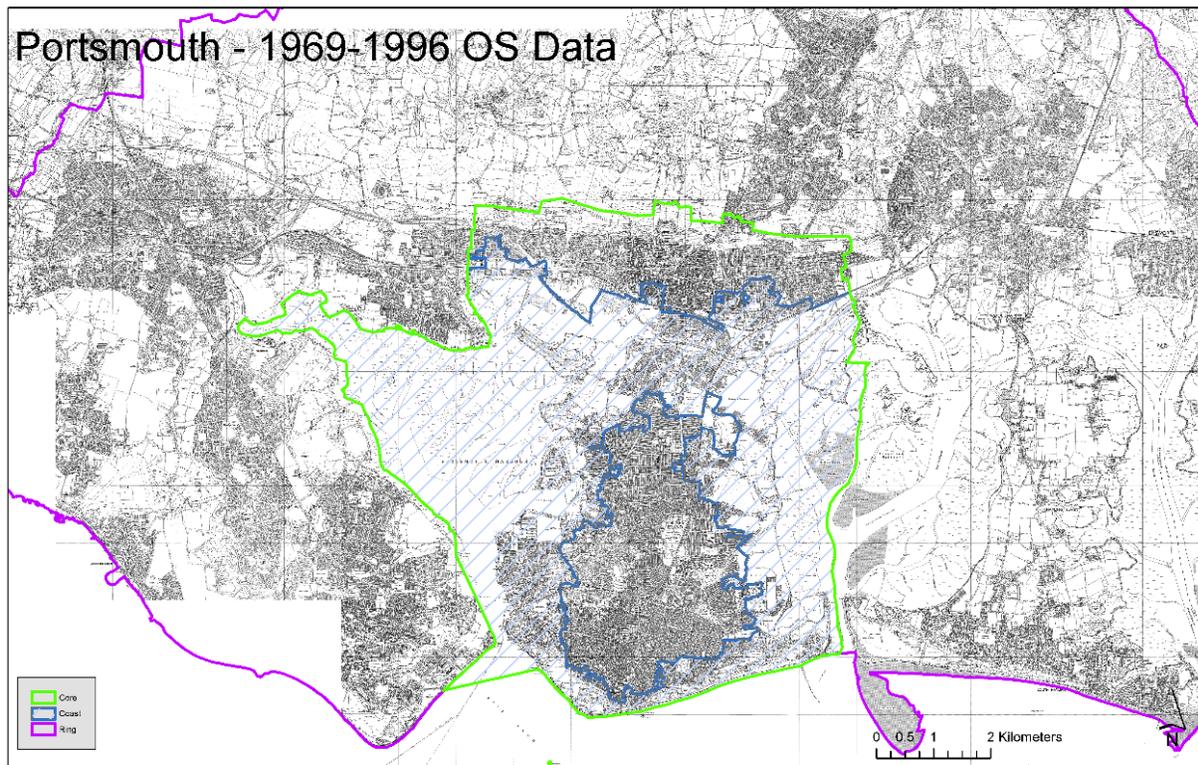
inward migration. Some 12,000 international migrants arrived in Portsmouth during this period but there was a loss of 2,100 migrants to elsewhere in the UK (ONS Local Area Migration Indicators – Population Estimation Unit Components of Change Data 2010).

Table 9.1. Portsmouth: Population of the core, ring and coastal zones, 1999 and 2009

| | RING | CORE | COAST |
|-----------------------------|---------|---------|--------|
| Total Population 1999 | 344,539 | 188,800 | 52,958 |
| Total Population 2009 | 341,698 | 203,503 | 55,635 |
| Population Change 1999-2009 | -2,841 | 14,703 | 2,677 |
| % Change | -4.27 | 7.78 | 5.05 |

Figure 9.6 illustrates both the distribution of development within the metropolitan region as well as the incremental changes between 1969-96, with new building being steered into or adjacent to existing larger settlements by rigorous and constraining planning policies.

Figure 9.6. Changes in the built area of the Portsmouth metropolitan region, 1969-1996



3.2 Permanent Mobility: Migration

There is overall balance between annual internal (originating in the UK) in- and out-migration in all zones in the metropolitan region (Table 9.2). In 1999 there was a marginal increase in population in the ring with slightly higher losses from both the core and coastal zone. This pattern is indicative of the general outward movement of population from city centres across the UK in the 1990s. However the small scale of the movement indicates the weaker later stages of this pattern of population relocation. By 2009 there were lower levels of in-migration into and out-migration from the ring; however, overall annual net migration into the ring was slightly raised compared to 1999. The core and coastal zones experienced higher absolute levels of both in-migration and out-migration compared to 1999 indicating increased mobility and population churn. In 2009 there was also positive net migration in all zones which may indicate the general resurgence of city living which characterised a number of UK cities in the 2000s. So although the differences between the absolute levels of net migration to the ring and core were modest between 1999 and 2009, their relative significance in 2009 (0.19% of ring's population as compared to 0.34% of the core's population) indicates greater impact on the core. Likewise the relative impact of population churn induced by internal migration is greater in the core than the ring. The rate of inward internal migration was 4.77% of total population in the ring but 6.09 % in the core and the rate of outward internal migration was 4.58% in the ring but 5.75% in the core.

Table 9.2. Portsmouth: Internal (from elsewhere in the UK) in-, out-, and net migration, 1999 and 2009

| | | RING | CORE | COAST |
|------------------------------|------|--------|--------|-------|
| Total internal in-migration | 1999 | 17,039 | 9,700 | 2,721 |
| Total internal out-migration | 1999 | 16,917 | 10,000 | 2,805 |
| Total net internal migration | 1999 | 122 | -300 | -84 |
| | | | | |
| Total internal in-migration | 2009 | 16,293 | 12,400 | 3,383 |
| Total internal out-migration | 2009 | 15,656 | 11,700 | 3,192 |
| Total net internal migration | 2009 | 637 | 700 | 191 |

In contrast, international migration has been at lower absolute levels in terms of both in- and out-migration but its net migration contribution has been more substantial than for internal migration (Table 9.3). There are two main features to note. First, the core has attracted more international migrants than the ring, in both 2003 and 2009, and the differential was particularly pronounced in 2003: 5300 versus 488 inwards international migrants. Secondly, with the exception of the ring in 2003, and by a very small quantity the coast in 2009, inwards international migration has been greater than international outmigration in all three zones. The scale of the net international immigration – taking into account that these data are for single years – suggests that this is a major component of population change in all the zones, but especially the core, accounting for all of the net population changes in this zone between 2003 and 2009. Over these 6 years net international migration into the core was 12,000 and into the coast 3366. However, the ring lost 1255 international migrants. This suggests that the city and its coastal zone have been the preferred locations for international migrants.

Table 9.3. Portsmouth: International migration, 2003 and 2009

| | | RING | CORE | COAST |
|-----------------------------------|------|------|------|-------|
| Total international in-migration | 2003 | 488 | 5300 | 1487 |
| Total international out-migration | 2003 | 1101 | 2300 | 645 |
| Total international net migration | 2003 | -613 | 3000 | 842 |
| | | | | |
| Total international in-migration | 2009 | 1200 | 4400 | 1234 |
| Total international out-migration | 2009 | 318 | 1900 | 532 |
| Total international net migration | 2009 | 882 | 2500 | 702 |

Turning from these aggregate flow data, to the distribution of inter-zonal flows, there is inevitably a more complex picture (Table 9.4). In 2002/3, in terms of absolute inwards flows, the largest group of migrants were not international but from other English Local Authorities outside of the metropolitan region. The same also applied to the ring, confirming that both zones share the general attraction of the South East for national migrants. The ring also attracted more internal migrants from the core as opposed to the reverse flow, suggesting that migration within the metropolitan area contributes to local decentralization of population, but that there are other processes in play leading to the absolute centralization of population

observed over a slightly different time frame (see Table 9.1). The coastal zone broadly follows the same pattern of decentralisation.

In 2009, there is a similar pattern. The largest groups of in migrants in the ring and the core were from other parts of the England from outside of the metropolitan area. The number of in migrants from the core to the ring also continued to outnumber the reverse flow, although the difference had been reduced to less than a hundred people. The same broad pattern was evident in the ring.

Table 9.4. Portsmouth: International in-, out and net migration, 2003 and 2009

| | | RING | CORE | COAST |
|--|------|-------|------|---------------|
| International In Migrants | 2003 | 488 | 5300 | 1487 |
| National In Migrants (Beyond Ring) | 2002 | 10754 | 7325 | 1868 |
| In Migrants from the Metropolitan Ring | 2002 | | 2762 | 773 |
| In Migrants from the Metropolitan Core | 2002 | 3265 | | not available |
| | | | | |
| International In Migrants | 2009 | 1200 | 4400 | 1234 |
| National In Migrants (Beyond Ring) | 2009 | 9635 | 9615 | 2465 |
| In Migrants from the Metropolitan Ring | 2009 | | 2512 | 684 |
| In Migrants from the Metropolitan Core | 2009 | 2619 | | not available |

Turning to the net migration patterns for migrants from elsewhere in England, and particularly the changes between zones, the pattern is again different (Figures 9.7 and 9.8). Although inward migration from outside the metropolitan area is the single largest component of population change in the core and the ring, this is matched by a broadly similar level of outmigration between these areas in both 2002/3 and 2009. Therefore, in terms of overall net contribution to population change, the main dynamic force is international not intra-national migration. There is also confirmation that migration is a key element in the decentralization of the local population from core to ring – although this effect is counterbalanced by the significantly greater population gains in the core from international migration, leading to overall absolute centralization of population in Portsmouth metropolitan region.

Figure 9.7. Portsmouth: Principal internal migration flows, 2002

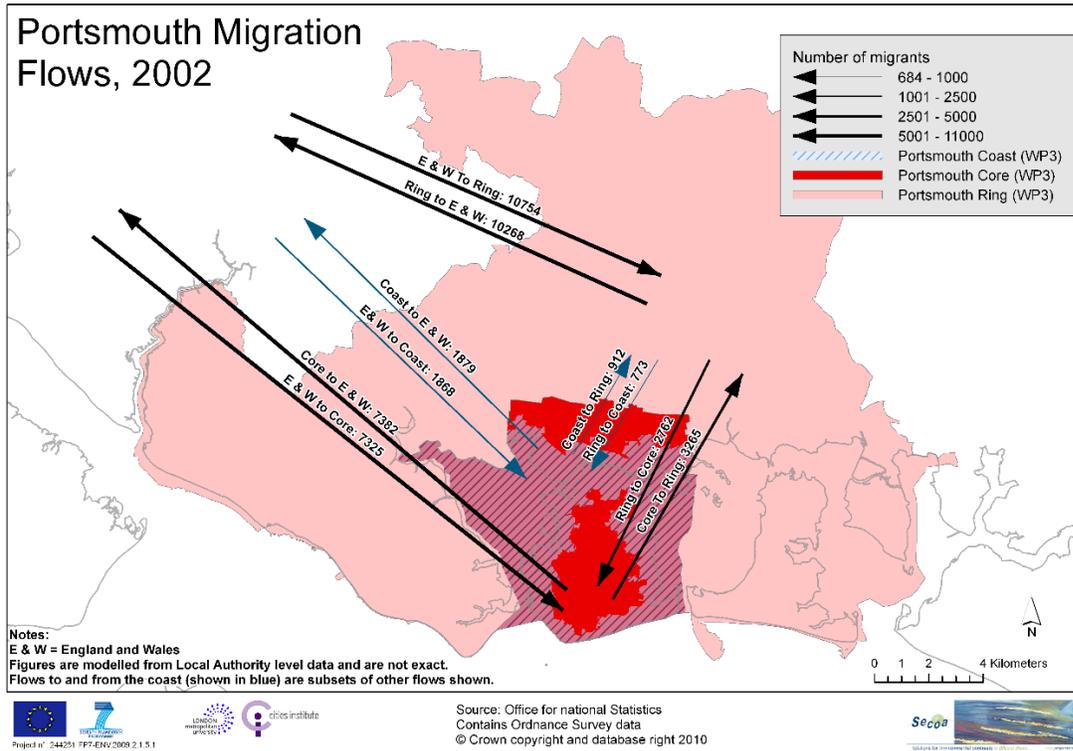
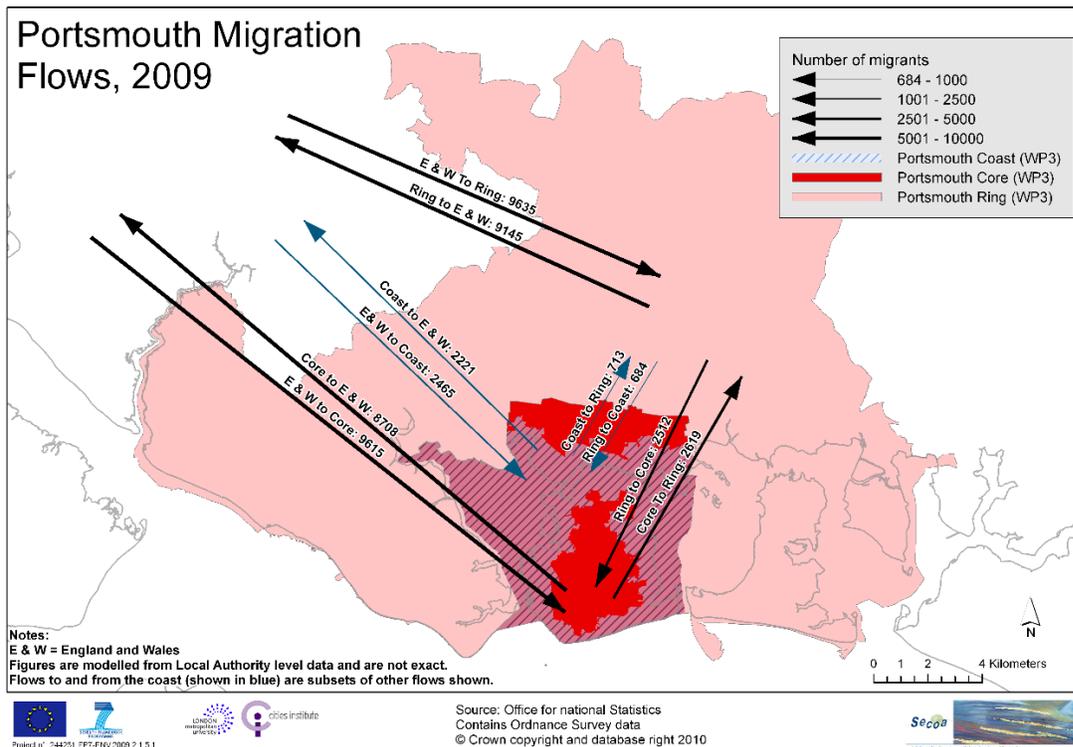


Figure 9.8. Portsmouth: Principal internal migration flows, 2009



Migration makes a substantial contribution to changing the social composition of the population, but it is difficult to assess this accurately given data constraints, other than in respect of the age distribution of different groups of migrants (Table 9.5). This is illustrated here in respect of internal immigration from elsewhere in the UK only, and it should be noted that these data are estimates. In 1999, they suggest that, as would be expected, the internal in-migrants to the core were mostly working age, with 88.9% being aged 16-65; in other words, this was largely driven by labour migration. In contrast, there were relatively fewer young adult internal migrants in the ring, and relatively more children as well as a small number of older migrants, indicating that the ring – as would be expected – is not only attractive to labour migrants, but also to families and to a small but important element of retirement migration.

In 2009, there is a broadly similar pattern with the core and coast being characterized by relatively more internal migrants in the economically active age groups, compared to the ring, which had relatively more young children and older migrants. This broadly conforms with the cycle of urban migration, with the core being the destination of younger migrants, and the ring of those with families. Comparing the two dates indicates that this pattern has become more pronounced in both the core and the coastal ring, which both having attracted relatively more internal migrants aged 16-30 than 31-65 in the second time period. Older migrants are also more evident at the second date, particularly in the ring, underlining the increasing importance of retirement migration.

Table 9.5. Portsmouth: Age distribution of in-migrants, 1999 and 2009

| | | RING | CORE | COAST |
|---------------------------------------|------|---------------|---------------|---------------|
| Total Internal In Migrants aged <16 | 1999 | 3397 (22.4%) | 1000 (11.11%) | 281 (11.13%) |
| Total Internal In Migrants aged 16-30 | 1999 | 3397 (22.4%) | 4000 (44.44%) | 1122 (44.44%) |
| Total Internal In Migrants aged 31-65 | 1999 | 8187 (53.9%) | 4000 (44.44%) | 1122 (44.44%) |
| Total Internal In Migrants aged > 65 | 1999 | 211 (1.39%) | 0 | 0 |
| Total Internal In Migrants aged <16 | 2009 | 3065 (18.58%) | 1300 (10.4%) | 356 (10.4%) |
| Total Internal In Migrants aged 16-30 | 2009 | 3762 (22.80%) | 6300 (50.4%) | 1719 (50.38%) |
| Total Internal In Migrants aged 31-65 | 2009 | 8426 (51.07%) | 4600 (36.8%) | 1255 (36.78%) |
| Total Internal In Migrants aged > 65 | 2009 | 1243 (7.54%) | 300 (2.4%) | 82 (2.40%) |

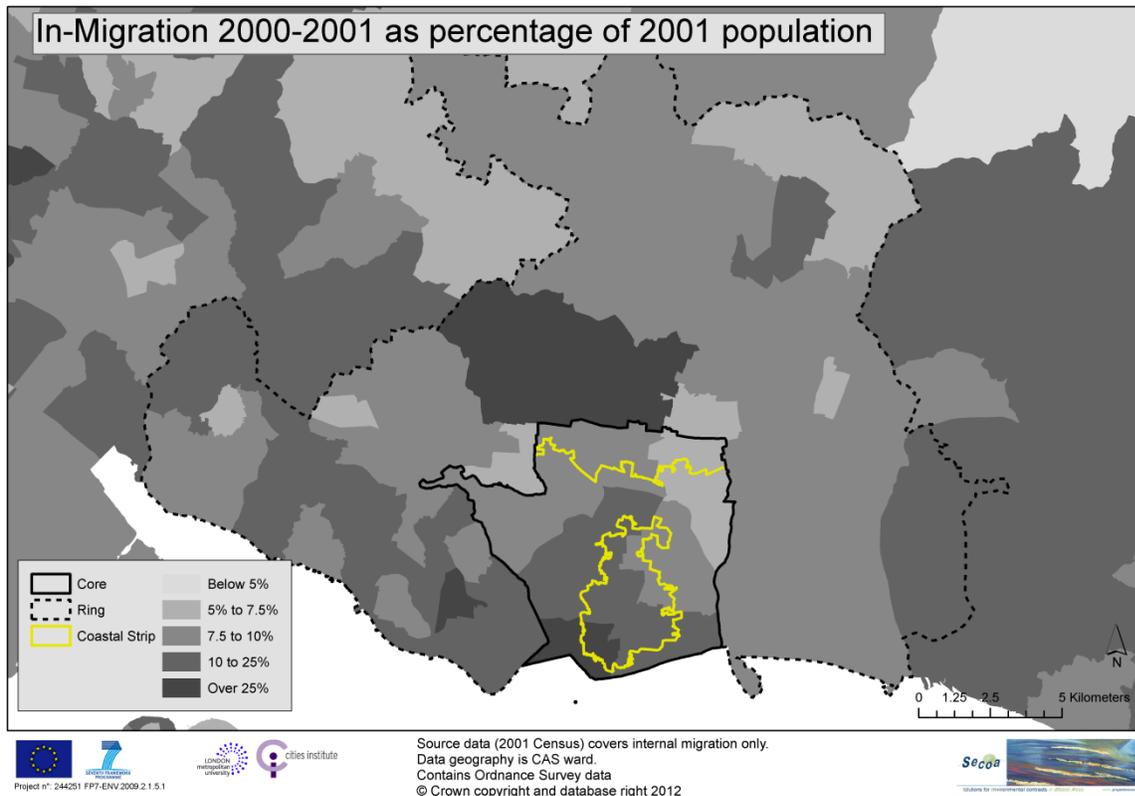
To conclude this section of the report, we consider the overall impact of net migration, both internal and international (Table 9.6). In 2004 net migration was equivalent to 1.5% of the total population in the core, and this had risen slightly to 1.57% by 2009. There was a broadly similar change in the coastal zone, while in the ring a very small net migration loss became a 1.18% net increase by 2009. Whereas net migration accounted for virtually all of the population change in the same period in the core, it only accounted for about three quarters in the ring, further emphasizing the particular importance of migration in the core.

Table 9.6. *Impacts of net international and internal migration on total population (%)*

| | RING | CORE | COAST |
|---|-------|-------|-------|
| Net Internal and International Migration 2003-2004 as Percentage of Total Population 2004 | -0.09 | 1.55 | 1.55 |
| Net Internal and International migration 2008-9 as percentage of 2009 population | 1.18 | 1.57 | 1.57 |
| Net Internal and External migration as % of population change 2003-4 to 2008-9 | 75.25 | 92.52 | 92.52 |

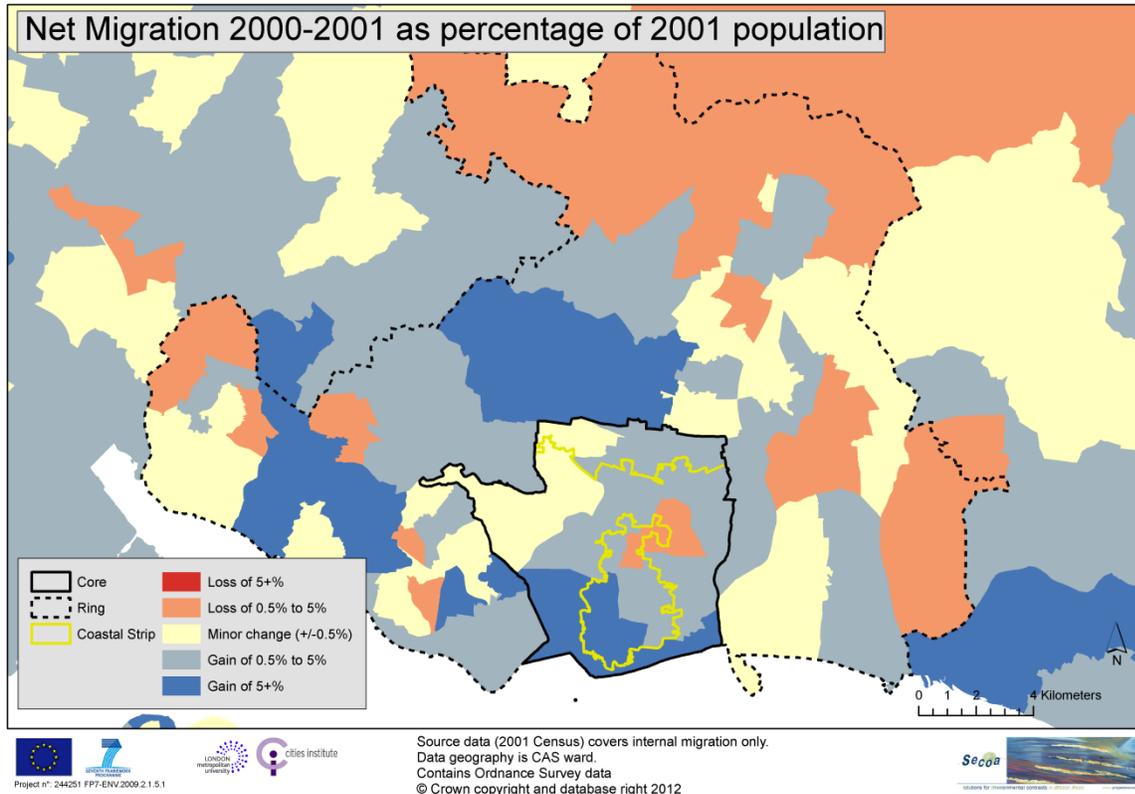
The relative distribution of ward based migration is shown in Figures 9.9 and 9.10. In-migration was particularly marked as a percentage of the 2001 population in some wards in both the core and ring, as well as the coastal zone. These data capture all moves undertaken in the 12 months prior to the census and so include all relocations between wards within each zone, as well as moves from outside the locality, from elsewhere in the UK and from abroad. Figure 9.9 therefore indicates population *churn* from local relocations and longer distance migration. There is therefore no simple pattern to the impact of this local and longer distance mobility. Some of the highest percentages of change are in some of the more distant parts of the ring as well as in the southern part of the core.

Figure 9.9. Portsmouth: ward level internal and international in-migration 2000-1 as a percentage of 2001 population



The distribution of net migration, taking into account both inward and outward relocations from each ward - as a proportion of the 2001 population - also demonstrates a complex pattern. There are areas of net gain and net loss in both the core and ring. In particular, this map (Figure 9.10) underlines that population movement, from both local relocation and longer distance migration, within the core resulted in a small area of decline in the centre of the zone, but to increases in the south. Population was being lost from the city centre but there were gains in the south partly associated with urban regeneration. It must be noted that these data derive from the 2001 census and record population relocations in the 12 months prior to the 2001 Census. In the ring, the impact of local relocation and longer distance migration produced a patchwork of changes. Areas of gain may be accounted for by the specific attraction of decentralised and semi rural locations at the end of the 1990s and beginning to the 2000s when incremental housing development was taking place in some suburban areas and small towns. However, tight planning controls exercised severe constraints on new housing in many rural areas.

Figure 9.10. Portsmouth: Net Ward level population turnover 2000-1 as a percentage of the 2001 population



3.3 Temporary mobility: commuting, education, and pleasure mobilities

There is relatively poor data available on temporary population mobilities, and the analysis here is mainly limited to commuting, second homes and – with very constrained data – students and tourism. These have distinctive geographies and temporalities, shaping the intensity of human activity in each zone.

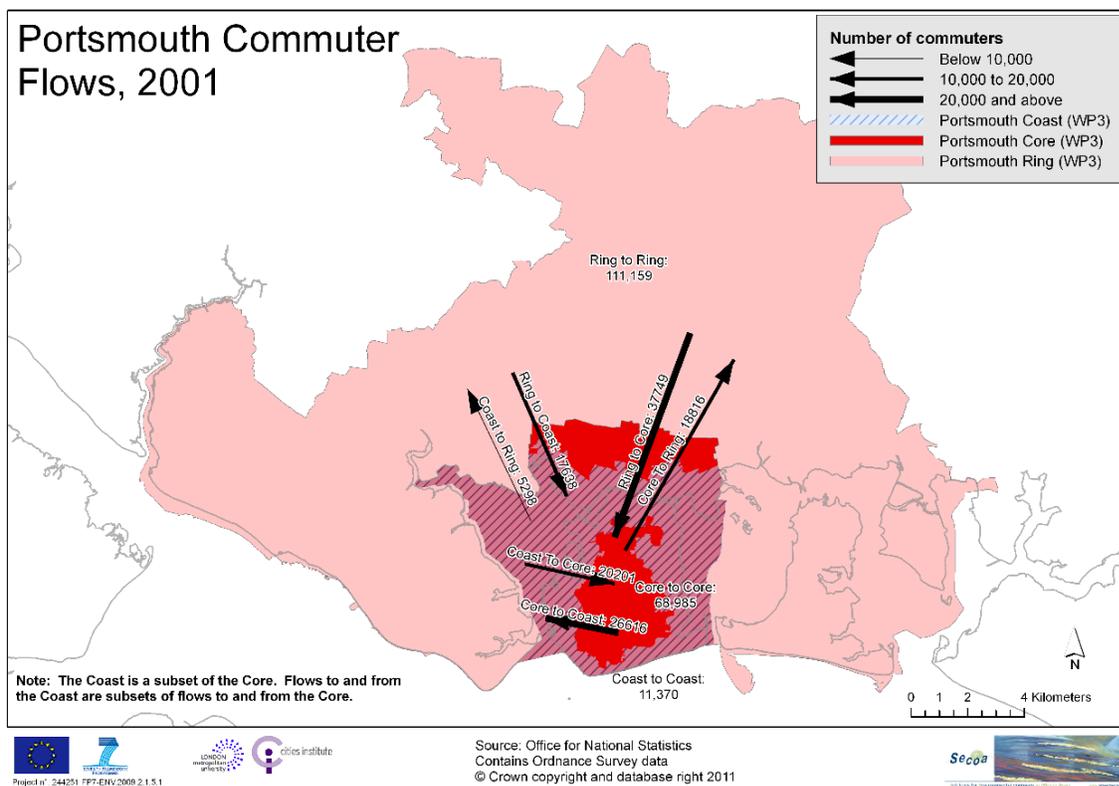
3.3.1 Commuting

Table 9.7. Portsmouth: intra and inter-zonal commuting flows 2001

| | Ring | Core | Coastal Zone |
|--------------|---------|--------|--------------|
| Ring | 111,159 | 37,749 | 17,638 |
| Core | 18,816 | 68,985 | 26,616 |
| Coastal Zone | 5,298 | 20,201 | 11,370 |

There are two main features of commuting in the metropolitan area (Table 9.7 and Figure 9.11). First, in both the core and the ring, the largest commuting flows are within each zone, illustrating the relatively widespread distribution of jobs. Secondly, there are also important flows between zones, and it is particularly notable that the ring to core flow is approximately twice as large as the core to ring flows, emphasising the concentration of employment in the city of Portsmouth. The coast, as would be expected, is strongly connected to the rest of the core by commuting flows, but there are also significant links to the ring, especially from the ring to work in the coastal zones.

Figure 9.11. Intra-zonal commuter flows in Portsmouth in 2001



3.3.2 Second homes

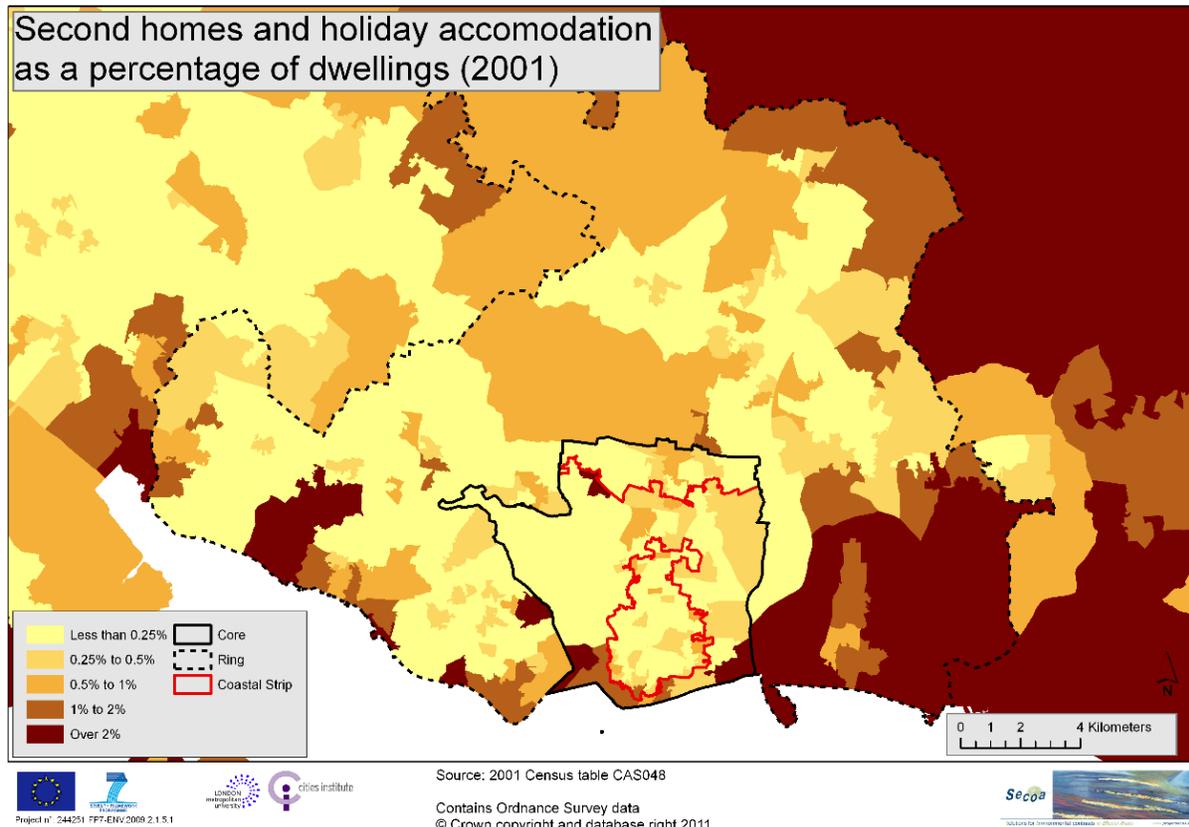
Second homes are not very important in the Portsmouth metropolitan area, but there were 1327 in 2001, rising to 1763 in 2007 (Table 9.8). Approximately three quarters were concentrated in the core in 2001, but the numbers were broadly equal in the core and the ring in 2007. There is no obvious explanation of this significant shift in such a short time period although possible contributory factors may be second homes used by student family members

or bought for letting. Both trends were fuelled nationally during the mid 2000s by the expansion of student numbers and the relative ease of accessing mortgage finance. However it has to be acknowledge that the difference may relate at least in part to discrepancies in the data sources. Although not very large in absolute terms, these data do signify that there is an element of transitory second home owners, who exert a temporally uneven demand on resources and the natural environment: data is not available as to the exact nature of this temporality but – at least in the ring – it can be speculated that there is an important element of holiday home ownership. Moreover, Figure 9.12 indicates that the impact of second home ownership was particularly high in the coastal areas within both the core and ring in 2001, accounting for more than 2% of all dwellings in several wards.

Table 9.8. Portsmouth: the zonal distribution of second homes, 2001 and 2007

| | | Ring | Core | Coastal Zone |
|------------------------------|------|------|------|--------------|
| Total Number of Second Homes | 2001 | 989 | 338 | 246 |
| Total Number of Second Homes | 2007 | 904 | 859 | 488 |

Figure 9.12. Portsmouth: second home and holiday accommodation as a percentage of all dwellings, 2001



3.3.3 Students

Portsmouth is also home to a university with a substantial number of students as well as several other higher educational institutions that are distributed across the ring. The core is the main focus of universities and colleges. It is estimated that there were 11,627 students in the core in 2001 whose main (family) home was outside this area, and a further 5513 in the ring. Of those, in the core, it is estimated that 2,497 were located in the coastal region. By 2010, according to a Student Mobility survey undertaken by Portsmouth University, the number in the core had increased to 15,470, and that in the ring had fallen to 2317. Given the difficulties in obtaining reliable data for students by place of residence, it is probable that the 2010 figure reflects the current size of the student population, given they are based on a specifically commissioned survey.

3.3.4 Tourists

Sub-regional tourism statistics in the UK are notoriously poor in quality, and data at the level of the case study zones are only available for 2009 (Table 9.9). These indicate that the average number of day and tourist visits to the core were twice as large as in the ring. The number in the coast is estimated to be approximately one third of the total number in the core. These figures are broadly consistent with the known concentration of tourism attractions both within the city and in the waterfront zone, being associated with both historic themes and the regeneration of the waterfront for leisure, retailing and residential purposes (Dicon 2005). Portsmouth also has an important night time economy focussed on the waterfront zones and city centres, with its restaurants, clubs and bars attracting large numbers of both local and out of area visitors. Unfortunately no data are available on this important set of mobilities.

Table 9.9. Portsmouth: the zonal distribution of tourists, 2008

| | | RING | CORE | COAST |
|--|------|------|------|-------|
| Average Number of overnight visitors per Day | 2009 | 3531 | 1800 | 1238 |

Given its port and large natural harbour, Portsmouth is also the focus of considerable sea-borne tourism. Data is available only on the number of pleasure boats in marinas in the coastal zone (715) and the peak number of cruise ship passengers arriving in the coastal zone in any one day (1142). These have very different impacts on the coastal zone and the city. Boats moored in the marinas are a source of repeat visits throughout the year, particularly in the

summer, of various durations, including an important weekend element. The impacts are highly concentrated. In contrast, while not a major cruise liner destination, it is an important ferry terminal and Portsmouth can receive substantial numbers of ferry passengers and visitors on particular days. While cruise ship passenger activities are mostly concentrated in the coastal zone, a proportion of passengers are taken on bus tours to other destinations.

3.4 Impacts of mobility on urbanization

Mobility is closely interwoven with the process of urbanization, and both shapes and is shaped by it. Some of these relationships are examined here in terms of transport, land use, population densities and housing.

3.4.1 Transport

The aggregate impacts of transport flows on the urban structure of the metropolitan region are summarised in Tables 9.10 and 9.11. Starting with private motor vehicles, there are of course more vehicles on the road in the ring, which has a larger population, than in the core. However, the number of vehicles is higher in relation to the population in the core, reflecting the attractions of this major hub of public and private services, retailing and entertainment. The impact is particularly strong in Portsmouth because of the distinctive geography of the city, which is highly constrained by what is effectively a peninsular location. Between 2001 and 2009 there was a substantial increase in the number of private motor vehicles on the road in both the core and the ring, with broadly similar percentage increases: 14.24% versus 14.07%. These represent a significant increase in pressures on the road system, living spaces and the natural environment.

Table 9.10. Portsmouth: average numbers of private motor vehicles

| | RING | CORE | COAST |
|--|--------|--------|--------|
| Average Daily Number of Private Motor Vehicles on the Roads 2001 | 76,793 | 57,628 | 16,164 |
| Average Daily Number of Private Motor Vehicles on the Roads 2009 | 87,598 | 65,835 | 17,959 |
| Absolute change 2001-9 | 10,805 | 8,207 | 1,795 |
| Percentage change 2001-9 | 14.07 | 14.24 | 11.10 |

Change data is not available for public transport. However, in 2010 it can be seen that the average daily number of bus and train arrivals was greater in the ring than core, while the average daily number of ferry arrivals was greater in the core and coast (Table 9.11). Classifying the origins and destinations of these flows is problematic and the data should be treated cautiously, but they do indicate, in particular, the very strong concentration of such transport flows in the coastal zone.

Table 9.11. Portsmouth: bus, train and ferry arrivals, 2010

| | RING | CORE | COAST |
|--|------|------|-------|
| Average Daily Number of Bus Arrivals | 649 | 506 | 898 |
| Average Daily Number of Train Arrivals | 406 | 242 | 121 |
| Average Daily Number of Ferry Arrivals | 128 | 252 | 252 |

3.4.2 Population densities

One of the most potent indicators of the relationship between urbanization and human mobility is population density. First we present the distributions of population density in 2001 and 2008 (Figures 9.13 and 9.14). As would be expected, population densities are greatest in the core, and particularly in the central and coastal parts of that zone. But there are also islands of higher density population throughout the ring, in settlements such as Havant, Waterlooville, Fareham and Gosport. These are particularly pronounced in a band at and beyond the northern edge of the core, which corresponds to the major east-west transport axis in the region (M27), as well as to the north west along the principal transport route towards London (A3/A3M).

The general distribution of population densities across the Portsmouth metropolitan area remained broadly the same in 2008 as in 2001 with a number of important local exceptions. There was a significant spatial consolidation of population density in the ring to the north west in expanding settlements adjacent to the main northern arterial route from Portsmouth A3(M). This is accompanied by slight decreases in density in neighbouring small communities. This suggests a concentration of population in towns with better access to transport routes. It may also reflect the changing age structure and household size in semi rural settlements. More significantly there has been spatial intensification of population density within the core zone, namely in three specific locations to the west of the core, one in close proximity to the city centre and two in nominated district centres linked to transport nodes. This densification also

reflects the type of dwellings constructed between 1999 and 2007. There were 7345 new dwelling completions in Portsmouth during this period, 84% were flats and two thirds of these were 2 bedroom apartments. Where these new build flats were located in larger developments, as in these three sites, population density increased significantly.

An important point to emphasise is that the core of Portsmouth already had in 2001 some of the highest population densities in the South East of the UK, and large areas had population densities well in excess of 10,000 persons per square kilometer. By 2008 density exceeded 20,000 per square kilometer in one census small area adjacent to the city centre.

Figure 9.13. Portsmouth: Population density, 2001

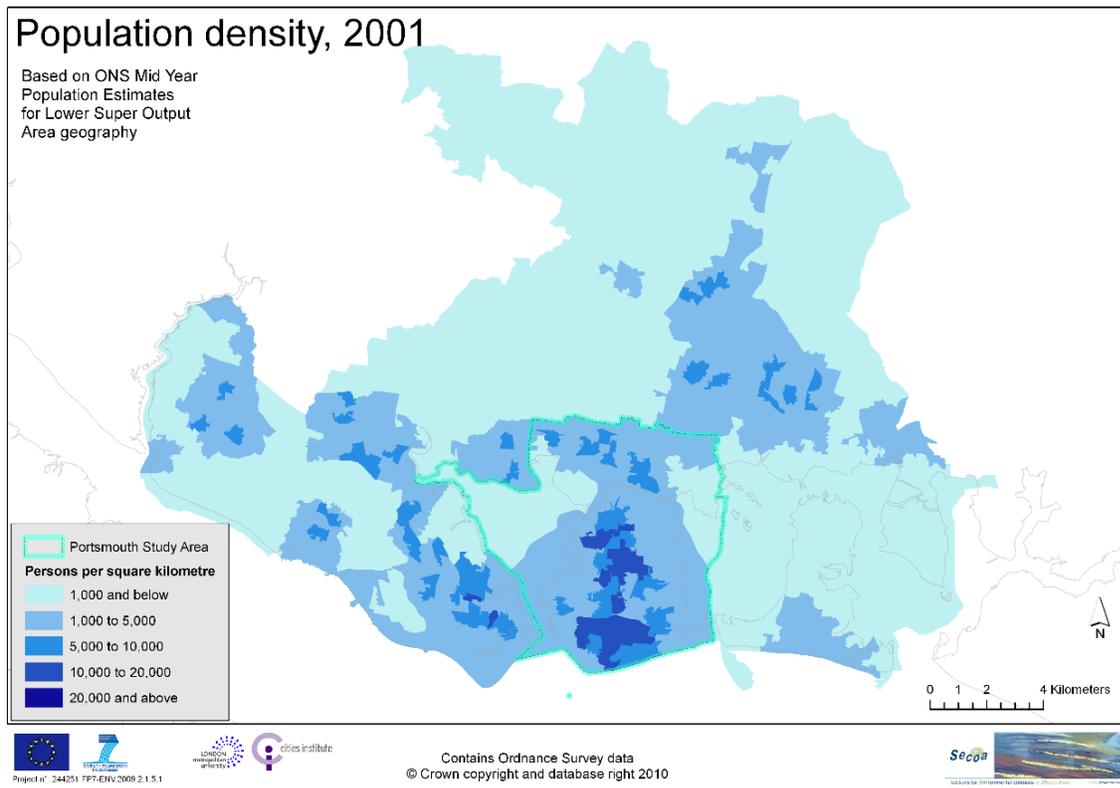
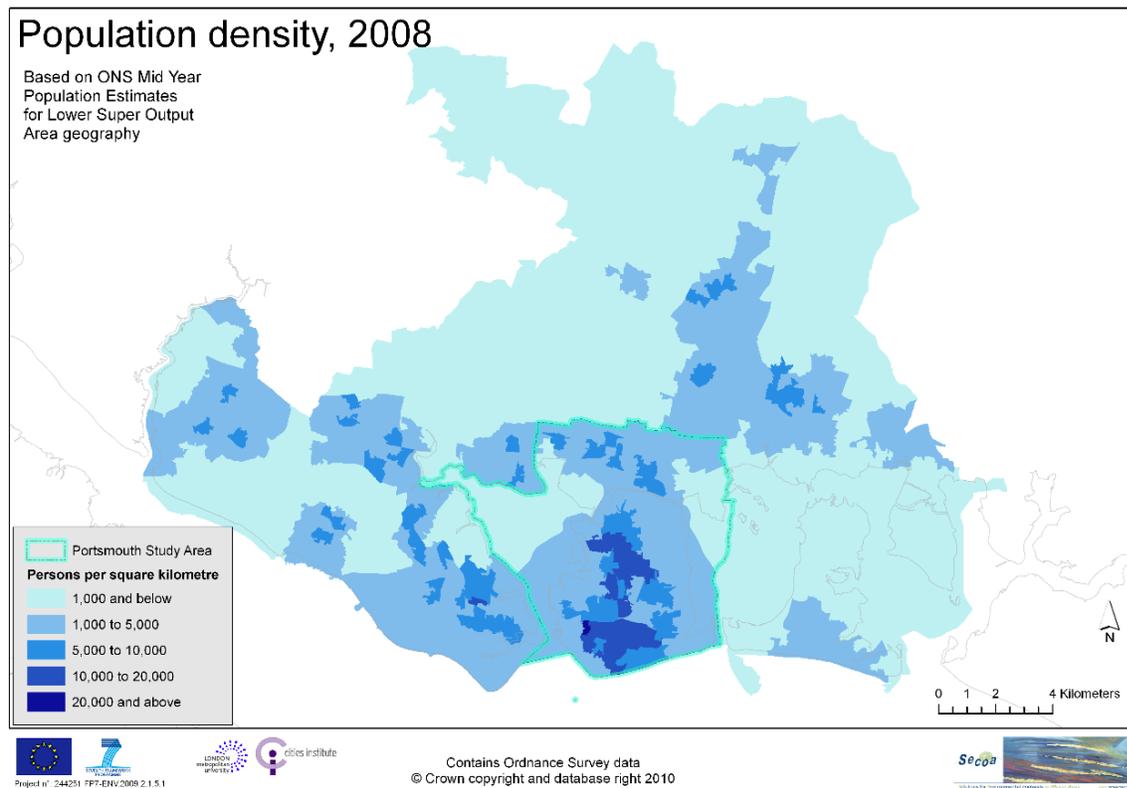
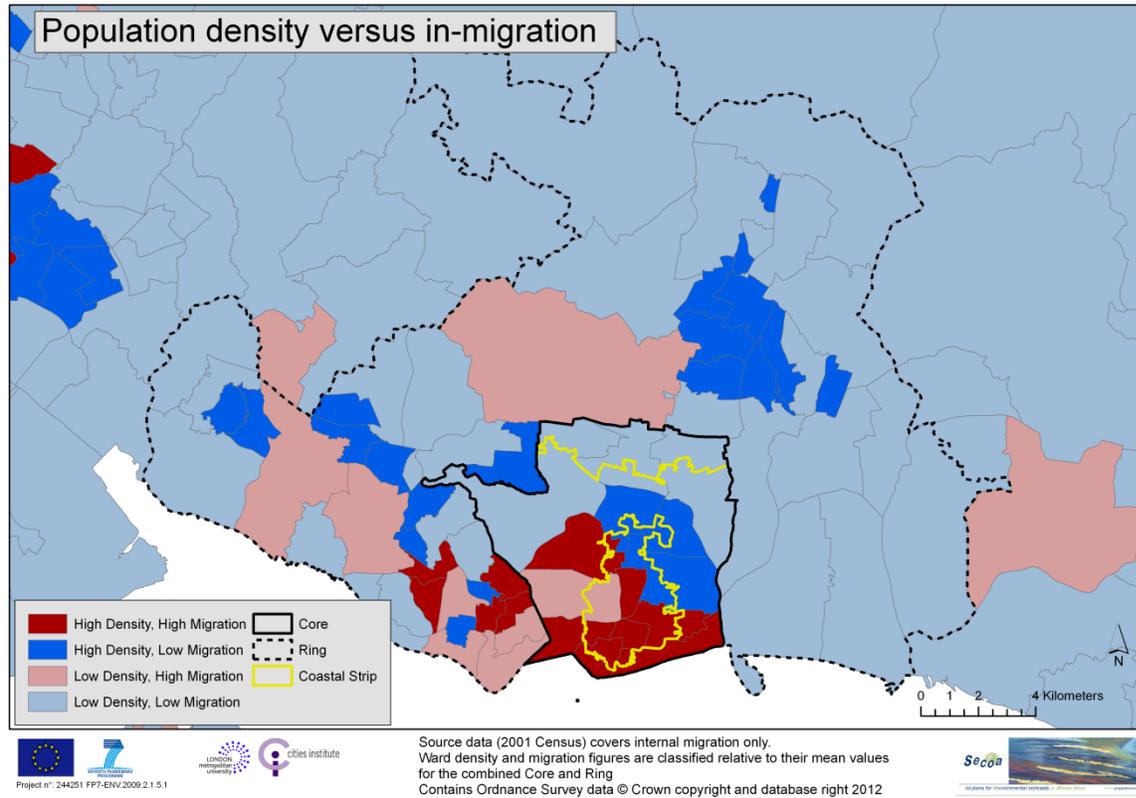


Figure 9.14. Portsmouth: Population density, 2008



In Figure 9.15 we attempt to capture the relationship between population density and migration in 2001. There are three striking features. First is the confirmation that the core has areas of high population densities which are also areas of high rates of in-migration. This particularly applies to the southern part of the core, closest to the sea and a focus of urban regeneration. Second there are areas of high population density and high rates of immigration in the adjacent parts of the ring to the west of the core, an area strongly linked by commuting flows to Portsmouth. Third, there is an area of low density and low in-migration in the ring to the north and east of the core. There is only one area of high density population within the core which is not an area of high in-migration. This is a relatively affluent area of the city where access to housing for migrants is more constrained.. Overall this map emphasizes that the greatest pressures of in-migration are experienced not only in the core, but in the southern and coastal parts of the core. There are some areas with high densities in the ring, but these present a mixed pattern of immigration, although increasing migration and high densities are only found to the west of the core.

Figure 9.15. Portsmouth: The relationship between in-migration and population density



3.4.3 Land use: extensification versus intensification

There are predictable difference in land use between the core and ring (Table 9.12). While almost three quarters of the ring is constituted of undeveloped land, including natural habitats and open spaces as well as agricultural land (70.5%), this figure is little more than a third in the core (36.6%). Over 50% of coastal land is classified as undeveloped, reflecting the existence of important recreational open spaces and protected wildlife reserves within the metropolitan area.

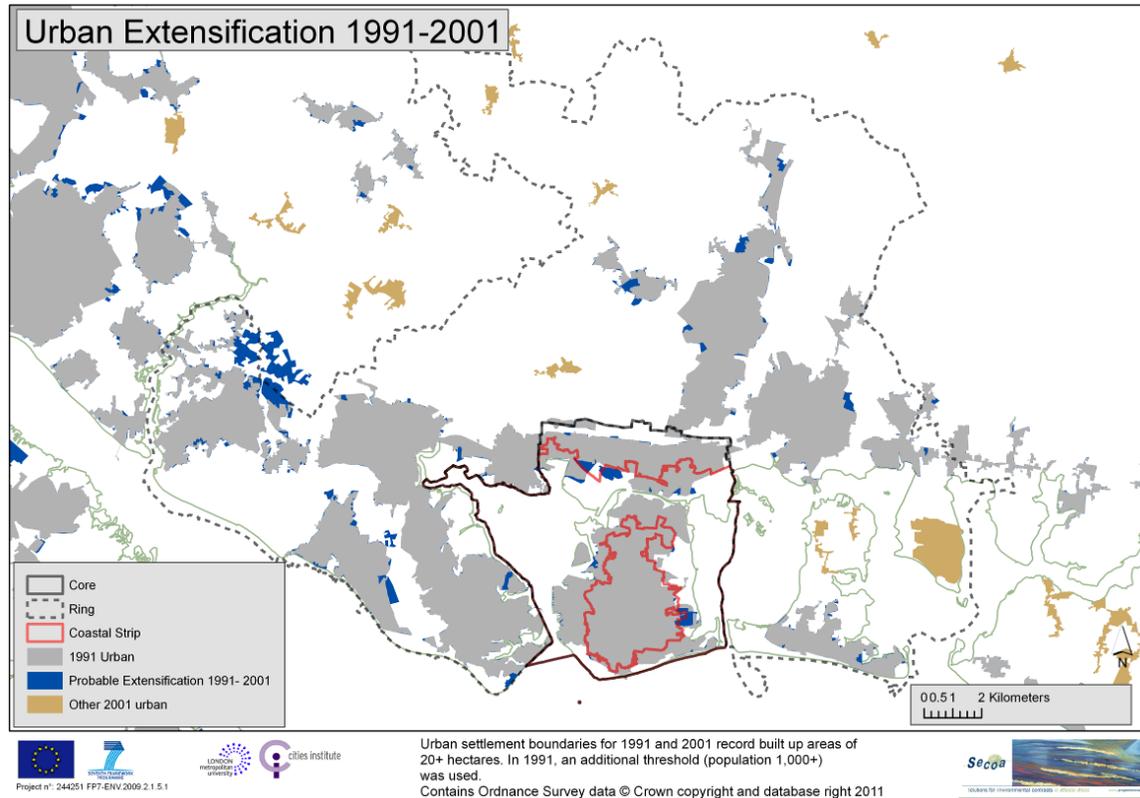
The contrast in the extent of the undeveloped area is also matched by the greater percentage of land (excluding natural habitats and open spaces) allocated to economic activity in the 9 and coastal zone. Whereas less than 1% of land has economic or employment use in the ring, just less than 5% of land in the core and coastal zones of Portsmouth is used for this purpose. Likewise there are significant differences in the amount of land allocated to housing. Over 30% of land in the core and nearly 20% on the coast is allocated to housing, but less than 17% in the ring.

Table 9.12. *Portsmouth: land uses by urban zone**

| | RING | CORE | COAST |
|---|-------------------|------------------|------------------|
| Total Land Area (ha) CORINE 2000 | 32,344 | 5,230 | 3,230 |
| Total Area of Undeveloped Land (inc Agricultural Land, Open Space and Natural Habitat) (Ha) CORINE 2000 | 22,810 (70.5%) | 1,913 (36.6%) | 1,676 (51.9%) |
| Total Land Area (ha) ONS Output Area Geography 2001 (Excluding Natural Habitat and Water) | 29930 | 3843 | 1758 |
| Total Area of Land Allocated to Economic Activity (Excluding Agriculture or Recreational Sports Areas) 2003 | 213 (0.71%) | 172 (4.48%) | 79 (4.49%) |
| Total Area of Land Allocated to Housing 2005 | 5013 (-16.74%) | 1170 (30.44%) | 337 (19.17%) |
| Land that is Unused or May be Available for Redevelopment; Suitable for Housing (Hectares) 2004 | 54 | 93 | 28 |
| Land that is Unused or May be Available for Redevelopment; Suitable for Housing (Hectares) 2007 | 71 | 156 | 28 |
| Percentage change 2004-7 in land available for housing development | 31.4% | 68% | 0 |

Unfortunately land use change data were not available for the 10 years between 2000 and 2010 so we could not analyse changes in and the intensification of land uses. CORUNE 2006 data did subsequently become available, but too late for inclusion in this chapter. The one exception is the data available for land that is unused or may be available for redevelopment, which is suitable for housing. Table 9.13 shows that more land has been made available in the core, and the rate of increase is far greater in the core than in the ring. This reflects not so much the constraints of existing land uses, and urban intensities, as policies regarding land use and development. Since 1997 policy in the UK has emphasised the reclamation and reuse of brownfield or previously developed land, particularly to meet house building targets. It also emphasises the tight constraints on development in the surrounding ring.

* Figures in parentheses (%) are percentages of total land area.

Figure 9.16. *Portsmouth: urban extensification 1991-2001*

In the absence of reliable data on land use changes, we have been able to record urban extensification by comparing census data on population for 1991 and 2001. Identification of urban settlement boundaries has relied on modeling population thresholds within small census areas and, although the methodology used for the two datasets has been similar, there are some discrepancies in the size and population thresholds of census areas between the two dates. The grey areas of the map show the urban settlement boundaries at 1991. The dark blue areas indicate where an increase in population has extended the existing boundary. The brown areas also indicate census areas newly classified as urban in 2001. These however may exaggerate urban intensification because of anomalies arising from census area changes.

It can be seen that, as expected, with the exception of the areas of water, most of the core was already built on in 1991. During the 1990s there was relatively little change in this, with the exception of a few small pockets of development, mostly located on the northern fringes of the zone, but with some significant developments in the coastal zone (for example on the south eastern shore). There are more changes in the overall distribution of the built up area within the ring, although the overall pattern is remarkably stable, suggesting that where population has

decentralised to the ring (see above) it has been absorbed largely within existing settlements. Most of the changes are small-scale, incremental and patchy extensions to the built up area with the only important exception being the area on the western boundary of the ring, in Fareham,

3.4.4 Household change

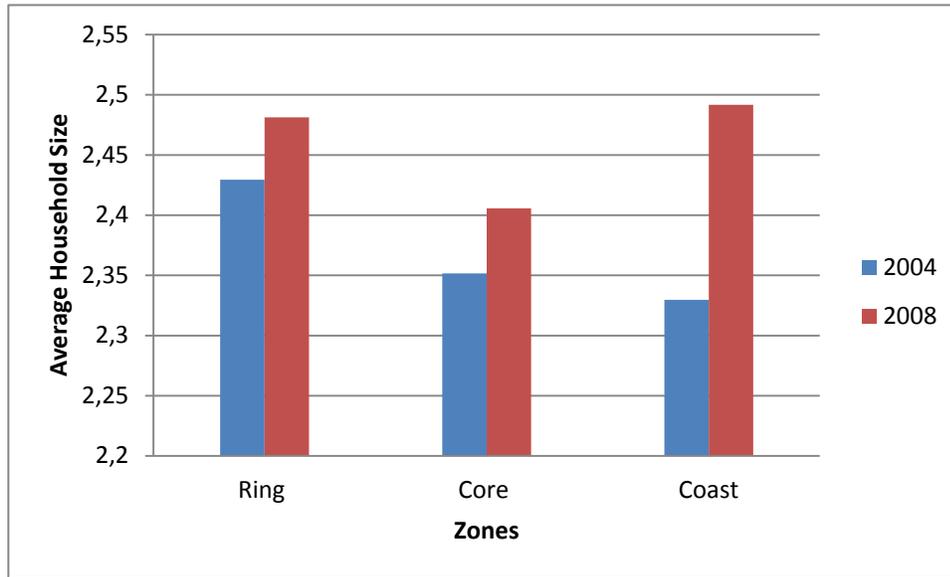
The average household size is greater in the ring than in the core, and especially the coastal zone, reflecting the geography of the family life cycle in 2001, when more families with children lived in the ring, and young single person, including students, and childless older households tended to remain in the core (Table 9.13). No change data is available that is directly comparable with the 2001 census for recent years, but Experian (a private data provider) do provide comparable modelled demographic data for 2004 and 2008. These preliminary data indicate that between 2004 and 2008 average household size rose in all zones although average size in the ring continued to exceed that found in the core.

However in 2008 household size in the coast marginally exceeded that of the ring. Households are generally becoming larger across the metropolitan area, although average size has increased most in the coastal zone (Figure 9.17). These changes reflect a mix of pressures including continued preference for suburban and small town living by local families, the growing number of migrants and larger migrant families concentrated within the core (see above) and more young adults, including the expanded student population, sharing in the core and coastal zones (possibly exacerbated by the rise in housing costs during this period). The strategic plan for housing in Portsmouth emphasises the oversupply of two bedroom apartments and the shortage of affordable family housing within the city. Although there is no evidence as yet, these preliminary data suggest that overcrowding may be a growing issue for the core and, particularly, the coastal zone.

Table 9.13. Portsmouth: average household size, 2001, 2004 and 2008

| | RING | CORE | COAST |
|--|------|------|-------|
| Average Household Size (Number of Persons including Children), 2001 | 2.38 | 2.30 | 2.27 |
| Average Household Size (Number of Persons including Children) Experian, 2004 | 2.43 | 2.35 | 2.33 |
| Average Household Size (Number of Persons including Children) Experian, 2008 | 2.48 | 2.41 | 2.49 |

Figure 9.17. Portsmouth: change in Household Size



Finally, Table 9.14 summarises some key features of the housing stock in 2001, although again it is unfortunate that no change data are available.

Table 9.14. Portsmouth: housing features, 2001

| | RING | CORE | COAST |
|--|---------|--------|--------|
| Total Number of Dwellings (Including Apartments within Individual Buildings and Single Family Dwellings) | 140,629 | 81,652 | 23,184 |
| Total Number of Apartments | 20,846 | 25,499 | 7,680 |
| Apartments as % of all dwellings | 14.8% | 31.2% | 33.1% |
| Total Number of Shanty or 'Temporary' Dwellings | 799 | 172 | 86 |

The most significant feature of the housing stock data is that apartments represent more than twice as large a proportion of the total number of dwellings in the core and the coastal zone, compared to the ring. These are clear indicators of the pressures on the housing stock and available living spaces, particularly given the relatively modest difference in average household size between urban zones. The number of shanty or temporary dwellings is relatively small, representing less than 0.6% of the total of all dwellings in any zone. The mostly represent various forms of mobile home parks, which have become effectively permanent homes for small numbers of individuals.

4. London/Thames Gateway Metropolitan Region

4.1 Overview of urban growth and development

Thames Gateway was a planning area designed to guide urban development along the Thames corridor to the east of London (Raco 2005). The spatial extent of the Thames Gateway was set out in National Regional Planning Policy Guidance as part of the regional spatial strategy for the development of the south east of England (HoC 2007). This designated Development Area reflects past governments' policy priorities - namely identifying areas of brownfield land (previously developed land) which could be made available for new housing and infrastructure development. It covers over 100,000 hectares and stretches over 64 kilometres along the Thames Estuary from Isle of Dogs and London Docklands, near the centre of London, to Southend in Essex (north) and Sheerness in Kent (south). Thames Gateway includes territory governed by 16 Local Authorities, 168 wards and 23 UK parliamentary constituencies. The designation of Thames Gateway as a planning region was formally abandoned by central government after the last general election, when the project was already underway.

A significant part of Thames Gateway is already functionally part of the London Metropolitan region. The latter has Westminster, the West End, the City and Canary Warf at its heart and expands across a large part of the South East of England, reflecting its status as a world city. The metropolitan region in aggregate constitutes one of the most prosperous regions in Europe, with London being one of the major financial centres of the global economy. It is however a region of striking economic and social contrasts, with pockets of extreme wealth and high incomes as well as areas of high unemployment and extreme social deprivation. The metropolitan region is, above all, highly socio-spatially segregated along lines of social class and ethnicity.

London is probably the iconic UK case study of the relationships between flows and urbanization. The city has a long history dating over two thousand years, and in the course of this has been at the heart of successive phases of migration from the rest of the UK, Europe, the former colonies of the British empire, and more recently from the rest of the world. This means that the city is the epitome of what Vertovec (2005) terms 'superdiversity'. It is a large and (after a long hiatus in the post World War Two period) expanding city which is strongly interconnected regionally and globally, and continues to be the destination for various forms of temporary and permanent migrations, as well as of tourism, retailing and leisure flows.

Given the massive concentration of jobs in London, particularly in the areas of the City/Canary Wharf, the West End and Westminster, the core is the destination for extensive commuter flows. Consequently, London is surrounded by an extensive ring made up of the outer boroughs of Greater London, and a series of cities, towns, and semi-rural and rural areas that are connected to the core by a dense network of public transport routes and roads. As explained in the methodology section, a small but economically very significant western part of the Thames Gateway lies within the core region, while most of the area is part of the ring, and some of the outer eastern areas – especially to the south of the river – are detached, and more self contained in terms of commuting. Most of Thames Gateway is part of the coastal zone of the metropolitan region – indeed it includes virtually all of its coastal area.

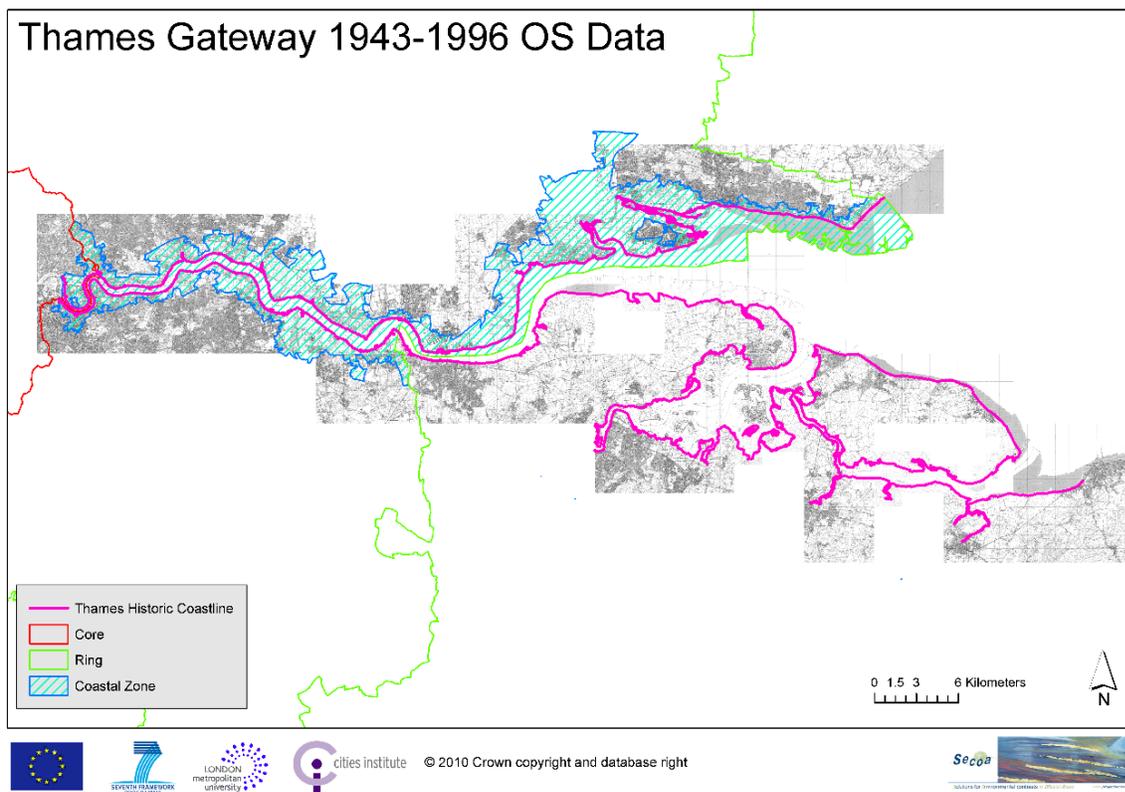
All the zones of the metropolitan region have experienced rapid population expansion in the ten years between 1999 and 2009 (Table 9.15). The core has grown more rapidly than the ring – by 11.27% compared to 4.41% - so that the metropolitan region is characterized by relative centralization. This is a marked contrast to the strong absolute and relative decentralization that occurred in much of the twentieth century. It reflects the dynamism of the financial services sector, strong internal and international migration, and the extensive regeneration of large areas of derelict land in the London Docklands – including the inner parts of Thames Gateway. The highest growth rates, however, have been in the coastal region – 20.21%. Most of this increase has been experience in the London Thames Gateway area of the coastal zone where relatively cheaper housing has been available and new migrants and their families have settled. It is also further evidence of the impact of urban regeneration, as well as of the strategy to develop brownfield sites throughout the Thames Gateway corridor.

Table 9.15. London: population of the core, ring and coastal zones, 1999 and 2009

| | RING | CORE | COAST |
|-------------------|-----------|-----------|---------|
| Population 1999 | 7,082,704 | 1,531,062 | 195,120 |
| Population 2009 | 7,394,940 | 1,703,632 | 234,561 |
| Population Change | +312,236 | +172,570 | +39,441 |
| % Change | +4.41 | +11.27 | +20.21 |

Figure 9.18 illustrates how Thames Gateway intersects the core and ring of the metropolitan region, and also how it accounts for most the coastal zone. The accretions to the built up area are also evident, although note that the available data relate to the period before the implementation of the Thames Gateway strategy. Significant areas of development in the eastern part of the zone have been located on reclaimed land, as can be seen by the juxtaposition of the historic coastline.

Figure 9.18. Changes in the built area of Thames Gateway shown in relation to the zones of the metropolitan region, 1943-1996



4.2 Permanent mobility: migration

London has long been a focus of migration, both internal and external, but these flows are both inwards and outwards and in recent years there have been sharp differences between internal and international migration. These broadly reflect trends evident in other major metropolitan regions, with net international migration – to some extent – acting to replace net internal migration losses. This, of course, contributes to significant changes in the social composition of the population.

In terms of internal migration, there have been substantial migratory flows both into and out of all three zones, but these have uniformly resulted in net migration losses in both time periods (Table 9.16). In 1999 the losses in the ring were approximately twice as large as in the core, in absolute terms, while the absolute flows into the rings were three to four times as large as in the core. This emphasises that high levels of permanent migration are a feature of all urban zones, and not only of the core. By 2009 – despite this being a year of global economic crisis – permanent migration levels were higher in both the core and the ring than in 1999, indicating the increasingly substantial nature of population flows. However, out-migration had been increasing faster than in-migration, so that net migration fell in both the core and the ring. At the same time, net migration in the core although still negative was significantly reduced and starting to approach a balanced demographic position. In coastal areas, there was a broadly similar pattern with net outmigration in both time periods – however, this increased slightly between 1999 and 2009.

Table 9.16. *London: internal in-, out-, and net migration, 1999-2009*

| | | RING | CORE | COAST |
|------------------------------|------|---------|---------|--------|
| Total internal in-migration | 1999 | 406,753 | 117,000 | 11,542 |
| Total internal out-migration | 1999 | 442,517 | 131,400 | 12,005 |
| Total net internal migration | 1999 | -35,764 | -14,400 | -463 |
| <hr/> | | | | |
| Total internal in-migration | 2009 | 452,005 | 153,400 | 11,542 |
| Total internal out-migration | 2009 | 472,721 | 158,500 | 12,037 |
| Total net internal migration | 2009 | -20,716 | -5,100 | -496 |

The picture is very different in respect of international migration (Table 9.17). To provide context, it should be remembered that not only has London long been the principal regional destination of international migrants within the UK, but that the mid 2000s were a period of exceptionally high international migration arrivals to the UK, following the enlargement of the EU. The metropolitan area received over 180,000 international migrants in 2003, and although there were also substantial outflows, there was significant positive net international migration at this date, of over 80,000. All zones had broadly similar patterns of international migration, confirming that this has had impacts far beyond the traditional focus on inner urban areas. The net gains in 2003 were larger in the ring than the core. By 2009 the inward flows of international migrants had fallen in all zones, while outflows had increased, reflecting the continuing economic crisis. The overall outcome continued to be net positive inflows, but at sharply reduced levels compared to 2003. The coast, however, was an exception, with moderately higher levels of in-migration, and net in-migration in 2009 compared to 2003: there are no obvious reasons for this discrepancy, and care has to be taken in interpreting relatively small absolute shifts.

Table 9.17. London: international migration, 2003-2009

| | | RING | CORE | COAST |
|-----------------------------------|------|---------|---------|--------|
| Total international in-migration | 2003 | 121,761 | 59,300 | 2,474 |
| Total international out-migration | 2003 | 70,999 | 28,000 | 1,419 |
| Total international net migration | 2003 | +50,762 | +31,300 | +1,055 |
| <hr/> | | | | |
| Total international in-migration | 2009 | 108,723 | 51,600 | 2886 |
| Total international out-migration | 2009 | 82,407 | 38,600 | 1736 |
| Total international net migration | 2009 | +26,316 | +13,000 | 1151 |

The significant role played by international in-migration in the overall pattern of migration into the different urban zones is indicated in Table 9.18. In 2003, international migrants were the single largest group of in-migrants to the core, exceeding both national in-migrants from beyond the metropolitan region and migrants from the ring. In the ring, national migrants were the largest group, while in the coast this position was taken by in-migrants from the metropolitan ring. At this date, therefore, while all three types of migration flows were important in all the zones, there is evidence that international migration was relatively more of a driving force in the core, as expected. By 2009, perhaps reflecting the way in which the

economic crisis had somewhat reduced international migration, this now took second place to national migration from beyond the metropolitan area in all three zones. The differences between the two migration flows had become particularly marked in the ring, but both continued to play an important role.

Table 9.18. London: the origins of in-migrants in 2002/2003 and 2009

| | | RING | CORE | COAST |
|--|------|---------|--------|-------|
| International In Migrants | 2003 | 121,761 | 59,300 | 2,474 |
| National In Migrants (Beyond Ring) | 2002 | 136,404 | 41,818 | 2,155 |
| In Migrants from the Metropolitan Ring | 2002 | | 46,527 | 5,127 |
| In Migrants from the Metropolitan Core | 2002 | 66,630 | | 1,584 |
| | | | | |
| International In Migrants | 2009 | 108723 | 51,600 | 2886 |
| National In Migrants (Beyond Ring) | 2009 | 156,059 | 57,145 | 3,435 |
| In Migrants from the Metropolitan Ring | 2009 | | 54,820 | 5,874 |
| In Migrants from the Metropolitan Core | 2009 | 73,764 | | 1,993 |

Migration flows from the cores to ring were significantly greater than the reverse flows at both dates. Therefore, although relative population centralization in the metropolitan area was noted earlier, this is driven more by extra-metropolitan inflows than by movements within the London Metropolitan area. It also confirms that decentralising migratory flows are a continuing dominant dynamic *within* the metropolitan region

Figures 9.19 and 9.20 provide further insights into the ways in which internal migration (within England and Wales) flows have impacted on London metropolitan region in 2002 and 2009. They also serve to put the immigration data in perspective. In 2002, there were broadly similar flows between the core and the rest of England and Wales (beyond the metropolitan area), while the ring lost more population in this way than it gained. The core also lost more population to the ring than it gained. There does therefore seem to be a system whereby, in relative terms at least, the core attracts migrants from the rest of the UK, the ring attracts more migrants from the core, and the rest of England and Wales attract migrants from the ring. This is related in part to age differentials, and the family life cycle. The same broad patterns can be seen to exist in 2009. The coast has a positive balance of internal migrants from the core, and negative balances to the ring and the rest of the UK. In terms of the movements from the core, this suggests a decentralization from the core to some of the areas of urban regeneration and suburban areas in the coastal zone.

Figure 9.19. London: principal migration flows, 2002

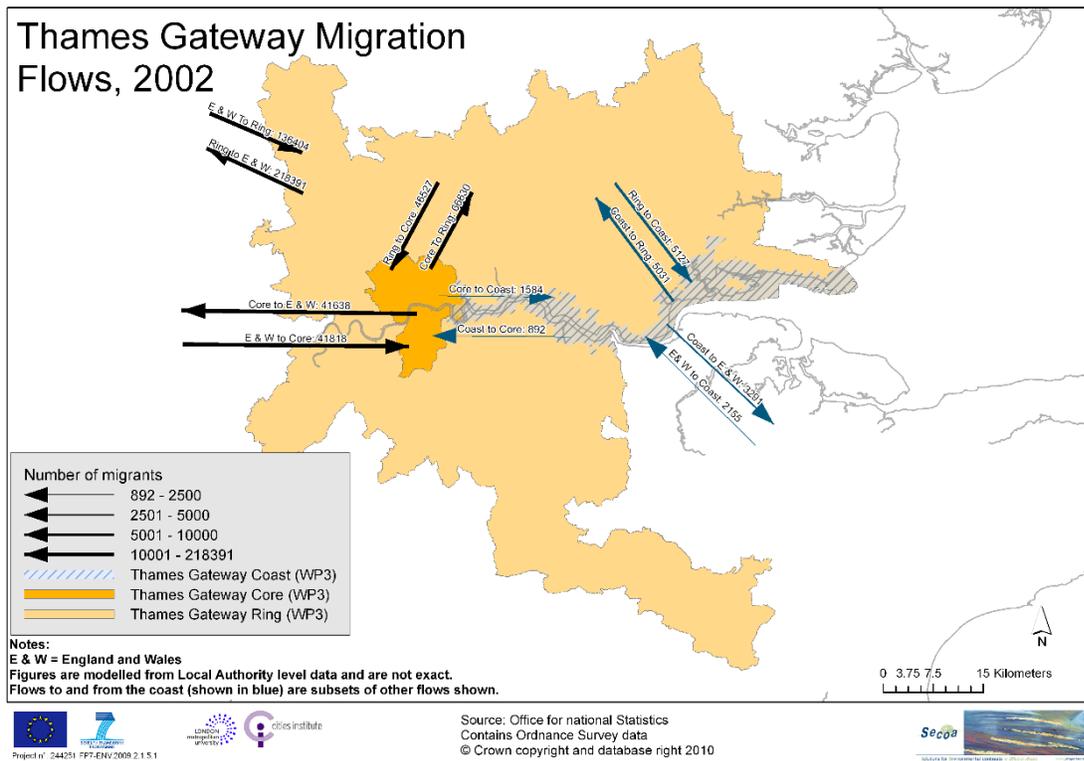


Figure 9.20. London: principal migration flows, 2009

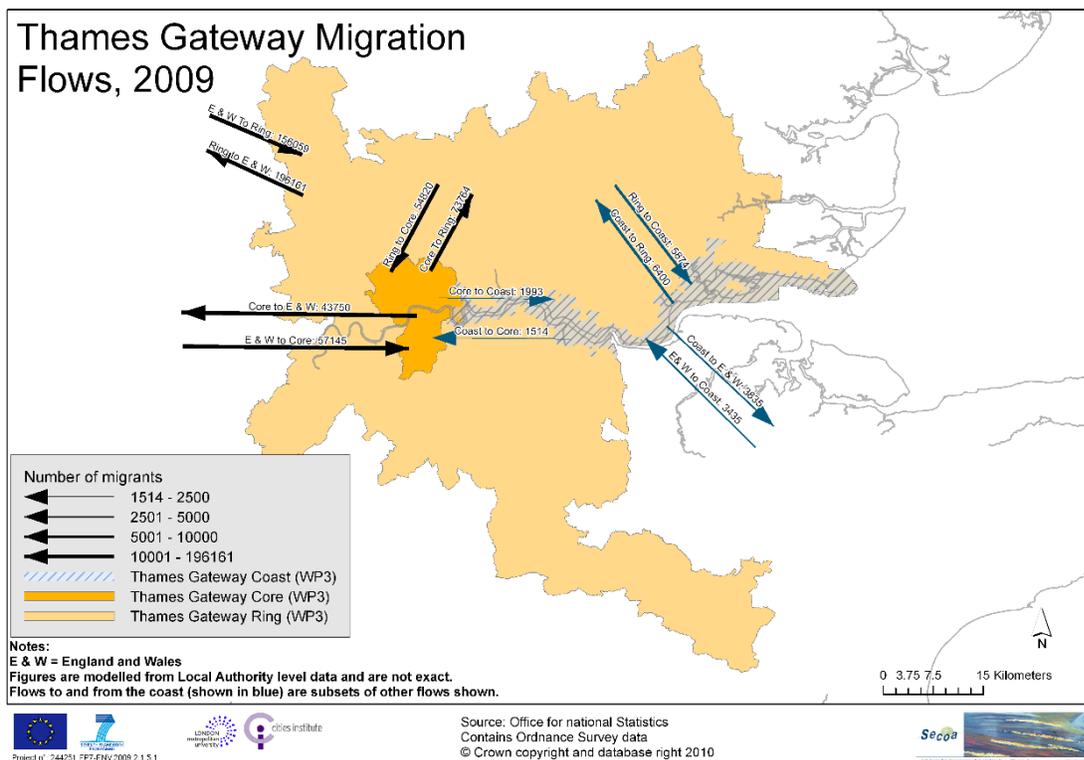


Table 9.19 confirms that there are substantial age differences in the flows of internal in-migrants. A larger proportion of internal migrants to the core are of working age, that is aged 16-30 or 31-65, compared to the ring, where older migrants and young migrants aged under 16 are relatively more important. The same pattern holds in both 1999 and 2009, and is suggestive of the classic family-life cycle effect. The core attracts migrant workers of all ages, while migrants with younger children are relatively more likely to be attracted to the ring than the core.

Table 9.19. London: Age distribution of internal in-migrants, 1999 and 2009

| | | RING | CORE | COAST |
|---------------------------------------|------|---------------------|--------------------|-------------------|
| Total Internal In Migrants aged <16 | 1999 | 62,400 (15.69%) | 9,900 (8.46%) | 1,798 (15.55%) |
| Total Internal In Migrants aged 16-30 | 1999 | 84,496 (20.77%) | 31,500 (26.92%) | 2,788 (24.12%) |
| Total Internal In Migrants aged 31-65 | 1999 | 242,117 (59.51%) | 73,600 (62.91%) | 6,560 (56.74%) |
| Total Internal In Migrants aged > 65 | 1999 | 17,825 (4.38%) | 2,000 (1.76%) | 415 (3.59%) |
| <hr/> | | | | |
| Total Internal In Migrants aged <16 | 2009 | 70,387 (15.57%) | 11,200 (7.29%) | 2,028 (15.35%) |
| Total Internal In Migrants aged 16-30 | 2009 | 104,304 (23.07%) | 45,400 (29.56%) | 3,210 (24.30%) |
| Total Internal In Migrants aged 31-65 | 2009 | 262,426 (58.03%) | 95,300 (62.04%) | 7,521 (56.93%) |
| Total Internal In Migrants aged > 65 | 2009 | 15,085 (3.34%) | 1,700 (1.11%) | 453 (3.43%) |

No comparable data is available on the age distribution of international migrants but other studies have indicated that they are likely to be disproportionately young and single, adding to the way in which migration is demographically differentiating the core and the ring.

There is also an indication of retirement migration flows towards the ring. The age profile of internal in-migration to the coastal region is broadly similar to that of the ring, which is consistent with the fact that the coastal zone is largely located within the ring. Although some areas of the coastal zone are heavily industrialized, as around Grays and Tilbury, there are also

relatively underdeveloped coastal areas that are attractive to in-migrants, especially those seeking single family dwellings.

To conclude the discussion of permanent migration, this is considered in relation to overall population change in the metropolitan region (Table 9.20). In 2004, the core was the only zone to have a net gain from the combined effects of internal and international migration, while the ring and the coast had broadly similar net losses. This is consistent with strong international net in-migration to the core at this date as well as the relative centralization of population witnessed over the last decade. By 2009, migration made a net positive contribution in all three zones, but it was significantly greater in the core, and was also stronger in the coastal zone than the ring, partly reflecting the sustained development initiative in Thames Gateway in the intervening period. As would be expected, net migration was particularly important in the core, accounting for 93.8% of population change between 2003-4 and 2008-9.

Table 9.20. London: impacts of net migration on total population (%)

| | RING | CORE | COAST |
|---|--------|--------|--------|
| Net Internal and International Migration 2003-2004 as Percentage of Total Population 2004 | -0.35% | 0.21% | -0.30% |
| Net Internal and International migration 2008-9 as percentage of 2009 population | 0.07% | 0.46% | 0.32% |
| Net Internal and External migration as % of population change 2003-4 to 2008-9 | 93.85% | 28.89% | 1.90% |

The geographical distribution of ward based in-migration 2000-2001 as a percentage of the population inevitably displays a more complex pattern than is suggested by the aggregate zonal data (Figure 9.20). These data capture all moves undertaken in the 12 months prior to the census and so include all relocations between wards within each zone, as well as moves from outside the locality, from elsewhere in the UK and from abroad. Figure 9.20 therefore indicates population *churn* from local relocations and longer distance migration. There is therefore no simple pattern to the impact of this local and longer distance mobility, However there are some observable trends.

Ward level in-migration in relation to total population of the ward was greatest throughout the core and the immediately adjacent parts of the ring, particularly to the west of the core and in the western metropolitan ring, although there is a significant pattern of higher levels of migration in wards in a south eastern corridor of the ring. This follows the commuting

pattern which emerged in the late 1990s with population moving to and within well connected established towns in Kent (such as Sevenoaks, Tunbridge Wells and Tonbridge) in search of larger and more affordable housing, quality of life and family friendly environments. These data relate to moves undertaken in the 12 months prior to the 2001 census and therefore capture both decentralisation and the heightened localised mobility within the London metropolitan region.

It is also notable that ward level migration was particularly important in the western half of the coastal zone (that is in the London Thames Gateway sector) (Figure 9.21). This is largely due to the internal churn which is a particularly notable feature of the eastern sector of London. High levels of population turnover derive from frequent short distance relocations and raised levels of settlement from longer distance and international migration. This map is however prior to the most significant impacts of the Docklands redevelopment programme in the Isle of Dogs/Canary Warf and other major housing led regeneration programmes which sought to pull the centre of London eastwards. These impacts were to emerge in the following 10 years for which data are unfortunately not yet available.

Figure 9.21. London: in-migration 2000-1 as a percentage of 2001 population

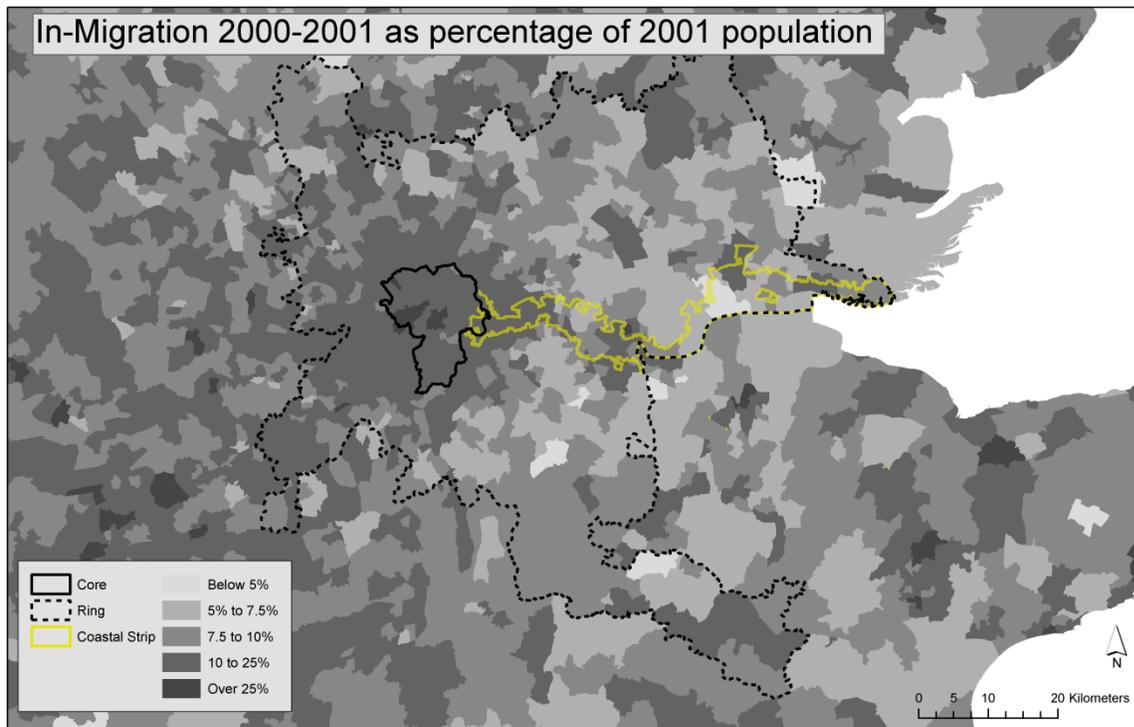
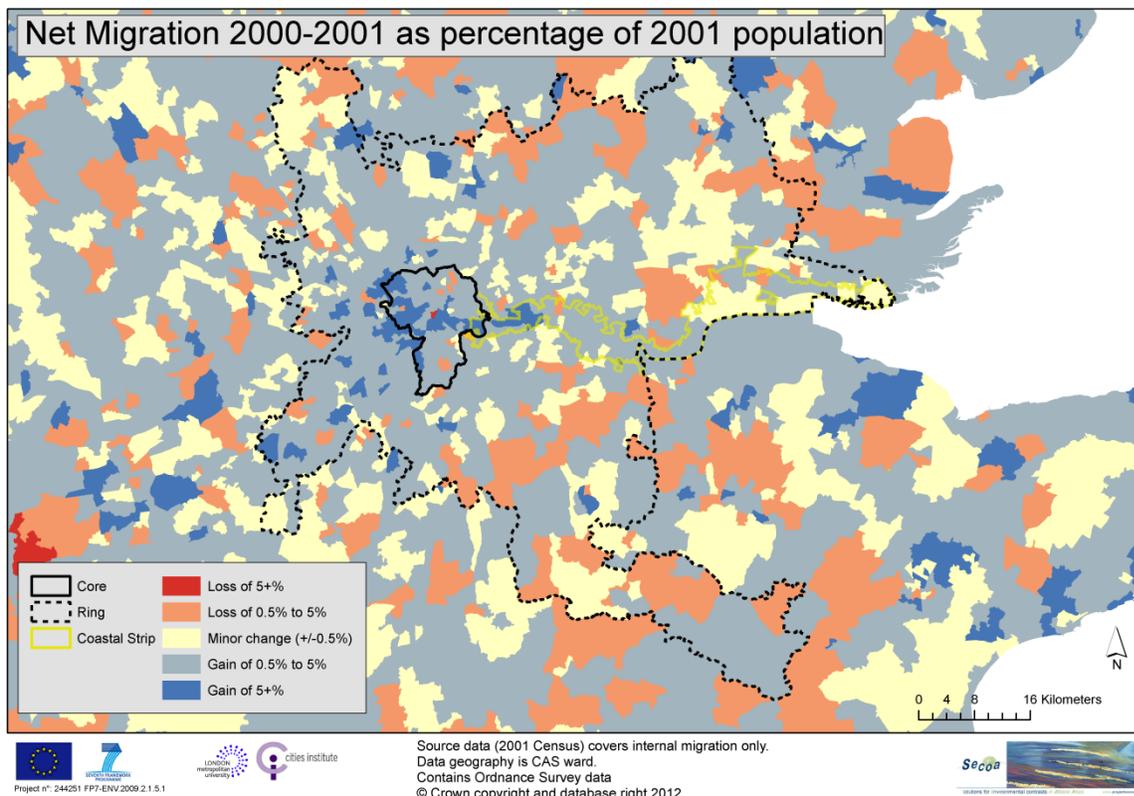


Figure 9.22 provides different insights into the contribution of migration to the changing map of population in the metropolitan region. This map reflects a pre 2001 pattern of population gain in most of the metropolitan core and in much of the ring, with some exceptions especially on the outer fringes of the ring. During this period London attracted young migrants from elsewhere in the UK and to a lesser extent internationally, who moved through London and outwards once they had become established or had gained experience in the metropolitan labour market. Figure 9.21 represents ward level migration before mass migrations from within an enlarged EU and strong international migration driven by economic growth following deregulation of the financial sector.

Figure 9.22. London: net migration 2000-1 as a percentage of the 2001 population



4.3 Temporary mobility: commuting, education, and pleasure mobilities

All metropolitan regions are characterised by high levels of temporary as well as permanent mobility. This is particularly true of the London region, where the temporary mobilities have an unusually strong international dimension.

4.3.1 Commuting

Commuting probably represents the single most important form of temporary mobility in the London metropolitan area. Given the scale of the ring, it is hardly surprising that flows within the metropolitan ring are by far the most numerous type of journey to work (Table 9.21 and Figure 9.23). There are also substantial flows within the core. These are not necessarily short journeys, given the scales of both the core and the ring of London. However, of greater note is the expected imbalance in the flows between the core and the ring. There is of course a high degree of centralization, given the concentration of jobs in the core, and the flows from the ring to the core are more than six times greater than the reverse flows. In 2001 there were 1,355,793 commuter journeys from ring to core which, combined with a further 684,307 within-core journeys, means that more than two million people travelled to work to jobs in the core.

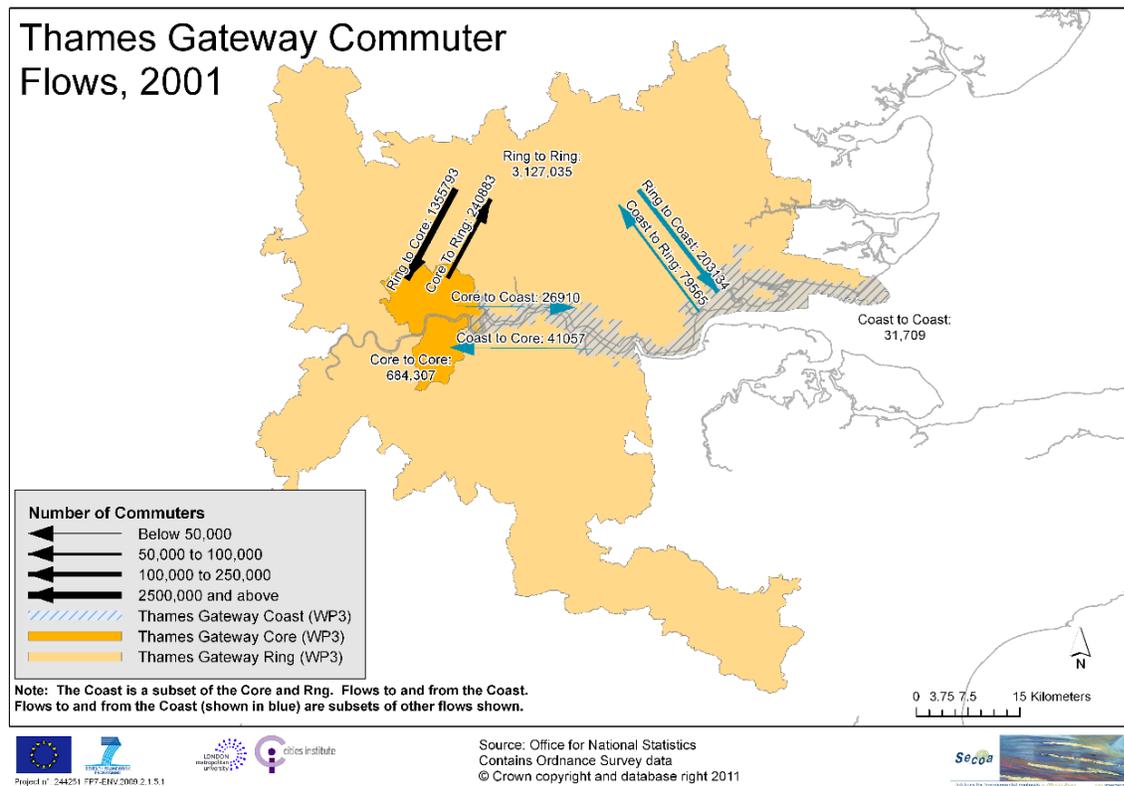
The coastal zone occupies an intermediate position. It sends far more commuters to the core than vice versa, but receives almost twice as many commuters from the ring as it sends to the latter. These flows reflect the enormous economic power of London, but also the relative concentration of jobs within the coastal zone in relation to the surrounding ring. There are therefore significant social and environmental issues relating to commuting into and out of the coastal zone.

These patterns are based on data from 2001. The intensity of movement is likely to have increased in the subsequent 10 years as the ties between employment and residential locations have become spatially disconnected, particularly in the metropolitan ring.

Table 9.21. London: intra and inter-zonal commuting flows, 2001

| | | RING | CORE | COASTAL ZONE |
|--------------|------|-----------|-----------|--------------|
| Ring | 2001 | 3,127,035 | 1,355,793 | 203,134 |
| Core | 2001 | 240,883 | 684,307 | 26,910 |
| Coastal Zone | 2001 | 79,565 | 41,057 | 31,709 |

Figure 9.23. Intra-zonal commuter flows in London/Thames Gateway in 2001



4.3.2 Second homes

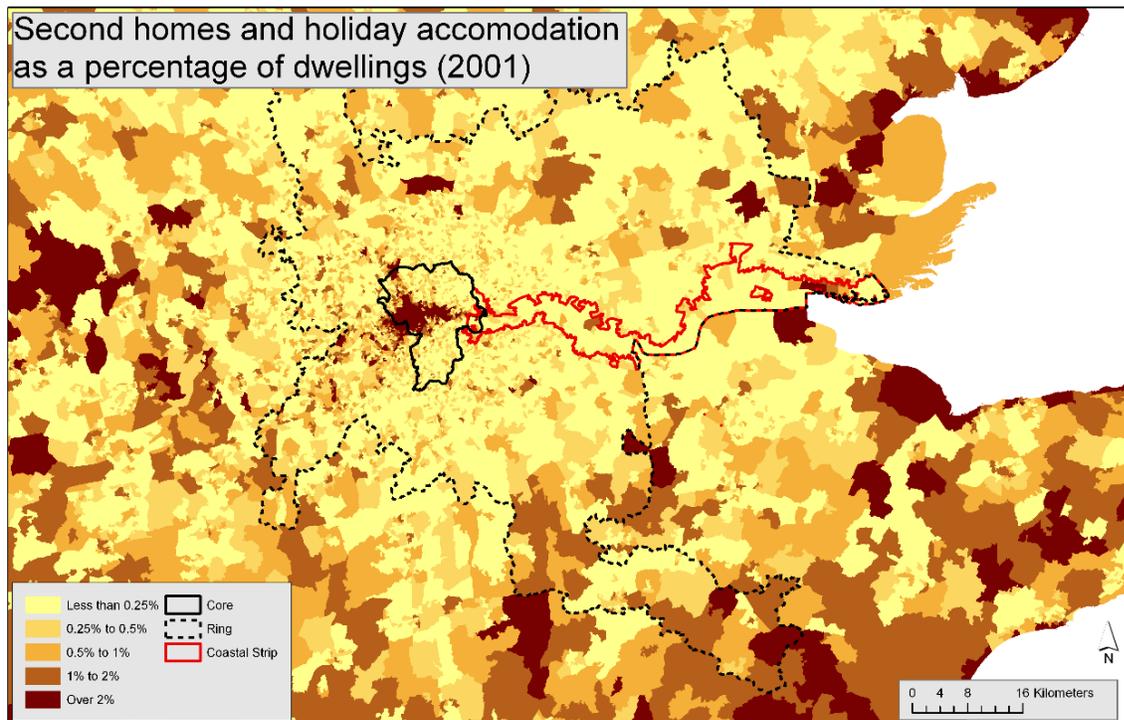
There are a substantial number of second homes in the London Metropolitan region, and these are relatively – although not absolutely – more important in the core than in the ring (Table 9.22). This represents the role of second homes for both work and leisure purposes in the core of London, as a result of weekly commuting to work in the capital city by people who consider that their main home is elsewhere. It is particularly notable that the numbers of second homes more than doubled in every zone between 2001 and 2007, indicating that dual residences are becoming increasingly important in the metropolitan region, although numbers are still relatively modest in relation to the total housing stocks.

Table 9.22. London: the zonal distribution of second homes, 2001 and 2007

| | | RING | CORE | COAST |
|------------------------------|------|-------|-------|-------|
| Total Number of Second Homes | 2001 | 9316 | 7854 | 281 |
| Total Number of Second Homes | 2007 | 21093 | 16862 | 1762 |

The growth of second homes has been particularly strong in the coastal zone, increasing more than sixfold in the period 2001-7. However, as is evident from Figure 9.24, second homes were relatively unimportant in the coastal zone in 2001, compared to the major concentration in the central, western, and north western parts of the core, as well as a few clusters in the outer parts of the ring. For example on the Essex coast (north shore of the of the Thames Estuary), there are several popular retreats between Canvey Island and Southend on Sea which had traditionally attracted second home and mobile home owners from the north and East of London. Likewise on the North Kent coast, particularly around the Isle of Sheppey and south towards Whitstable, for the those living in central and south east London.

Figure 9.24. London: second home and holiday accomodation as a percentage of all dwellings, 2001



4.3.3 Students

London is one of the major centres of higher education in the UK, and indeed globally, attracting students both nationally and internationally. There is a particular cluster of universities in the central part of the core, including the colleges of London University, London Metropolitan University, Southbank and Westminster University but there are also universities and colleges distributed throughout the ring including Middlesex, Thames Valley, Greenwich, East London, Goldsmiths, Royal Holloway and parts of Kent University. In total in 2001, there were approximately 350,000 students at these and other institutions, who were living away from their family homes. Many of these students would be from homes outside the metropolitan area, but there will be a number whose family homes are within the metropolitan area, including possibly some students living in the core whose family homes were in the metropolitan ring. Of this number, 101,324 are in the core and 248,874 are in the ring. Only 5,820 are in the coastal zone. Students add significantly to the numbers of residents in the academic terms or semesters, and further reinforce the youthful demography of the core in particular.

4.3.4 Tourists

London is a global tourism destination, and is a destination for approximately half of all international tourists to the UK (Bull et al 1996). There is a dense cluster of tourism attractions, especially of cultural and historical sites, in inner London in particular. The British Museum alone attracts 6 million visitors (day visitors and tourists) annually. There are also important events and business tourism functions which add to the large numbers of tourists. Tourism peaks seasonally in summer, weekly at the weekends, and diurnally has a number of peaks of variable intensity given that there is also a very strong night time economy.

The core received on average across the year some 44,234 overseas and domestic tourists in 2007, and their spatial concentration add significantly to the pressures on circulation spaces and land use in the centre of London (Table 9.23). However, there are also diverse tourism attractions – ranging from theme parks to historic sites – in the ring. This received 35,219 per day tourists and visitors in 2007 – a substantial number, although their impact is mediated by their geographical dispersal across a large region. Tourist numbers in the coastal zone are estimated to have been at a much lower rate of 6322 per day in 2007, with Greenwich being the

major attraction. The tourist and visitor economy in the Thames Gateway beyond London is acknowledge to be underdeveloped, however Southend and Caney Island are popular local retreats for London residents. In 2012, the Olympic Games, to be held at Stratford, located just inside the western edge of London area of Thames Gateway, will generate its own distinctive and highly polarised tourism pressures on the adjoining areas.

Table 9.23. London: the zonal distribution of tourists, 2009

| | | RING | CORE | COAST |
|---|------|-----------|-----------|---------|
| Average Number of Day Visits/Tourists per Day | 2009 | 2,680,726 | 3,378,240 | 227,922 |

London is a major transport hub, and international tourists arrive principally by air although the Channel Rail connection is also important. In addition, it does receive a modest number of cruise ships. The coastal zone is the focus of cruise ship arrivals, with the peak number of visitors on any one day being estimated at 4,934. The coastal zone does not have particularly attractive beaches or other obvious destinations for large scale tourism, and the peak number of pleasure boats in marinas is only estimated to be around 500. Tourism therefore is not one of the most significant forms of temporary mobility to impact on the coastal zone, although there are exceptions such as Greenwich and the historic Medway towns.

4.4 Impacts of mobility on urbanization

Mobility is closely interwoven with the process of urbanization, and both shapes and is shaped by it. Some of these relationships are examined here in terms of transport, land use, population densities and housing.

4.4.1 Transport

Given the population changes noted above, and a steady increase in car ownership rates, there has been a sustained increase in the number of private vehicles on the roads in all zones (Table 9.24). The rate of increase is slightly higher in the ring than in the core, but the most striking feature is the high rate of increase (almost 20%) in the coastal zone, indicating the existence of considerable pressures on the transport system, and the environment in this zone. It is also indicative of the development momentum in the Thames Gateway planning region.

In absolute terms, there were approximately five times more private vehicles on the roads in the ring than the core, which is a higher ratio than that between the population in the two zones. This reflects the relatively greater importance of public transport in the core, as well as the more spatially dispersed distributions of people, jobs and services in the ring.

Table 9.24. London: average numbers of private motor vehicles

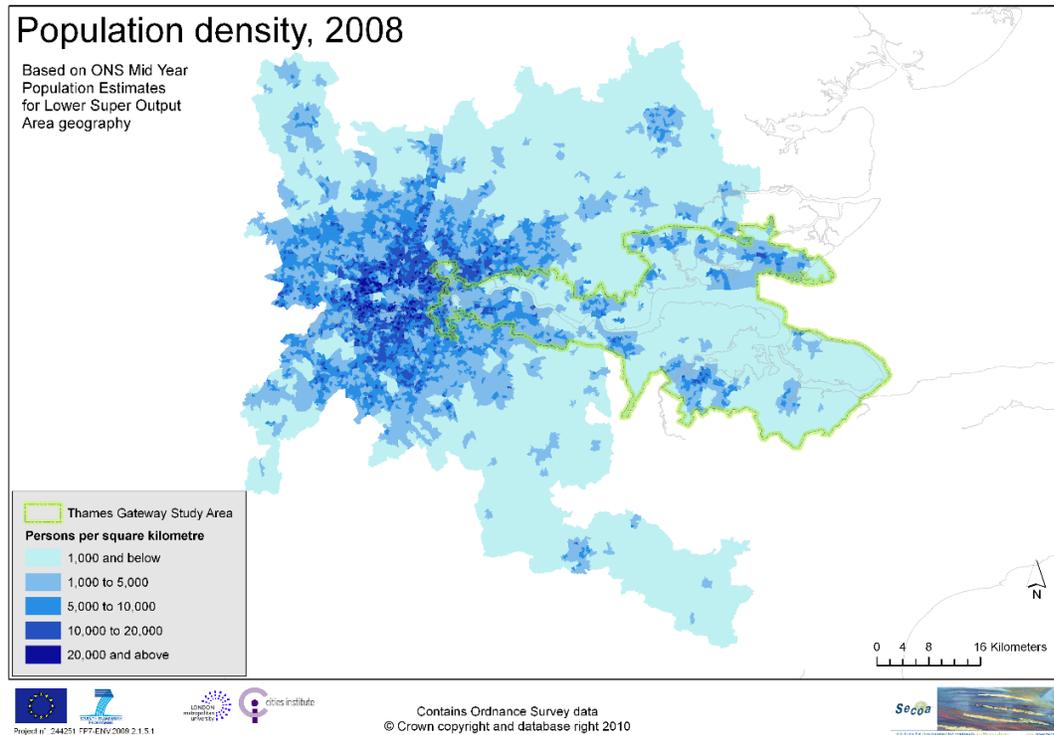
| | RING | CORE | COAST |
|--|-----------|---------|--------|
| Average Daily Number of Private Motor Vehicles on the Roads 2001 | 1,313,638 | 266,014 | 37,564 |
| Average Daily Number of Private Motor Vehicles on the Roads 2009 | 1,414,905 | 282,892 | 45,103 |
| Absolute change 2001-9 | +101,267 | +16,878 | +7,449 |
| Percentage change 2001-9 | +7.71 | +6.35 | +19.83 |

Change data is not available for public transport, but an inter-zonal comparison is possible for 2010 (Table 9.25). There are difficulties involved in identifying the destinations of services that cross several zones, but the overall patterns is clear. The average number of bus arrivals in the core and ring are both over 20,000, being greater in the ring: given that the population in the ring is approximately five times greater in the ring than the core, this indicates the far greater importance of public transport in journeys both to and within the core. This mirrors the greater reliance on private transport in the ring, noted above. These data also indicate strong growth in public transport use nationally in the UK in recent years, as well as the impact of congestion charging in inner London. Train arrivals are higher in the core than the ring, reflecting the radial organization of the rail network, and the existence of substantial inward flows of visitors to London from the extensive ring, and beyond. Virtually by definition, ferry services are concentrated in the coastal zone including both longer distance crossings and a stopping service along the inner sections of the Thames, used by both commuters and tourists.

Table 9.25. London: bus, train and ferry arrivals, 2010

| | RING | CORE | COAST |
|--|-------|-------|-------|
| Average Daily Number of Bus Arrivals | 25297 | 20821 | 11771 |
| Average Daily Number of Train Arrivals | 8986 | 10891 | 2292 |
| Average Daily Number of Ferry Arrivals | 132 | 102 | 174 |

Figure 9.26. London: population density 2008

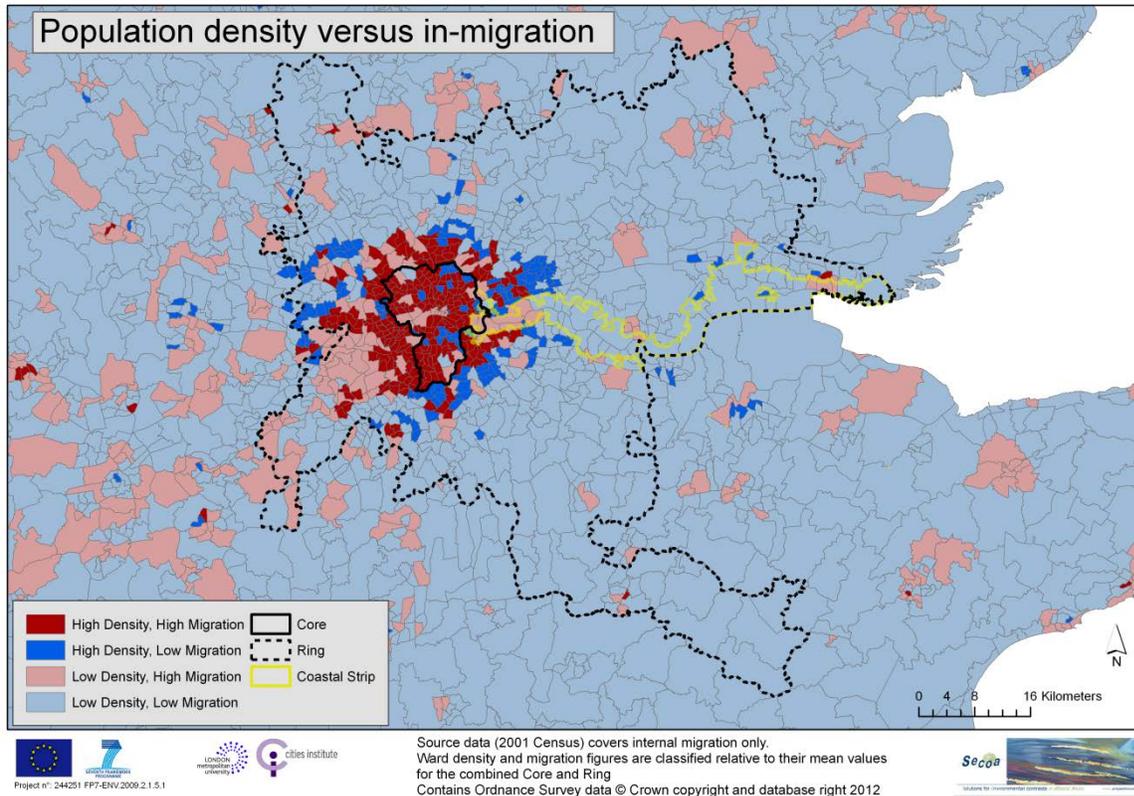


Turning to the relationships between population density and migration (Figure 9.27), there is a relatively simple pattern. Most of the high density areas are in London, and these broadly split into inner London, which is also an area of high rates of in-migration, and outer London where there are mostly low rates of in-migration. The ring is overwhelmingly a zone of low population density and low in-migration. The same applies to much of the coastal zone, and to Thames Gateway as a whole, with the exception of the most westerly areas which are within East London – traditionally a location for new migrants, attracted by relatively cheap housing – and some existing communities within the Gateway further down river to the east. The expansion of these towns has been encouraged in some cases by positive planning policies to encourage housing development and residential relocations both from London and locally.

There is some evidence of the decentralisation of population into the ring where there are areas of low density and high migration, particularly to the west and north west. This is not unexpected as the data used in Figure 9.27 are for the 12 months prior to the 2001 census. They represent earlier processes of relocation to existing population centres within commuting

distance of London and with independent economic and social infrastructures. This pre dates both the sharp increase in international migration, and the impact of the both major London regeneration projects (such as Docklands) and implementation of the Thames Gateway development strategy.

Figure 9.27. London: population density and in-migration, 2001



4.3.3 Land use: extensification versus intensification

Land use in the London metropolitan area in 2000 indicates that the proportion of undeveloped land in the core is significantly different compared to the ring and the coastal zone (Table 9.26). As would be expected less than 13% of land within the core is considered undeveloped. Most of this is designated as Natural Habitat or Open Space and is therefore unlikely to gain permission for future development. In contrast nearly 67% of the ring and 52% of the coast is designated undeveloped, including significant areas of Natural Habitat and Open Space, particularly in the coastal zone and agricultural land protected by Greenbelt status. This highlights the particular constraints within the core and underscores the UK policy emphasis on

reusing land which has been previously developed (brownfield land) in urban and peri-urban areas.

Unfortunately land use change data are not available for the 10 years between 2000 and 2010 so we can't analyse changes in, and the intensification of, land uses. Change data is only available for land that is unused and may be available for redevelopment which is suitable for housing (Table 9.26).

Table 9.26. London: land uses by urban zone*

| | RING | CORE | COAST |
|---|---------------------|--------------------|------------------|
| Total Land Area (ha) CORINE 2000 | 387,302 | 15,962 | 18,795 |
| Total Area of Undeveloped Land (inc Agricultural Land, Open Space and Natural Habitat) (Ha) 2000 | 257,773 (66.55%) | 2044 (12.81%) | 9810 (52.20%) |
| Total Land Area (ha) ONS Output Area Geography 2001 (Excluding Natural Habitat and Water) | 38,7608 | 15,548 | 16,921 |
| Total Area of Land Allocated to Economic Activity (Excluding Agriculture or Recreational Sports Areas) 2003 | 4,754 (1.23%) | 2,825 (18.17%) | 507 (2.99%) |
| Total Area of Land Allocated to Housing 2005 | 72,603 (18.73%) | 4,608 (29.69 %) | 1,629 (9.63%) |
| Land that is Unused or May be Available for Redevelopment; Suitable for Housing (Hectares) 2004 | 183 | 2,479 | 857 |
| Land that is Unused or May be Available for Redevelopment; Suitable for Housing (Hectares) 2007 | 270 | 2,323 | 699 |
| Percentage change 2004-7 in available land | +47.54 | -6.29 | -18.44 |

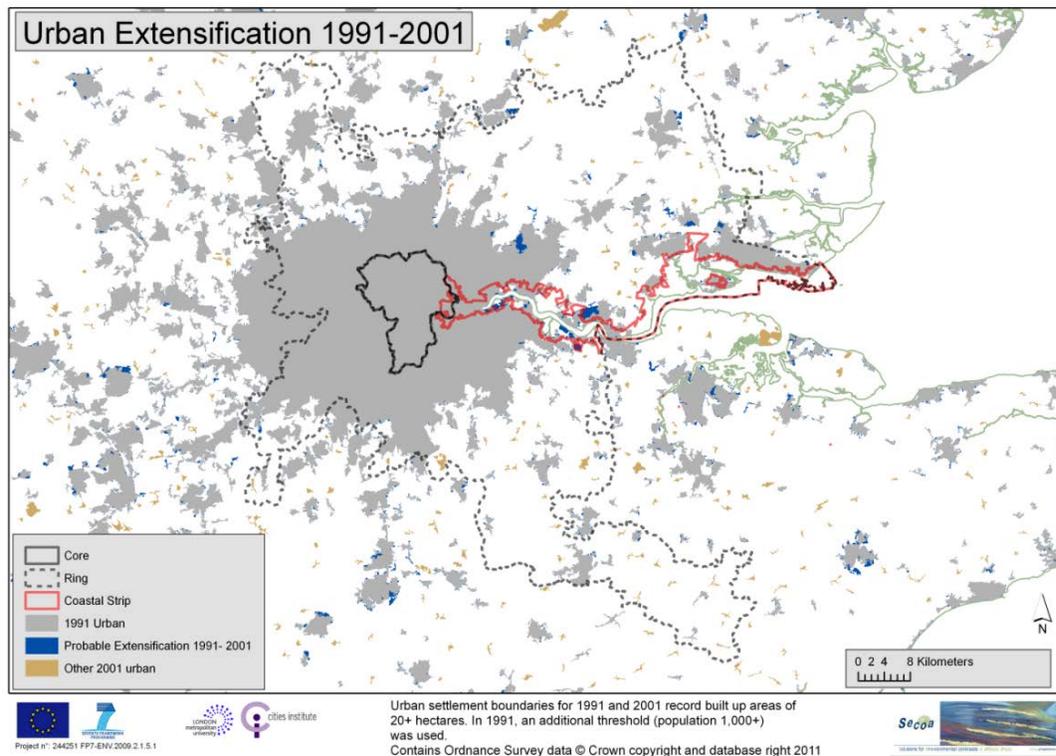
Between 2004 and 2007 there was a major increase in the availability of such land in the ring, of almost one half, but a decline in the core. This high rate of increase may be a latent outcome of central government pressure on Local Authorities to identify brownfield land and report back to the Department of Communities and Local Government. What appears as loss of brownfield land in both the core and the coast is evidence of the rate of redevelopment of brownfield land for housing. The demand for housing land was heightened during this period as developers responded both to government pressure to build and to the easy availability of development and mortgage finance. However, it should be noted that in absolute terms there

* Figures in parentheses (%) = percentage of total land area.

was far more brownfield land available for development in the core reflecting the intensity of past development and the devastating effects of previous rounds of industrial restructuring which had decimated manufacturing industry in London leaving large swathes of derelict land in the Lea Valley to the north and east, adjacent to major arterial roads to the west and east of the city and along the Thames.

A different perspective is provided by Figure 9.28 which illustrates urban extensification, 1991-2001 (equivalent data are not available of the 10 from 2000/1 to 2010/11). This records urban extensification by comparing census data on population for 1991 and 2001. Identification of urban settlement boundaries has relied on modeling population thresholds within small census areas and, although the methodology used for the two datasets has been similar, there are some discrepancies in the size and population thresholds of census areas between the two dates, The grey areas of the map show the urban settlement boundaries at 1991. The dark blue areas indicate where an increase in population has extended the existing boundary. The brown areas also indicate census areas newly classified as urban in 2001. These however may exaggerate urban intensification because of anomalies arising from census area changes.

Figure 9.28. London: urban extensification 1991-2001.



Path dependency is evident such that the areas urbanised in 2001 were primarily the same as 1991 which is hardly surprising given the relatively short time span, and the constraints imposed by the planning system. However there is important evidence of incremental expansion of urban settlement both on the edge of London's urban development, for example in the North east, largely associated with the expansion of the motorway network and improved access to both the core and outer metropolitan ring. Other notable areas of extension are in the coastal zone or adjacent to it, around Grays and Thurrock. This map illustrates a period before the designation of the Thames Gateway as an urban development area; however it does capture the impact of past policy to support the expansion of towns adjacent to London. This is also evident to the south and east of London where market towns such as Ashford experienced planned expansion. Finally the urban expansion of small towns and rural settlements, particularly to the west and north of the metropolitan ring, captures one of the most significant urban processes of this period. During 1990s the growing settlements were those outside the metropolitan greenbelt but within reach of London. This was the beginning of the urbanisation

of the countryside which has led in particular to house price rises, increased weekday or weekly commuting and a gentrification of rural communities. So although there is only modest change in the extent of the built up area, its social and economic impacts were significant . These are likely to have been intensified in the last 10 years, but data are as yet unavailable to confirm this trend.

4.3.4 Household and housing changes

Household and housing structures are another area in which the inter-relationship between human mobility and urbanization are played out. Household size is consistently higher in the ring than in the core across the three data sets (Table 9.27). The core-ring difference is largely as expected, reflecting a generally younger population, with a significant component of young, single migrants. It also reflects the preference of older households and families for suburban locations within the metropolitan hinterland. Census data shows that household size in the core is also slightly higher than in the coast, suggesting higher levels of 2 and 1 person households in this zone. However this difference is modest..

Comparable recent census data is not available, so that an analysis of change is not possible. However, drawing on Experian data (small area modelled projections of household numbers and population size), it is possible to compare change between 2004 and 2008. The two sets of data are not compatible with the Census and the Experian data suggests there were larger household sizes in 2004 than in 2001 for both the ring and the coast but not in the core.. The Experian data suggest that average household sizes rose between 2004 and 2008 in all the zones such that households in the coast had become larger than in the core and more in line with households in the ring. This increase in household size requires some explanation as it goes against long run national demographic trends which suggest decreasing household sizes, However, this may reflect the particular pressures on the London metropolitan area housing market where access to housing is especially difficult due to supply shortages and rapidly rising costs. They may also reflect high levels of household sharing of the younger population in the core and the growth of larger migrant families in the London Gateway area of the coastal zone, as well as expected larger families in the outer metropolitan area. Further verification of these trends will be possible after the publication of the 2011 census results.

Table 9.27. London: average household size, 2001, 2004 and 2009

| | RING | CORE | COAST |
|---|------|------|-------|
| Average Household Size (Number of Persons including Children), 2001 | 2.37 | 2.26 | 2.21 |
| Average Household Size (Number of Persons including Children)(Experian), 2004 | 2.38 | 2.21 | 2.23 |
| Average Household Size (Number of Persons including Children) Experian, 2008 | 2.56 | 2.46 | 2.51 |

Finally, Table 9.28 summarises some key features of the housing stock in 2001, although again it is unfortunate that no change date are available. The key finding here is that, as expected, there is a much higher proportion of apartments as opposed to single family dwellings – 80.61% compared to 35.4%. This is an exceptionally high proportion of apartments in the core, reflecting the very strong pressure on the housing stock, and limited land for house-building in inner London. This is symptomatic of the enormous pressure on the housing stock in much of the South East region, but particularly in London. The numbers of shanty or temporary dwellings are very small, and are only about 0.1% of the stock in the core, and about 0.5% in the ring, being mostly temporary dwellings, such as mobile homes.

Table 9.28. London; housing features, 2001

| | RING | CORE | COAST |
|--|-----------|---------|--------|
| Total Number of Dwellings (Including Apartments within Individual Buildings and Single Family Dwellings) | 2,984,966 | 677,535 | 88,339 |
| Total Number of Apartments | 1,060,749 | 546,134 | 39,263 |
| Apartments as % of all dwellings | 35.54% | 80.61% | 44.45% |
| Total Number of Shanty or 'Temporary' Dwellings | 6,555 | 715 | 426 |

5. Conclusions: Mobility, urbanization and implications for understanding conflicts

There are both similarities and differences in the relationships between mobility and urbanization in the two case studies.

Portsmouth has a high density core, much of which constitutes coastal zone, and this has experienced population growth through migration, international migration in particular, in recent years. The outcome has been increasing pressure on available resources including open and recreational space within the city core, the road infrastructure and the sewerage system, within this highly constrained urban area. The fact that 84% of all new dwellings are flats, mostly two one and two bedroom, is indicative of the intense pressures on the housing stock, for which virtually the only available land is on brown field sites. However the greatest housing need in the city is for families. There is therefore a growing conflict between a perceived market for apartment living from developers (and the local authority/regeneration companies) and the need for social and affordable housing for growing communities (Atkinson 1999).

In addition, the development of new housing in the coastal zone on the western shore of Portsea Island has, in particular, placed pressure on the sewerage infrastructure such that unless new investment is made in a western pipeline the city system is in danger of failing. There is an urgent need, identified by Partnership for Urban South Hampshire, to develop a sustainable urban drainage system containing elements that deal with the storage or movement of waste water. This however generates conflicts with residents, and with competing demands for investment in infrastructure.

There are also substantial temporary mobility flows into the core, particularly resulting from the expansion in student numbers, but also reflecting the growth of urban tourism, commuting, second homes, ferry passenger arrivals, and more than 1000 berths in its marinas. Economic development of Portsmouth has hinged on increasing the connectivity between the city and emerging sites of new employment located in growing business parks underpinned by major investment in the motorway and arterial road network. The decentralisation of population, mostly more affluent employees who retain work links within the urban core during the 1990s, has also increased the complex patterns of journey to work which criss cross the Portsmouth and Urban South Hampshire partnership area. Policy emphasis on attracting road infrastructure and employment to the urban core and coast has generated particularly

intense pressures in the areas of urban regeneration, mostly within the coastal zone. They also contribute to the 14% increase that has been recorded in the number of private motor vehicles on the roads over the last decade, contributing to growing congestion and environmental pollution.

The conflicts in the ring are less obvious, but there is strong latent demand for new houses as this is part of the UK's most dynamic regions. The capacity for developing new housing or new settlements is severely constrained by restrictive urban development policies: while this is containing the loss of rural landscapes, it necessarily implies strong upwards pressure on house prices, with implications for newcomers seeking to move into or within the metropolitan ring, and for young local residents looking for homes.

A large part of the second SECOA case study area, Thames Gateway, is embedded in the much larger London Metropolitan region, at the core of which lies the global city of London. The economic changes in London – restructuring, growth of financial services, and regeneration of London Docklands – have been the driving force that underlines many of the urbanization and mobility changes in the region. London is above all a magnet for international and internal migration, but also a major source of out migration, so that the overall picture is of immense population churn at local level, allied with the growing importance of international migration in the core, and increasing social polarisation (Cheshire and Magrini 2009).

These changes have a number of implications. First, the population changes, allied to increased incomes and car ownership rates, have significantly increased road traffic, despite substantial increases also in public transport usage. Over a 10 year period, the growth was 6% in the core and 7% in the ring, but the most striking growth was in the coastal zone, being 20%. This is a source of increased traffic congestion as well as of environmental pollution. Congestion charging has been introduced in inner London, which has had some impact on reducing the growth of road traffic. Currently there are also discussions about the construction of a new downstream crossing of the Thames which would improve accessibility between the northern and southern sides of the Thames Estuary and this is generating strong economic versus environmental conflicts.

The core of London has very high levels of population density, with large tracts having in excess of 20,000 persons per sq. km. Many of these areas of high population density are also areas where net migration rates have been relatively high, so that the pressures on the housing stock and on urban resources are persistent. Only 13% of all land in the core is classified as undeveloped, and as virtually all of this is protected, the only development possibilities are on

brownfield land. This is proceeding spectacularly in the regenerated London Docklands, which lie at the western apex of the Thames Gateway region.

The most striking feature of urbanization and land use changes in the ring is the stability of the existing urban pattern, with mostly only incremental changes over the last decade due to highly restrictive planning policies. As in the core, government policies, and local pressure groups, are steering new developments onto brownfield land. This is in a sense the rationale for the Thames Gateway planning region, which is intended to accommodate significant housing and economic development. This however generates conflicts between locals and migrants, and in respect of building on areas that are potentially subject to inundation. Another implications is the driving up of housing prices, a tendency to gentrification of rural areas, and the exclusion of young and lower income populations from many areas via market mechanisms (see also Sassen 1991).

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CHAPTER X.

Vietnam: Human Mobility and Urbanization

Do Thi Thu Huong

Cao Thi Thu Trang

Tran Dinh Lan

1. Introduction

The two coastal case studies of Haiphong and Nhatrang in Vietnam are different in scale of geographic extent and their socio-economic characteristics. Hai Phong is situated on the northeastern coast of Viet Nam, about 100 km east of Hanoi, the capital city. It is the third largest city in Viet Nam and possesses the largest seaport in the northern part of the country. It covers an area of 1.519 square km, including two island districts (Cat Hai and Bach Long Vi). Haiphong is located in the Red River Delta, with an average elevation of +0.7 m to +1.7 m above sea level. The city is located in the tropical climate zone with an annual average temperature of 24° Celsius, annual rainfall of 1600-1800 mm and average humidity of 85%.

Migration and urbanization have become of major interests to the authorities of Hai Phong city recently. Like other provinces in Viet Nam, migration is associated with unemployment or inadequate jobs. Migration flows have tended mostly to be rural to urban. According to the General Statistic Office of Viet Nam and UNFPA (2011), Hai Phong city has not attracted immigrants like other similar cities such as Ha Noi, Ho Chi Minh, and Da Nang... although Hai Phong has a high rate of urban population growth.

Nha Trang is a small city which belongs to Khanh Hoa province. This is a coastal province in Southern Central Vietnam and is bordered by Phu Yen Province to the North; Ninh Thuan Province to the South; Dak Lak Province to the West; and the East Sea to the East. Nha Trang city is 1280 km from Hanoi, 535 km from Danang, 448km from Ho Chi Minh City. The city is home to many famous beautiful places and landscapes, and is a major tourist center in the country.

Nha Trang City is situated in a valley surrounded by mountains on three sides: the North, the West, and the South. The City is bordered by the sea to the East. The Cai River of Nha Trang and Cua Be River divide Nha Trang into 3 sections: the North of Cai River, the South of Cua Be River and the inner part of Nha Trang City is located between two rivers. Nha Trang has 19 islands with more than 2,500 households. The largest of these is Tre Island with an area of some 30km², sheltering the bay from strong winds and waves.

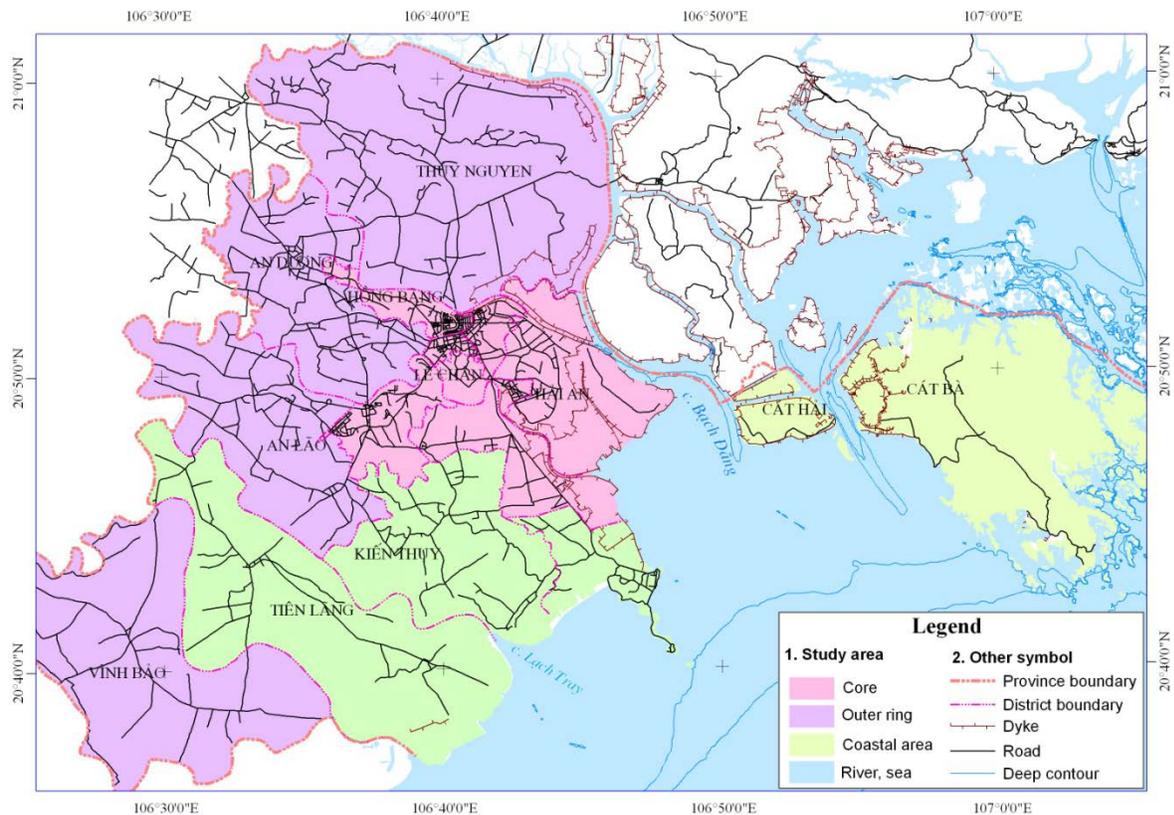
From 1653 to the middle of the nineteenth century, Nha Trang was still a wild place, with many wild animals and belonged to Ha Bac, Vinh Xuong district, Dien Khanh palace. In the two first decades of the twentieth century, Nha Trang experienced rapid change. Following a decree issued by the Governor-General of Indochina, dated 30th August 1924, Nha Trang became a town (centre urban). Nha Trang town was formed from several ancient villages:

Xuong Huan, Phuong Cau, Van Thanh, Phuong Sai, and Phuoc Hai. After its experience of the French regime, the Republic of Viet Nam, Nha Trang became the cultural, economic, and administrative center of Khanh Hoa province. On 22th April, 2009, Nguyen Tan Dung, the Prime Minister, signed a decree to confirm that Nha Trang city was classified as urban grade I.

2. Methodology

For Hai Phong city, the definitions of the core, ring and coastal area are based on administrative boundaries. The core includes all the urban districts of Hai Phong city – this area concentrates almost all the economic activities of the city and attracts migration flows. The coastal zone include coast rural districts and the ring consists of the remaining districts.

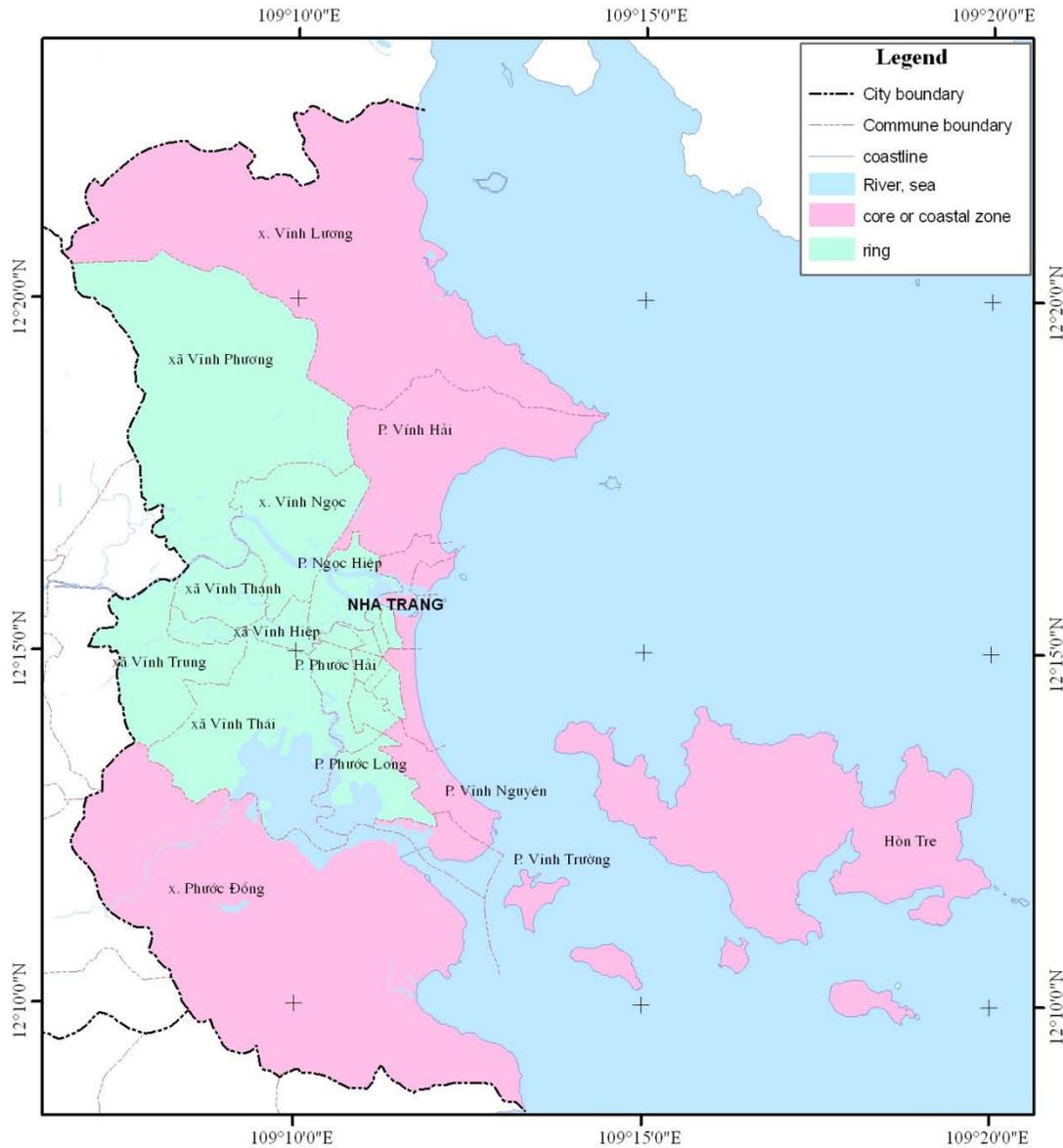
Figure 10.1. Map of boundary of zones in the Hai Phong case study



Nha Trang city is relatively small with a total area of 252.6 km², divided into 19 wards and 8 communes. In this study, the city is divided into two zones: a coastal zone and ring. The coastal zone includes 6 wards (Vinh Hai, Vinh Phuoc, Vinh Tho, Xuong Huan, Vinh Nguyen,

Loc Tho) and 2 communes (Vinh Thai, Phuoc Dong) that are located along the coast. The coastal zone is also the equivalent of the core of the metropolitan area. The ring includes the other districts and communes. The map of the coastline and the boundary of the zones are presented in Figure 10.2.

Figure 10.2. Nha Trang case study: division by coastline and zones*



* Source: SECOA project.

3. Hai Phon

3.1 Overview of Urban Development

Hai Phong has a large coastal and sea area, favorable for marine economic development. Haiphong is also the most important commercial and transportation hub in northern Viet Nam, connecting the Northern provinces with the world market through its seaport system. Other parts of the country are connected to Haiphong by road, railway, inland waterways, sea and air links.

Before 1994, Hai Phong had 3 urban districts (Hong Bang, Ngo Quyen, and Le Chan) and 9 rural districts (An Hai, Kien Thuy, Thuy Nguyen, Tien Lang, An Lao, Kien An, Vinh Bao, Cat Ha and Bach Long Vy). Kien An district is recognized has been recognized as an urban district since 1994. In 2002, Hai An urban district was established from 5 communes of An Hai district and Cat Bi ward (Ngo Quyen district). The remaining part of An Hai district became a new rural district named An Duong. From 2007, Do Son urban district (based on Do Son town) and Duong Kinh urban district (divided from Kien Thuy rural district) were founded. Therefore, at present, Hai Phong city includes 7 urban districts and 8 rural districts. The total population in 2009 was 1,841,650 persons with an average density of 1,212 people/km². In the urban area (core), the population density is very high, reaching 16,661 people/km² in Le Chan district. The population density of the rural district (ring) is lower: about 1.653 people/km² for the most crowded district - Thuy Nguyen.

Table 10.2. Population and population density of Hai Phong

| Zone | District Name | Population | | | Density 2009 |
|--------------|---------------|------------|---------|---------|--------------|
| | | 2000 | 2005 | 2009 | |
| Core | Hong Bang | 98,150 | 108,520 | 102,060 | 7,088 |
| | Ngo Quyen | 172,440 | 158,710 | 165,200 | 14,883 |
| | Le Chan | 147,190 | 193,880 | 211,600 | 16,661 |
| | Hai An | | 82,840 | 102,630 | 979 |
| | Kien An | 72,610 | 86,670 | 97,380 | 3,301 |
| | Do Son | 31,970 | 33,770 | 44,760 | 1,054 |
| | Duong Kinh | | | 48,800 | 1,065 |
| | Total | 522,360 | 664,390 | 772,430 | |
| Coastal zone | Thuy Nguyen | 287,460 | 295,320 | 304,390 | 1,254 |
| | Kien Thuy | 174,280 | 182,000 | 126,980 | 1,181 |
| | Tien Lang | 150,630 | 150,150 | 141,240 | 747 |
| | Cat Hai | 27,890 | 28,100 | 29,540 | 91 |
| | Total | 640,260 | 655,570 | 602,150 | |
| Ring | Vinh Bao | 187,150 | 182,940 | 172,750 | 957 |
| | An Duong | 218,800 | 144,240 | 161,180 | 1,653 |
| | An Lao | 122,650 | 125,880 | 132,280 | 1,151 |
| | Total | 528,600 | 453,060 | 466,210 | |

The urban population accounts for 42% of the total population. The population' structure indicates a trend of increasing urban population over time and the converse for the rural area. In the period 1995-2009, the rate of population growth was two times larger than that in the urban areas, and this rate slightly declined in the rural area.

The increasing population will bring about growing demand for housing and services so that there will be strong urbanization with immigration flows from rural areas or neighbouring provinces/cities. Urbanization results in an extension in space of the urban scale, enhancements to construction activities and improvements to infrastructure. Urbanization has developed rapidly in Viet Nam since 1990 and Hai Phong is not outside that general situation. After a long period of development, Hai Phong has become one of the first category cities in the country with high economic growth rates, and its economic structure has become more and more focused on industry.

3.2 Migration

3.2.1 In migration

Statistical data on population migration to Hai Phong city is not available on an annual basis. There are only data for two periods: 1999 – 2004 and 2004 – 2009.

In the period 2004-2009, the total in migration to Hai Phong is 79,654 people. Of these, 72% of the immigrants concentrate in the core, 12% in the coastal area and 16% in the ring.

Table 10.2. *Hai Phong: total in migration in the period 2004-2009 by zone*

| | Internal in migration | National in migration | International in migration | Total in migration |
|------------------------------|------------------------------|------------------------------|-----------------------------------|---------------------------|
| 1. Period 1999 - 2004 | | | | |
| Core | 9,638 | 8,344 | 2,714 | 20,696 |
| Coastal | 3,203 | 6,875 | 916 | 10,994 |
| Ring | 8,672 | 6,411 | 342 | 15,425 |
| 2. Period 2004 - 2009 | | | | |
| Core | 23,145 | 33,787 | 471 | 57,403 |
| Coastal | 2,471 | 6,913 | 460 | 9,790 |
| Ring | 7,549 | 4,932 | 160 | 12,461 |

3.2.2 Out Migration

Table 10.3. *Hai Phong: out migration in the period 2004-2009 by zone*

| | Internal out migration | National out migration |
|-------------------|-------------------------------|-------------------------------|
| Core (urban area) | 7,351 | 21,517 |
| Coastal + ring | 25,814 | 10,771 |
| Total | 33,165 | 32,288 |

Data on out migration is calculated for the period 2004-2009. However, we can not calculate the number of out migration for the coastal area and the ring separately due to lack of statistic data.

3.2.3 Migration by origin and destination (absolute numbers)

Table 10.4. Hai Phong: in-migration by origin and destination, 1999-2004

| | | Origin | | |
|-------------|--------------|--------|---------|-------|
| | | Core | Coastal | Ring |
| Destination | Core | 0 | 5,002 | 4,636 |
| | Coastal zone | 2,161 | 0 | 1,042 |
| | Ring | 7,042 | 1,630 | 0 |

Table 10.5. Hai Pong: in-migration by origin and destination, 2004 – 2009

| | | Origin | | | |
|-------------|--------------|--------|---------|--------|----------------|
| | | Core | Coastal | Ring | Other province |
| Destination | Core | 0 | 12,232 | 10,913 | 33,787 |
| | Coastal zone | 1,424 | 0 | 1,047 | 6,913 |
| | Ring | 5,927 | 1,622 | 0 | 4,932 |

In the period of 1999 – 2004, the rate of in migration in the core and the ring is higher than in the coastal zone (see Table 10.4). In the period 2004 – 2009, in migration flows focus on the core: many immigrations from the coastal zone, ring and from other provinces came to the core.

Table 10.6. Hai Phong: net migration by origin and destination from 2004-2009

| Origins | Period | Destinations | | |
|--|-------------|--------------|------|--------------|
| | | Ring | Core | Coastal Zone |
| Net Migration of International In Migrants | 2004 - 2009 | 160 | 471 | 460 |
| Net Migration of National In Migrants (Beyond Ring) Time1-Time2 | 2004 - 2009 | 12270 | 2604 | -1531 |
| Net Migration of In Migrants from the Metropolitan Ring | 2004 - 2009 | | 4986 | -575 |
| Net Migration of In Migrants from the Metropolitan Core | 2004 - 2009 | -4986 | | -10808 |

Table 10.7. Hai Phong: Total number of immigrants from other provinces by age group, 2004-2009

| Age group | Total | Core | | Coastal | | Ring | |
|-----------|-------|---------|------------|---------|------------|---------|------------|
| | | persons | % of total | persons | % of total | persons | % of total |
| < 16 | 1590 | 774 | 48.7 | 322 | 20.3 | 494 | 31.1 |
| 16-30 | 36719 | 27,023 | 73.6 | 4,929 | 13.4 | 4,767 | 13.0 |
| 30-65 | 8743 | 5,665 | 64.8 | 1,599 | 18.3 | 1,479 | 16.9 |
| > 65 | 490 | 327 | 66.7 | 65 | 13.3 | 98 | 20.0 |

There are age differences amongst the migrant to the core, ring and coastal zone: in the core the proportion of migrants in the age group of 16 – 30 is highest, in the coastal area proportion aged under 16 is highest, as is also the case in the ring.

3.2.4 Social class

According the report on “Urban transport in th Viet Nam’s medium-sized cities (World Bank, Hai Phong People committee, Ha Long People committee 2007), the average annual income of Hai Phong people is about US\$ 647. Income data in Viet Nam are difficult to collect and respondents systematically under estimate their household income. The income levels of urban residents are higher than rural ones. Core areas show much higher levels of household income than elsewhere. Other areas with relatively higher income levels are also those experiencing increasing urbanization. Rapid growth in personal income translates to a decline in poverty rates. Official data show that about 8,000 poor people are getting out of poverty each year so that that the poverty rate had declined to 4.1% in 2005, as measured against the Ministry of Labour, Invalids and Social Affairs’ poverty criteria.

3.2.5 Ethnicity

More than 99% of national in-migrants in Hai Phong are of Kinh ethnicity (the most common ethnicity in Viet Nam). Only 0.12% of national in-migrants are of other ethnicities like: Tay, Nung

3.2.6 The relationship between population change and net migration in each zone.

Net migration accounts for a positive contribution to total population change in the core, but for a negative contribution in the ring and the coastal zone (Table 10.8). The changes in the core and ring are approximately of the same relative sizes although with different positive/negative signs.

Table 10.8. Hai Phong; net migration as percentage of total population change, 2004-2009

| Zone | Percentage | Percentage of migration/population change |
|--------------|------------|---|
| | | 2004-2009 |
| Core | | 11.10 |
| Coastal Zone | | -5.37 |
| Ring | | -10.96 |

The rates of migration and population change in the period 2004-2009 show that: in the core, net migration accounts for the highest proportion of the population, that is it has the greatest relative impact on demographic structures in this zone.

Table 10.9. Hai Phong: net migration as a percentage of total population

| Zone | 2004-2009 (%) |
|--------------|---------------|
| Core | 1.8 |
| Coastal Zone | 0.5 |
| Ring | 0.3 |

3.3 Temporary Populations in the Core, Ring and Coastal Zone

There are many types of temporary population mobilities in Hai Phong city but only some types of data are available.

3.3.1 Students

The total number of students (higher education) was 60,734 persons in the school year of 2009-2010. Of this total, 55% of the students were from rural districts and other provinces. They are concentrated in the core because most colleges and universities are in this zone.

3.3.2 Journey to work

According to a household interview survey in 2007, a total of 1.94 million trips were made per day for all purpose. The “private purpose” trips represented 18%, while “to-work” trips accounted for 24%. While “to-home” trips would naturally be high since nearly every person eventually goes home at the end of day, the distribution by time of day of the different trip purposes are revealing. A significant segment of the population goes home at lunch time and returns to work afterwards (World Bank, Hai Phong People committee, ha Long People committee, 2007). Most of flows are from ring to the core except some days of holiday vacation.

3.3.3 Tourists

The number of tourist to Hai Phong has been increasing in recent years (Table 10.10). To achieve this growth, Hai Phong city has developed many type of tourism such as marine ecology, city tour, cultural and rural visits. At the present time, there are 6 tourism routes from the city such as: tourism route from the city to Cat Ba island; from the city to Do Son beach (marine ecology); from the city to Thuy Nguyen; Kien Thuy, Tien Lang and city tours. Among the different tourism types, marine ecology attracts the most tourists (about 70% of the total number of tourist of Hai Phong). The numbers of day visitors and tourists are often dramatically higher in the summer. At that time, some ten thousand people go to Do Son beach and Cat Ba island daily (coastal zone).

Table 10.10. Hai Phong: number of overnight tourists

| | 1995 | 2000 | 2005 | 2008 | 2009 |
|------------------------------|---------|---------|-----------|-----------|-----------|
| Number of overnight tourists | 282,906 | 714,795 | 2,356,647 | 3,710,611 | 3,944,400 |

3.3.4 The night-time economy

There are the following facilities, which are mostly concentrated in the centre of Hai Phong city (the core).

Pubs and clubs: 8

Cafes: more than 50, with a focus in the main streets of the city

Restaurants: about one hundred restaurants in the urban area of Hai Phong city.

Together they account for a significant volume of movement both within the core, and from the other zones to the core.

3.3.5 Cultural events

Hai Phong city is famous for buffalo fighting, and there is an annual traditional festival that is organized on Do Son beach. This festival attracts many people from the city center, other provinces and even foreign tourists. The numbers attending this festival reach about ten thousand.

Hai Phong also has 5 museums. The number of persons visiting the museum was about 36,800 for the year 2009. The museums are located in the core.

3.3.6 Marine border recreational usage.

There is no marina in Hai Phong. However, in Cast Ba island (coastal zone) there are approximately 12,000 fishing cages on the sea surface. That reduces its beautiful visual quality and has caused negative impacts on the environment and human beings.

In 2010, in Hai Phong 1,300 foreign tourists arrived on 5 cruise ships. The peak numbers of passengers arriving on the cruise ships in any one day is 750 people.

The estimated peak numbers of people using the coast for recreation (sun bathing, swimming, fishing etc) on any one day are dominated by the famous Do Son beach and Cat Ba island. On the occasion of Labour Day, the number of tourists and day visitors to these areas can reach 18,000 people.

3.3.7 The ratios of temporary to permanent resident population in the core, ring, and coastal zone.

Table 10.11. Hai Phong: ratio of temporary to permanent resident population

| | Amount of temporary population (2009) | Ratio of temporary to permanent resident (%) | | |
|--|---------------------------------------|--|--------------|------|
| | | Core | Coastal zone | Ring |
| Temporary migrants: students | 42,513 | 5.88 | | |
| Number of commuter | | | | |
| Overnight tourist per year (2009) | 3,944,400 | 286.95 | | |
| Peak number of day visitors and tourist on any day in the year | 10,000 | 1.38 | | |
| Peak number of passengers arriving on cruise ship on any day | 750 | 1.23 | | |
| Peak number of people using the coast for recreation | 18,000 | | 2.77 | |

Table 10.11 shows that the total number of tourists and day visitors is greater than the total population is great higher than the total number of permanent residents, but this converts into an average daily number which is less than that of the total population. Data are not available for commuting into the different zones, but these would add significantly to the numbers of temporary visitors to the core each day. Students account for almost 6% of the population of the core.

3.4 The Impact of Human Mobility on Urbanization

3.4.1 Transport flows

Table 10.12. *Hai Phong: number of bus trips operated daily*

| Type of bus | Number of trip |
|--------------|----------------|
| Internal bus | 711 |
| External bus | 455 |
| Total | 1166 |

Table 10.13. *Hai Phong: number of daily trips in the urban area**

| Total number (daily) | Bicycle | Car | Motorcycle | Truck |
|----------------------|---------|--------|------------|--------|
| 2007 | 466,983 | 27,859 | 884,158 | 27,999 |

The mobility level of Hai Phong city is rather high due to its high population density, in the urban area, as well as the widespread use of motorcycles and bicycles, although the capacity of the public transport services are insufficient and the car ownership level is extremely low. More than 98% of trips are by 2-wheeled vehicles including bicycles, while less than 1% are by buses (World Bank, Hai Phong People Committee 2007). At present, the rate of bicycle usage has trend to reduce but the proportion of motorcyces is still increasing compared to cars.

* Source: IMP (2007), estimated by Hai Phong city using a mobility model.

3.4.2 Land use

The total land area is shown in Table 10.14.

Table 10.14. Hai Phong: total land area (sq km)*

| Zone | 2007 | 2009 |
|--------------|-------|-------|
| Outer ring | 392.9 | 392.9 |
| Coastal area | 919.1 | 862.3 |
| Core | 204.0 | 260.8 |

Table 10.15. Hai Phong: total area of land allocated to economic activity*

| Zone | Specially used land (ha) | | % change |
|--------------|--------------------------|----------|----------|
| | 2007 | 2009 | |
| Outer ring | 9,176.8 | 9,533.5 | 3.9 |
| Coastal area | 16,300.3 | 14,990.3 | -8.0 |
| Core | 8,805.9 | 11,471.6 | 30.3 |
| TOTAL | 34,283.0 | 35,995.4 | |

Table 10.16. Hai Phong: total area of land allocated to housing

| Zone | Homestead land (ha) | | % change |
|--------------|---------------------|---------|----------|
| | 2007 | 2009 | |
| Outer ring | 2,257.4 | 2,602.5 | 15.3 |
| Coastal area | 4,531.2 | 3,888.4 | -14.2 |
| Core | 1,796.6 | 3,009.8 | 67.5 |
| TOTAL | 8,585.2 | 9,500.7 | 15.3 |

Recently, Hai Phong city has established some new urban areas such as: cross-road Cat Bi Airport, Ho Sen – Cau Rao 2; PG; Anh Dung, Cai Gia, Cuu Vien. Most of the new urban areas have been built on land that was formerly used for agriculture. Now, Hai Phong has 260 housing and urban development projects with a total area of 2600 ha.

* Source: Hai phong Year book (2007, 2009).

3.4.3 The relationship between population mobility and housing changes in each zone

In the period of 1999–2009, the total number of houses increased 42.7% in the core, 39% in the coastal zone and 39.7% in the ring. The rate of increase is not very different between three zones, but the core is a little higher (Table 10.17).

Table 10.17. *Hai Phong: total housing stock*

| Zone | Total number of house | | % change |
|--------------|-----------------------|---------|----------|
| | 1999 | 2009 | |
| Core | 120,599 | 210,287 | 42.7 |
| Coastal zone | 93,196 | 152,777 | 39.0 |
| Ring | 76,417 | 126,647 | 39.7 |

3.4.4 "Temporary" or shanty housing

It is difficult to define the relationship between net migration and changes in the type of housing. However, the increasing in-migration flow has impacted on the type of house: more and more non-solid and temporary houses are being built for immigrants moving to the metropolitan area from other provinces.

Table 10.18. *Hai Phong: house types, 1999-2009*

| Zone | solid house | | | semi solid house | | | temporary house | | |
|---------|-------------|---------|----------|------------------|--------|----------|-----------------|-------|----------|
| | 1999 | 2009 | % change | 1999 | 2009 | % change | 1999 | 2009 | % change |
| Core | 79,466 | 135,841 | 70.9 | 40,863 | 74,006 | 81.1 | 267 | 429 | 60.7 |
| Coastal | 85,456 | 137,454 | 60.8 | 4,772 | 11,163 | 133.9 | 2,967 | 4,150 | 39.9 |
| Ring | 77,427 | 83,947 | 8.4 | 9,218 | 20,008 | 117.1 | 313 | 449 | 43.5 |

3.4.5 Urban population density

Population density is increasing over time (Table 10.19). In 2009 there was a reduction of population in the core zone, but this was due to urban extension via the redrawing of boundaries: two former rural districts (Duong Kinh and Do Son district) were merged into the urban area.

Table 10.19. *Hai Phong: Urban population density (number of persons per square kilometer)*

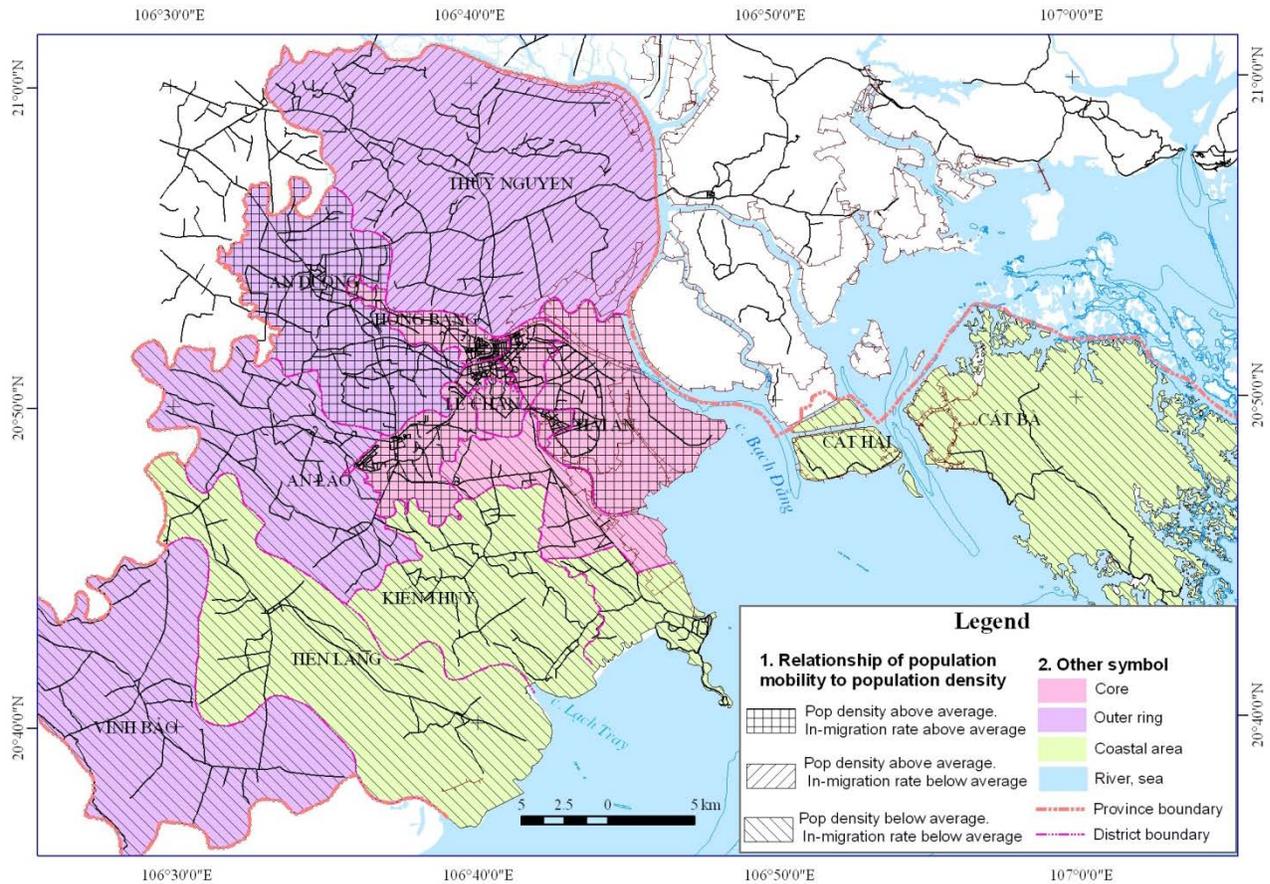
| Zone | 1995 | 2000 | 2003 | 2004 | 2005 | 2006 | 2009 |
|---------|-------|-------|-------|-------|-------|-------|-------|
| Core | 2,243 | 2,430 | 3,004 | 3,059 | 3,114 | 3,144 | 2,775 |
| Coastal | 753 | 784 | 802 | 807 | 814 | 823 | 844 |
| Ring | 1,297 | 1,345 | 1,153 | 1,155 | 1,168 | 1,181 | 1,187 |

Table 10.20. Hai Phong: relationship of population mobility to population density

| District | Population 2009 (thous. persons) | Population density 2009 (person/sq.km) | Rate of in migration (o/oo): | | | Category | Zone |
|----------------|----------------------------------|--|------------------------------|----------|---------------|--|---------|
| | | | among districts | national | international | | |
| Hong Bang | 102,060 | 7,088 | 5.3 | 4.9 | 0.1 | Pop density above average for the case study area. In-migration rate above average for the case study. | Core |
| Ngo Quyen | 165,200 | 14,883 | 5.6 | 5.2 | 0.2 | Pop density above average for the case study area. In-migration rate above average for the case study. | Core |
| Le Chan | 211,600 | 16,661 | 8.7 | 4.2 | 0.1 | Pop density above average for the case study area. In-migration rate above average for the case study. | Core |
| Hai An | 102,630 | 979 | 10.0 | 6.9 | 0.1 | Pop density above average for the case study area. In-migration rate above average for the case study. | Core |
| Kien An | 97,380 | 3,301 | 6.2 | 5.7 | 0.0 | Pop density above average for the case study area. In-migration rate above average for the case study. | Core |
| Do Son | 44,760 | 1,054 | 1.4 | 1.1 | 0.0 | Pop density below average. In-migration rate below average. | Core |
| Duong Kinh | 48,800 | 1,065 | 2.0 | 2.5 | 0.0 | Pop density below average. In-migration rate below average. | Core |
| Thuy Nguyen | 304,390 | 1,254 | 0.7 | 1.7 | 0.0 | Pop density above average. In-migration rate below average. | Coastal |
| An Duong | 161,180 | 1,653 | 4.9 | 2.5 | 0.1 | Pop density above average for the case study area. In migration rate above average for the case study. | Ring |
| An Lao | 132,280 | 1,151 | 0.9 | 1.6 | 0.0 | Pop density below average. In-migration rate below average. | Ring |
| Kien Thuy | 126,980 | 1,181 | 0.6 | 0.8 | 0.0 | Pop density below average. In-migrate below average. | Coastal |
| Tien Lang | 141,240 | 747 | 0.4 | 0.6 | 0.0 | Pop density below average. In-migrate below average. | Coastal |
| Vinh Bao | 172,750 | 957 | 0.3 | 0.8 | 0.1 | Pop density below average. In-migrate below average. | Ring |
| Cat Hai | 29,540 | 91 | 1.7 | 1.9 | 0.1 | Pop density below average. In-migrate below average. | Coastal |
| Average | | 1,212 | 3.5 | 2.8 | 0.0 | | |

All administrative units of Hai Phong city were classified on the basis of their population density and in-migration rate compared with the correlative average rate. The results show that: there are 5 districts which are of the type of “Population density above average; In-migration rate above average”. They are: Hong Bang, Ngo Quyen, Le Chan, Hai An and An Duong district. Four of these districts belong the core, and only An Duong district is in the ring. There is only Thuy Nguyen district in the type of “Population density above average. In-migration rate below average”. The remainder are of the type of “Population density below average. In- migrate below average”. There is no unit in the type of “Pop density below average. In- migrate above average” So it can say that, in Hai Phong city, urban districts with dense population are likely to attract immigrants.

Figure 10.3. Hai Phong: Relationship of population mobility to population density



4. Nha Trang

4.1 Overview of Urban Development

In terms of administration, Nha Trang has 19 wards and 8 communes with a total population of 393,533 people in 2009. The number of people that live in the core or coastal area is 132,273, representing 33.61% of the total population of the city. The number of people living in the ring is 261,266 people, accounting for 66.39% of the total.

Table 10.21. Administration units and population of Nha Trang city*

| Name of commune | Population | | | | Note |
|---------------------|------------|--------|--------|--------|--------------|
| | 2000 | 2003 | 2006 | 2009 | |
| Vinh Hoa Ward | | 10,153 | 11,342 | 15,115 | |
| Vinh Hai Ward | 24,889 | 16,126 | 17,614 | 23,065 | coastal area |
| Vinh Phuoc Ward | 24,776 | 25,582 | 26,233 | 26,439 | coastal area |
| Vinh Tho Ward | 14,994 | 10,059 | 10,386 | 9,583 | coastal area |
| Ngoc Hiep Ward | 12,271 | 12,838 | 14,119 | 19,031 | |
| Van Thang Ward | 10,764 | 10,869 | 11,045 | 10,664 | |
| Phuong Son Ward | 10,350 | 11,101 | 10,852 | 10,258 | |
| Xuong Huan Ward | 12,944 | 14,158 | 13,842 | 11,113 | coastal area |
| Van Thanh Ward | 12,218 | 13,012 | 13,230 | 12,665 | |
| Phuong Sai Ward | 11,198 | 13,677 | 12,795 | 10,106 | |
| Phuoc Tan Ward | 13,805 | 14,677 | 14,654 | 14,170 | |
| Phuoc Tien Ward | 10,693 | 11,669 | 11,726 | 9,687 | |
| Phuoc Hai Ward | 15,514 | 15,859 | 16,720 | 19,510 | |
| Phuoc Long Ward | 18,056 | 18,789 | 19,441 | 27,507 | |
| Loc Tho Ward | 13,660 | 13,298 | 13,866 | 11,999 | coastal area |
| Phuoc Hoa Ward | 13,119 | 13,563 | 13,852 | 11,935 | |
| Tan Lap Ward | 15,895 | 14,641 | 14,717 | 14,841 | |
| Vinh Nguyen Ward | 19,891 | 20,052 | 20,547 | 20,606 | coastal area |
| Vinh Truong Ward | 13,991 | 14,689 | 15,238 | 15,672 | |
| Vinh Luong Commune | 13,216 | 13,015 | 13,302 | 14,470 | |
| Vinh Phuong Commune | 10,105 | 10,048 | 10,375 | 12,498 | |

* Source: Statistical Year Books of Nha Trang.

| | | | | | |
|--------------------------|----------------|----------------|----------------|----------------|--------------|
| Vinh Ngoc Commune | 10,342 | 10,571 | 10,857 | 16,133 | |
| Vinh Thanh Commune | 9,122 | 10,390 | 9,555 | 10,927 | |
| Vinh Hiep Commune | 6,680 | 7,404 | 7,219 | 7,979 | |
| Vinh Trung Commune | 6,841 | 7,352 | 7,754 | 8,092 | |
| Vinh Thai Commune | 6,904 | 7,359 | 8,096 | 9,774 | coastal area |
| Phuoc Dong Commune | 8,633 | 13,035 | 14,037 | 19,694 | coastal area |
| TOTAL | 340,871 | 353,986 | 363,414 | 393,533 | |
| <i>Ring</i> | <i>214,180</i> | <i>234,317</i> | <i>238,793</i> | <i>261,260</i> | |
| <i>Coastal area/core</i> | <i>126,691</i> | <i>119,669</i> | <i>124,621</i> | <i>132,273</i> | |

In 2007, the Ministry of Construction proposed in statement No. 22/TTr-BXD to the Premier that Nha Trang city, Khanh Hoa Province should be recognized as being urban grade I. It satisfied the economic-societal norms of an urban grade I as indicated below:

Average GDP per capita in 2007 was 1,779.8 US\$/year; Average economic grow in the period 2004-2007 reached 13.13%/year; the percentage of poor households decreased in 2007 by 4.85%; the annual population increased by 1.24%, and the annual tourism growth reached 25%.

The rate of non-agriculture labour was 96.3%. The number of residents in the urban area was 286,862. The number of people in the urban area working in economic sectors was 124,791. The population density of Nha Trang was 13.941 people /km².

The area available for accommodation averaged 18.2m²/per person; the amount of civil land in the urban area was 75.7m²/per person on average; land for public work construction at sub-city level (district level) reached 2.3m²/per person, and land for public work construction at city level reached 9.6m²/per person.

In terms of traffic, Nha Trang is a major point for traffic at both the national and regional levels. The rate of urban transport land reached 14.5% of the total of urban construction land; the density of sealed roads with asphalt reached 6.74km/km².

The capacity for tap-water supply was 110 liters/per person/per day (which reached 92% of the regulated target of 120 liter/person/per day). The percentage of population with access to clean water was 98.4%.

In terms of drainage, the density of sewers was 7.3km/km², on average; about 49% of wastewater was collected and treated. In the period 2007 – 2011, projects related to sanitation of Nha Trang city (phase I) are being implemented with funding from the World Bank and Khanh Hoa province.

Turning to electricity and urban lighting, the power supply for people in urban area was 1,197KWh/per person/ per year. 100% of the streets and area were lighted.

Communications: On average, there were 36 telephones/1,000 persons, not including cell phones.

Sanitation: the capacity of garbage collection was 82%. Land for green spaces in the urban area reached 15.5m²/per person, within which the land for green spaces in the civil area reached 8.21m²/per person.

In line with the above norms, in May, 2009 the Prime Minister issued a decision for confirmation of Nha Trang city to become urban grade I, belonging to Khanh Hoa Province.

4.2 Migration

In the past ten years, net migration in Nha Tran city has reached +40,898. The rate of migration varies according to the sub-period. From 2000 to 2003, the number of people in the coastal area who left home and went to other areas for work or study purposes was quite high (- 8,459 people), but the ring area also received more than twice this number of net immigrants (+17,635 people). In the 2003-2006 period, the net migration of people to Nha Trang was + 5,531 of whom about 30% came to the ring while the remaining circa 70% moved to the coastal area. From 2006 – 2009, the level of migration increased with a total net migration of 26,191, 76% of which was concentrated in the ring. This may be related to Nha Trang city achieving urban grade I status. Migration and shifts in the labour force have resulted in major changes in Nha Trang city in particular and Khanh Hoa province in general.

*Table 10.22. In- and out-migration in Nha Trang from 2000 to 2009**

| | 2000-2003 | 2003-2006 | 2006-2009 |
|--------------------------|-----------|-----------|-----------|
| Coastal Area/Core | -8,459 | 3,650 | 6,297 |
| In migration | 6,251 | 4,114 | 12,374 |
| Out migration | -14,710 | -464 | -6,076 |
| Ring | 17,635 | 1,880 | 19,893 |
| In migration | 19,650 | 4,839 | 29,580 |
| Out migration | -2,015 | -2,959 | -9,687 |

* Source: Calculated from the Statistics Book of Nha Trang.

Table 10.22 show that there is increasing of in-migration in Nha Trang from 2000 to 2009, but the number of in-migrants have tended to decrease in 2003-2006 in both the core and the ring. The number of in-migrants in the ring is higher than in core/coastal area, except for the 2003-2006 period.

Table 10.23 presents the ward level distribution of net migration and in migration within each of the coastal zone and outer ring.

Table 10.23. In - out migration in Nha Trang from 2000 to 2009 by wards/communes and zones*

| Zone | Period 2000-2003 | Period 2003-2006 | Period 2006-2009 |
|--------------------------|------------------|------------------|------------------|
| Coastal zone/Core | -8,459 | 3,650 | 6,297 |
| Vnh Hai Ward | -9,038 | 1,319 | 5,255 |
| Vinh Phuoc Ward | 532 | 384 | -85 |
| Vinh Tho Ward | -5,101 | 222 | -918 |
| Xuong Huan Ward | 1,071 | -464 | -2,883 |
| Loc Tho Ward | -513 | 429 | -2,021 |
| Vinh Nguyen Ward | -59 | 285 | -169 |
| Vinh Thai Commune | 362 | 642 | 1,599 |
| Phuoc Dong Commune | 4,286 | 833 | 5,519 |
| Ring | 17,635 | 1,880 | 19,893 |
| Vinh Hoa Ward | 10,153 | 1,083 | 3,647 |
| Ngoc Hiep Ward | 431 | 1,147 | 4,755 |
| Van Thang Ward | -14 | 62 | -504 |
| Phuong Son Ward | 637 | -365 | -714 |
| Van Thanh Ward | 659 | 82 | -712 |
| Phuong Sai Ward | 2,355 | -1,025 | -2,831 |
| Phuoc Tan Ward | 719 | -176 | -647 |
| Phuoc Tien Ward | 858 | -65 | -2,169 |
| Phuoc Hai Ward | 174 | 695 | 2,604 |
| Phuoc Long Ward | 533 | 456 | 7,850 |
| Phuoc Hoa Ward | 299 | 147 | -2,071 |
| Tan Lap Ward | -1,430 | -77 | -39 |

* Source: Secoa project (calculated from Statistic Book of Nha Trang).

| | | | |
|---------------------|-------|------|-------|
| Vinh Truong Ward | 543 | 395 | 265 |
| Vinh Luong Commune | -379 | 118 | 1,038 |
| Vinh Phuong Commune | -193 | 197 | 2,021 |
| Vinh Ngoc Commune | 90 | 149 | 5,170 |
| Vinh Thanh Commune | 1,145 | -970 | 1,278 |
| Vinh Hiep Commune | 634 | -281 | 689 |
| Vinh Trung Commune | 419 | 307 | 262 |

4.2.1 The relationship between population change and net migration in each zone

Table 10.24 shows that, in 2000-2003, in the coastal area, the dominant trend was emigration while, in the ring, the dominant trend was in-migration. In 2003-2009, the in-migration was happening in both the coastal/ core and ring. The in-migration was stronger in the coastal area in 2003-2006 but in 2006-2009 it was stronger in the ring.

Table 10.24. Net migration as percentage of total population change in each zone, Nha Trang*

| Zone | Percentage of migration/population (%) | | |
|--------------|--|------------------|------------------|
| | Period 2000-2003 | Period 2003-2006 | Period 2006-2009 |
| Coastal area | -7.07 | 2.93 | 4.76 |
| Ring | 7.53 | 0.79 | 7.61 |

Table 10.25. Net migration as percentage of total population change in each zone by wards/communes, Nha Trang

| Zone | Percentage of migration/population (%) | | |
|--------------------------|--|------------------|------------------|
| | Period 2000-2003 | Period 2003-2006 | Period 2006-2009 |
| Coastal zone/Core | -7.07 | 2.93 | 4.76 |
| Vnh Hai Ward | -56.0 | 7.5 | 22.8 |
| Vinh Phuoc Ward | 2.1 | 1.5 | -0.3 |
| Vinh Tho Ward | -50.7 | 2.1 | -9.6 |
| Xuong Huan Ward | 7.6 | -3.4 | -25.9 |
| Loc Tho Ward | -3.9 | 3.1 | -16.8 |

* Source: calculated from Statistics Book of Nha Trang.

| | | | |
|---------------------|-------------|-------------|-------------|
| Vinh Nguyen Ward | -0.3 | 1.4 | -0.8 |
| Vinh Thai Commune | 4.9 | 7.9 | 16.4 |
| Phuoc Dong Commune | 32.9 | 5.9 | 28.0 |
| Ring | 7.53 | 0.79 | 7.61 |
| Vinh Hoa Ward | 100.00 | 9.55 | 24.13 |
| Ngoc Hiep Ward | 3.36 | 8.12 | 24.99 |
| Van Thang Ward | -0.13 | 0.57 | -4.72 |
| Phuong Son Ward | 5.73 | -3.36 | -6.96 |
| Van Thanh Ward | 5.06 | 0.62 | -5.62 |
| Phuong Sai Ward | 17.22 | -8.01 | -28.01 |
| Phuoc Tan Ward | 4.90 | -1.20 | -4.56 |
| Phuoc Tien Ward | 7.35 | -0.55 | -22.39 |
| Phuoc Hai Ward | 1.09 | 4.16 | 13.35 |
| Phuoc Long Ward | 2.84 | 2.34 | 28.54 |
| Phuoc Hoa Ward | 2.20 | 1.06 | -17.35 |
| Tan Lap Ward | -9.76 | -0.52 | -0.27 |
| Vinh Truong Ward | 3.70 | 2.60 | 1.69 |
| Vinh Luong Commune | -2.91 | 0.89 | 7.17 |
| Vinh Phuong Commune | -1.92 | 1.90 | 16.17 |
| Vinh Ngoc Commune | 0.85 | 1.37 | 32.04 |
| Vinh Thanh Commune | 11.02 | -10.15 | 11.70 |
| Vinh Hiep Commune | 8.57 | -3.89 | 8.64 |
| Vinh Trung Commune | 5.70 | 3.96 | 3.24 |

Data related to migration flows between ring and core/coast is not available, and neither is data related to the ages of migrants.

4.3 Temporary Populations in the Core, Ring and Coastal Zone

Data related second homes and temporary migration are not available. Instead, we present data on the number of households in each zone.

Table 10.26. Number of households and household size in Nha Trang*

| Zone | Number of households | | | | Household size (people/households) | | | |
|---------------------|----------------------|---------------|---------------|---------------|---------------------------------------|-------------|-------------|-------------|
| | 2000 | 2003 | 2006 | 2009 | 2000 | 2003 | 2006 | 2009 |
| Coastal zone | 24,294 | 23,215 | 24,972 | 32,926 | 5.21 | 5.15 | 4.99 | 4.02 |
| Vnh Hai Ward | 5,329 | 3,553 | 4,066 | 6,276 | 4.67 | 4.54 | 4.33 | 3.68 |
| Vinh Phuoc Ward | 4,151 | 4,616 | 4,676 | 6,636 | 5.97 | 5.54 | 5.61 | 3.98 |
| Vinh Tho Ward | 2,391 | 1,695 | 1,702 | 1,802 | 6.27 | 5.93 | 6.10 | 5.32 |
| Xuong Huan Ward | 2,469 | 2,354 | 2,565 | 2,473 | 5.24 | 6.01 | 5.40 | 4.49 |
| Loc Tho Ward | 2,993 | 2,771 | 3,068 | 2,979 | 4.56 | 4.80 | 4.52 | 4.03 |
| Vinh Nguyen Ward | 3,906 | 4,069 | 4,153 | 5,246 | 5.09 | 4.93 | 4.95 | 3.93 |
| Vinh Thai Commune | 1,311 | 1,575 | 1,620 | 2,425 | 5.27 | 4.67 | 5.00 | 4.03 |
| Phuoc Dong Commune | 1,744 | 2,582 | 3,122 | 5,089 | 4.95 | 5.05 | 4.50 | 3.87 |
| Ring | 43,018 | 45,195 | 47,519 | 66,218 | 4.98 | 5.18 | 5.03 | 3.95 |
| Vinh Hoa Ward | | 2342 | 2599 | 4364 | | 4.34 | 4.36 | 3.46 |
| Ngoc Hiep Ward | 2,641 | 2,788 | 2,950 | 4,766 | 4.65 | 4.60 | 4.79 | 3.99 |
| Van Thang Ward | 2,236 | 2,095 | 2,089 | 2,749 | 4.81 | 5.19 | 5.29 | 3.88 |
| Phuong Son Ward | 2,145 | 1,833 | 1,890 | 2,463 | 4.83 | 6.06 | 5.74 | 4.16 |
| Van Thanh Ward | 2,536 | 2,558 | 2,570 | 3,085 | 4.82 | 5.09 | 5.15 | 4.11 |
| Phuong Sai Ward | 2,434 | 2,632 | 2,266 | 2,417 | 4.60 | 5.20 | 5.65 | 4.18 |
| Phuoc Tan Ward | 3,023 | 2,730 | 2,828 | 3,556 | 4.57 | 5.38 | 5.18 | 3.98 |
| Phuoc Tien Ward | 2,182 | 1,882 | 1,962 | 2,375 | 4.90 | 6.20 | 5.98 | 4.08 |
| Phuoc Hai Ward | 3,349 | 3,297 | 3,355 | 5,150 | 4.63 | 4.81 | 4.98 | 3.79 |
| Phuoc Long Ward | 4,079 | 4,281 | 4,594 | 8,090 | 4.43 | 4.39 | 4.23 | 3.40 |

* Source: Statistical Year Books of Nha Trang.

| | | | | | | | | |
|---------------------|-------|-------|-------|-------|------|------|------|------|
| Phuoc Hoa Ward | 2,744 | 2,748 | 2,627 | 3,223 | 4.78 | 4.94 | 5.27 | 3.70 |
| Tan Lap Ward | 2,855 | 3,263 | 3,265 | 3,602 | 5.57 | 4.49 | 4.51 | 4.12 |
| Vinh Truong Ward | 2,460 | 2,469 | 2,964 | 3,760 | 5.69 | 5.95 | 5.14 | 4.17 |
| Vinh Luong Commune | 2,320 | 2,262 | 2,413 | 3,129 | 5.70 | 5.75 | 5.51 | 4.62 |
| Vinh Phuong Commune | 1,936 | 2,130 | 2,375 | 3,116 | 5.22 | 4.72 | 4.37 | 4.01 |
| Vinh Ngoc Commune | 1,899 | 2,011 | 2,391 | 4,029 | 5.45 | 5.26 | 4.54 | 4.00 |
| Vinh Thanh Commune | 1,718 | 1,637 | 1,799 | 2,695 | 5.31 | 6.35 | 5.31 | 4.05 |
| Vinh Hiep Commune | 1,224 | 1,105 | 1,389 | 1,625 | 5.46 | 6.70 | 5.20 | 4.91 |
| Vinh Trung Commune | 1,237 | 1,132 | 1,193 | 2,024 | 5.53 | 6.49 | 6.50 | 4.00 |

The data in Table 10.26 show that in both the coast/core and ring areas, the number of households in Nha Trang was quite stable in the period 2000-2006. However, from 2006 to 2009, the number of household increased sharply. This also corresponds to the increasing number of migrants in 2006-2009. The size of household has tended to decrease and this is related to growing awareness of the Family Planning Policy of Viet Nam.

4.3.1 Students

Khanh Hoa Province has 11 universities and colleges and of these 10 are located in Nha Trang city. Each year, universities and colleges in Nha Trang city receive more than 13,000 students, of whom about 85% to 96% are from outside of the city. Statistics on the number of students from outside Nha Trang are not available. Therefore, these data had to be estimated from the number of students at each university or college each year (Table 10.27). However, it is difficult to divide this number between the urban zones, although it is known that these students usually stay in dormitories or near to the universities or colleges.

Table 10.27. Number of higher education students from outside Nha Trang city*

| Name of University | Number of student | Number of student outside of Nha Trang | Note |
|---|-------------------|--|--------------|
| Nha Trang University | 3622 | 3055 | Coastal zone |
| Nha Trang Central Training College for Teachers | 1552 | 1492 | Coastal zone |
| Pacific University | 1057 | 898 | Ring |
| Ton Duc Thang University | 700 | 595 | Coastal zone |
| Naval Academy | 740 | 629 | Coastal zone |
| Training College for Air Force Officers | 160 | 136 | Coastal zone |
| Training College for Informatics Officers | 600 | 510 | Ring |
| Nha Trang Training College for Teachers | 2823 | 2400 | Coastal zone |
| Nha Trang Training College for Culture, Art and Tourism | 1551 | 1324 | Coastal zone |
| Khanh Hoa Training College for Public Health | 358 | 332 | Ring |
| Total | 13163 | 11371 | |

* Sources: from websites of the universities of Nha Trang

4.3.2 Transport flows

The main rush hour flows of people are shown in Table 10.28. Journeys to work and journey to education are almost equal in number. Both have double peaks in the two main rush hour periods of the day. Pupils in high school are the single largest category in this table.

Table 10.28. *Estimation of flows in the rush hour in Nha Trang**

| Kind of flow | Number of commuters (people) |
|--|------------------------------|
| <i>Bus lines in public transport</i> | 2,151 |
| <i>Journey to works</i> | 35,037 |
| Labors in Industry | 15,820 |
| Labor in services | 16,806 |
| Teachers | 1,608 |
| Doctors, nurse, | 601 |
| Pharmacist | 203 |
| <i>Journey to schools and universities</i> | 36,243 |
| Students | 6,581 |
| Pupils in High schools | 23,986 |
| Children in kindergarten | 5,676 |
| Total | 73,341 |

4.3.3 Shoppers

In the residential areas, every house that is near the street tends to become a shop. Normally, people shop locally but, sometime, at the time of a festival or on special days, they visit the more famous shops. Nha Trang receives many tourists, so that shopping in Nha Trang is one of the popular activities in the area. People can shop for gifts, momentos, garments and other items. Shops tend to be located close to residents, schools, universities, and offices for convenience for customers.

* The number of commuters in journeys to works and journeys to schools and universities are estimated as one half of the total number of journeys in each type of flow.

4.3.4 Tourists

Most of the hotels in Nha Trang are located in the coastal zone. The peak number of tourists in Nha Trang is 10,000 people (on the Lunar New Year 2010). They come to Nha Trang to enjoy a very beautiful beach as well as to attend the frequent cultural events in the city.

Table 10.29. Tourists and hotel activities in Nha Trang*

| Tourist and Hotel activities | Unit | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------------------------|--------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Number of hotels | Hotels | 162 | 200 | 217 | 250 | 272 | 281 | 342 | 342 |
| Number of rooms | Room | 3,548 | 3,630 | 4,260 | 5,410 | 5,663 | 6,319 | 7,246 | 8,235 |
| Number of beds | Bed | 7,668 | 7,243 | 8,628 | 10,488 | 10,781 | 12,203 | 13,429 | 15,894 |
| Number of visitors | Person | 494,804 | 539,827 | 584,127 | 699,420 | 900,289 | 1,086,598 | 1,363,544 | 1,446,894 |
| Vietnamese | | 353,156 | 344,834 | 400,656 | 489,270 | 651,234 | 83,1277 | 1,081,489 | 1,025,593 |
| Foreigner | | 141,648 | 194,993 | 183,471 | 210,150 | 249,055 | 255,321 | 28,2055 | 421,301 |
| Tourists stay days | Day | 983,450 | 1,02,3196 | 1,11,5857 | 1,352,430 | 1,810,365 | 2,664,292 | 2,845,405 | 3,268,286 |
| Vietnamese | | 641,627 | 596,517 | 714,969 | 876,448 | 1,216,208 | 2,054,072 | 2,181,064 | 2,431,043 |
| Foreigner | | 341,823 | 426,679 | 400,888 | 475,982 | 594,157 | 610,220 | 664,341 | 837,243 |

4.3.5 The night-time economy

In Nha Trang, there are some 26 cafés, 15 bars and clubs and 75 restaurants. These are only the best known places that have been advertised on the internet: those that are not posted on the internet are excluded. Some restaurants are also bars and pubs. It is estimated that if, on average, one café serves 30 customers/per night, one bar serves 40 customers/per night and one restaurant serves 100 customers/per night, then the total number of customers who used cafés, restaurants and bars for one night at the peak hour will be 8,800 people. All these pubs, clubs, café and restaurant are located in the coastal zone of Nha Trang.

* Source: Statistical Year Books of Nha Trang.

4.3.6 Cinemas and theatres

In Nha Trang city, at present, there is only one cinema located on Hoang Hoa Tham Street with a capacity for about 200 people. In 2008, the cinema had 2096 film showings. Nha Trang also has theatres which provided 229 performances in 2008. The number of people attending the theatres was 450,000 in 2008.

4.3.7 Cultural events

On the Lunar New Year 2010, Vinperland in Nha Trang received an estimated 10,000 visitors each day. The total number of people visiting all the sites on this occasion was 276,099. At Doc Let Tourist Area, there were 11,000 visitors. At Nha Trang Tourist and Entertainment, there were 10,000 visitors. Hon Lao and Suoi Hoa Lan Tourist areas received 9,000 visitors. Eco-tourism Park Yang Bay received 4,000 people. Thap Ba Tourist Center received 7,500 people, and the actual number of tourists may be even greater as many could not buy tickets because the events were overloaded. Hon Tam Tourist Area has a new attraction, a balloon that has attracted many tourists. Walk Street (Tran Phu - Nha Trang) is always full of people at the time of the Tet Festival.

4.3.8 Marine border recreational usage

The number of boats and canoes in Nha Trang was 242 units in 2008. It is estimated that each boat contains about 20 people, and that the peak number of people visiting Nha Trang bay is 4,840 on any one day.

The case study areas also receive visitors from cruise ships. On April 19, 2010, more than 1,700 tourists from the international ship, the Diamond Princess, arrived in Nha Trang. This was the second time the Diamond Princess Ship had carried tourists to Nha Trang with the total of foreign tourists being 5,400 people, of whom 3,100 people went on shore at Nha Trang. On January 4, 2011, the International Ship Ocean Princess arrived at Nha Trang with 1,100 tourists, for the New Year. In 2010, Khanh Hoa province received 15 oceangoing vessels with a total of 16,000 people to visit Nha Trang city.

4.4 Mobility and Urbanization

4.4.1 Transport flows

In 2006, the Transport Service Company of Khanh Hoa provided 241,192 bus trips, and transported 11,777,048 passengers. The trips of bus lines linking the core and the ring of the city.

Table 10.30. Public transport: bus connections in Nha Trang city

| Number of Line | Route | Number of bus | Number of trip/day | Length of line (km) | Timetable |
|----------------|--|---------------|--------------------|---------------------|------------|
| Line 1 | Binh Tan – Le Hong Phong – Thanh | 8 | 42 | 18 | 15 minutes |
| Line 2 | Binh Tan-Tran Phu-Thanh | 10 | 45 | 18 | 12 minutes |
| Line 3 | Dam Market – Nguyen Thi Minh Khai – Lo River | 7 | 32 | 13.5 | 18 minutes |
| Line 4 | Hon Xen – Nguyen Thien Thuat – Vinperl | 6 | 49 | 15.4 | 15 minutes |
| Line 5 | Tran Phu Bridge – To Hien Thanh – Hon Ro | 7 | 46 | 12 | 18 minutes |
| Line 6 | Southern Bus Station – Northern Bus Station – Luong Son Market | 6 | 55 | 15.3 | 20 minutes |
| Total | | 44 | 269 | 92.2 | |

Intercity buses take passengers from Nha Trang (Khanh Hoa) to many other provinces of Viet Nam. There are about 2,850 people per day from Khanh Hoa province who are passengers on these buses.

Table 10.31. Inter-city public transport links to and from Nha Trang in 2006*

| Type of transport | Total trips in and out/day (trip/day) | Number of trips departure (trip/day) | Number of passengers (people/day) |
|--|---------------------------------------|--------------------------------------|-----------------------------------|
| Intercity bus: include 17 intercity lines and 1 line within city (Southern Station) | 350 | 120 | 1,400 |
| Intercity bus: include 18 intercity lines and 9 lines within city (Northern Station) | 260 | 120 | 1,450 |
| Bus: 6 lines, 44 buses | | 661 | 32,266 |
| Taxi: 200 taxis | | | |

In Nha Trang city, motorbikes account for more than 90% of transport means. Motorbikes are the most common form of transport in Vietnam as a whole, and not only in Nha Trang, because it is cheap, flexible and suitable for the narrow streets in Viet Nam. In recent years, with the development of the economy, the living standards of people have improved and, therefore, the number of cars has increased (3.1 times compared to 2006). Public transport is use more and more such as taxis, bus.

Table 10.32. Number of private transport means in Nha Trang, 2006 and 2010*

| Type of vehicle | 2006 | | 2010 | |
|-----------------------------|--------------------|-----------------------------|--------------------|-----------------------------|
| | Khanh Hoa province | Estimate for Nha Trang city | Khanh Hoa province | Estimate for Nha Trang city |
| Motorbikes | 337,004 | 168,502 | 524,437 | >200,000 |
| Automobile, in which | 9,676 | 5,806 | 24,351 | ≈18,000 |
| Trucks | 4,746 | 2,848 | | 8,829 |
| Car | 2,534 | 1,520 | | 4,714 |
| Taxi | 200 | 120 | | 372 |
| Bus | 1,308 | 785 | | 2,433 |
| Specific automobiles | 581 | 349 | | 1,081 |
| Others | 328 | 197 | | 610 |

* Source: www.dichvuvantaikh.vn.

* Source: Transport Service Company of Khanh Hoa.

4.4.2 Land use

The area of Nha Trang city increased from 2000 to 2008 because of some sea-reclamation projects. From 10.3, there was an adjustment to boundaries following the revision of the administrative border of Vinh Hai Ward (coastal area) into two wards (Vinh Hai ward belongs to coastal area and Vinh Hoa ward belongs to the ring). This makes it difficult to interpret the change data for individual types of land use, and is also why the area of the coastal zone has decreased while the area of the ring increased.

Table 10.33. Land use in Nha Trang in 2000 (ha)

| Total | Agricultural land | Forestry land | Special used land | Home-stead land | Unused |
|-------|-------------------|---------------|-------------------|-----------------|--------|
| 25069 | 4801 | 2696 | 3001 | 2010 | 12561 |

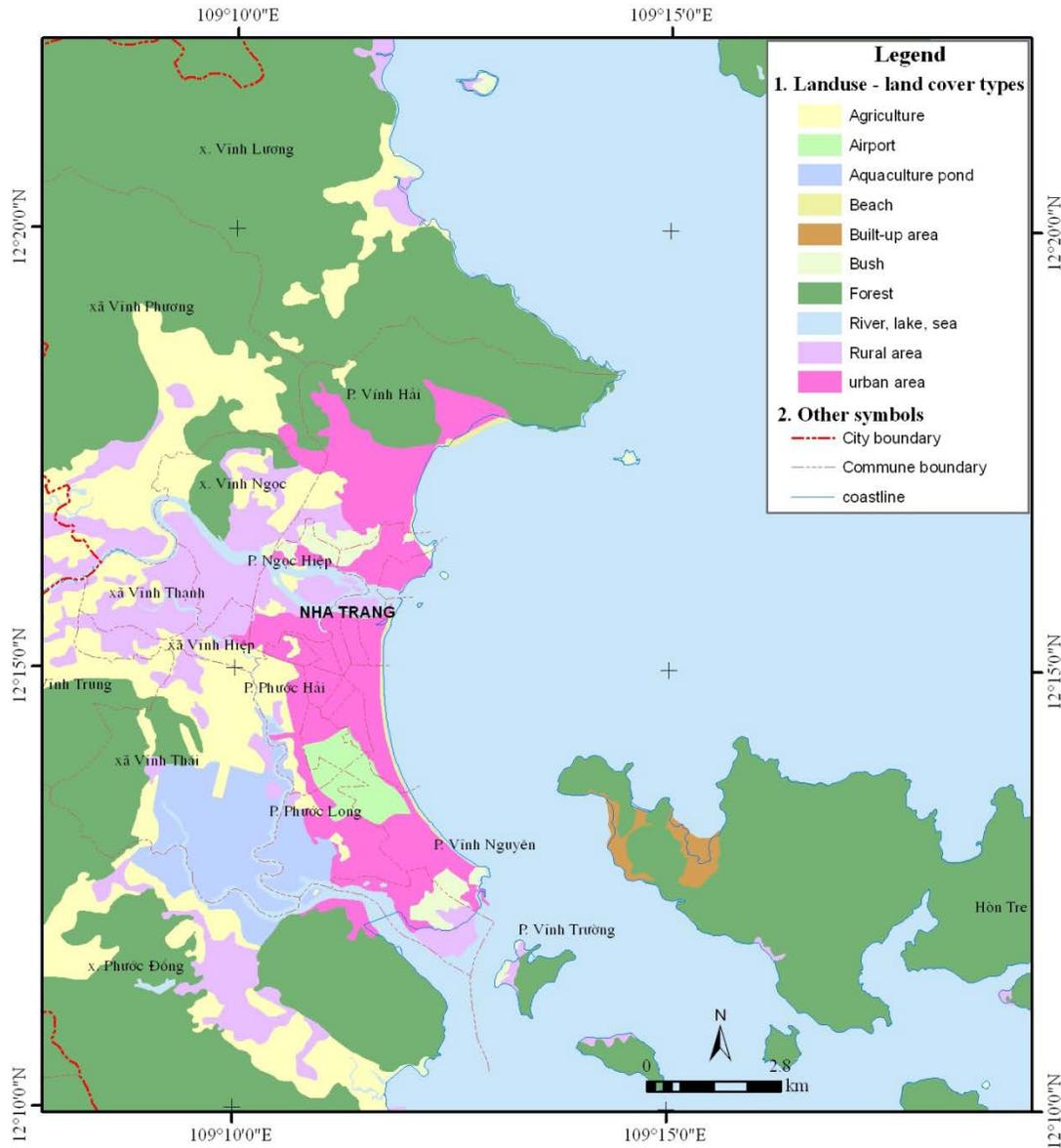
Table 10.34. Land use in Nha Trang in 2006 and 2008 (ha)

| Year | Total | Agricultural land | Non-Agricultural land | Unused |
|------|-------|-------------------|-----------------------|--------|
| 2006 | 25148 | 6464 | 6389 | 12295 |
| 2008 | 25260 | 7310 | 6296 | 11654 |

Table 10.35. Land use in Nha Trang divided by zones (km²)

| Area | 2000 | 2003 | 2006 | 2009 |
|--------------------------|-------|-------|-------|-------|
| Total area | | | | |
| <i>Coastal zone/core</i> | 133.4 | 133.4 | 121.9 | 122.5 |
| <i>Ring</i> | 117.3 | 126.5 | 128.8 | 130.1 |
| Agriculture land | | | | |
| <i>Coastal zone/core</i> | 21.12 | 19.59 | 9.90 | 13.87 |
| <i>Ring</i> | 26.89 | 28.52 | 26.76 | 28.10 |

Figure 10.4. Land use and land cover in Nha Trang in 2008



4.4.3 Population density

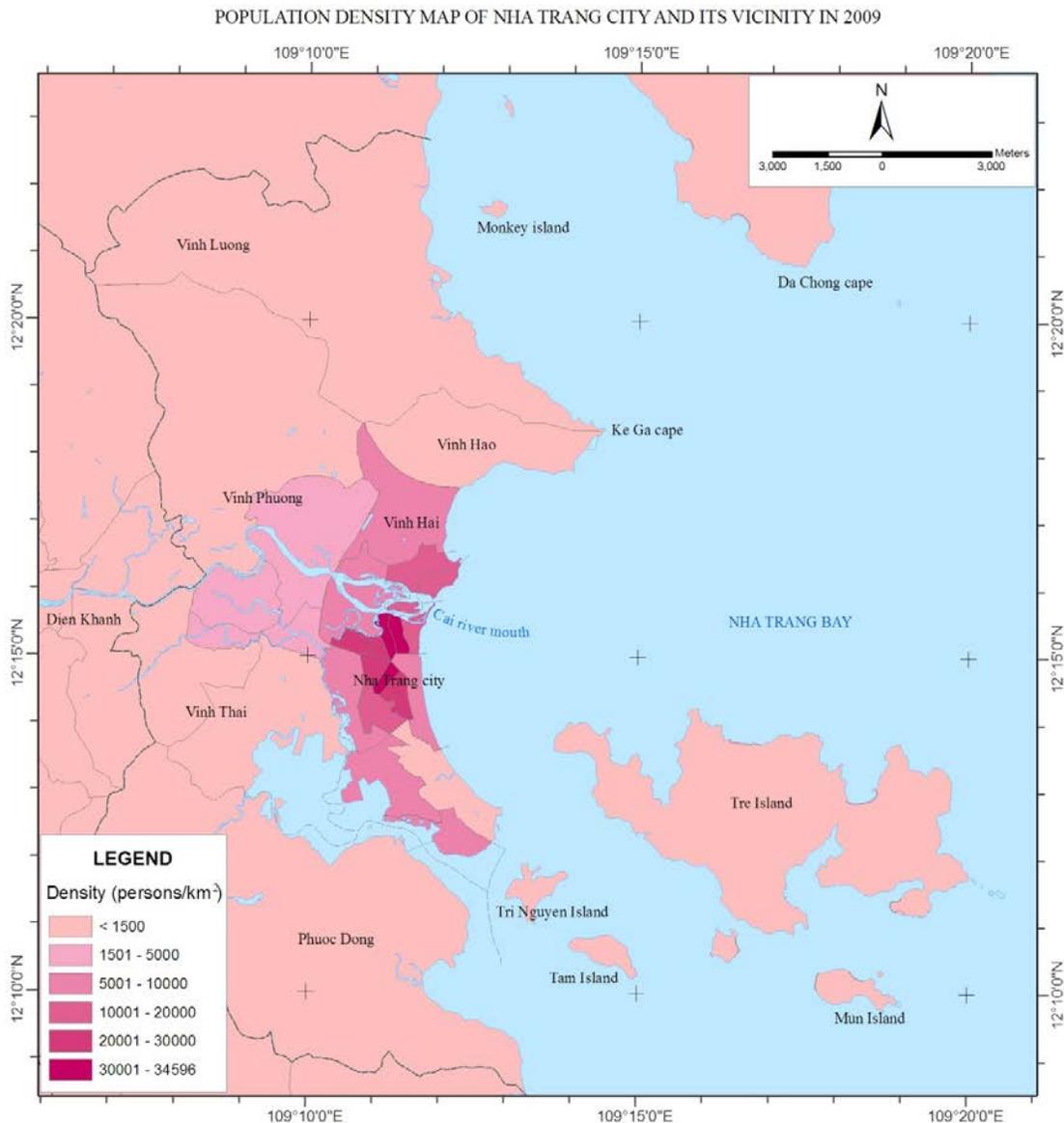
The population is mainly concentrated in the ring because this is the administrative center of the city. The density of population in the ring is near twice as high as the population density in the coastal area. In general, the density of population in both ring and core increased from 2000 to 2009.

Table 10.36. Population density in Nha Trang city (people/km²)*

| | Density (people/km ²) | | | |
|--------------------------|-----------------------------------|--------------|--------------|--------------|
| | 2000 | 2003 | 2006 | 2009 |
| <i>Coastal zone/core</i> | 950 | 897 | 1,023 | 1,080 |
| Vnh Hai Ward | 1,551 | 1,005 | 3,935 | 5,140 |
| Vinh Phuoc Ward | 18,151 | 18,741 | 19,218 | 18,310 |
| Vinh Tho Ward | 24,183 | 16,224 | 16,752 | 15,444 |
| Xuong Huan Ward | 20,546 | 22,473 | 21,971 | 18,778 |
| Loc Tho Ward | 10,507 | 10,229 | 10,666 | 8,706 |
| Vinh Nguyen Ward | 468 | 473 | 484 | 484 |
| Vinh Thai Commune | 480 | 512 | 563 | 678 |
| Phuoc Dong Commune | 152 | 230 | 248 | 346 |
| <i>Ring</i> | 1,826 | 1,852 | 1,853 | 2,008 |
| Vinh Hoa Ward | | 878 | 981 | 1,267 |
| Ngoc Hiep Ward | 3,665 | 3,835 | 4,217 | 5,488 |
| Van Thang Ward | 31,110 | 31,413 | 31,922 | 30,469 |
| Phuong Son Ward | 22,500 | 24,133 | 23,591 | 22,295 |
| Van Thanh Ward | 32,668 | 34,791 | 35,374 | 34,220 |
| Phuong Sai Ward | 30,679 | 37,471 | 35,055 | 26,386 |
| Phuoc Tan Ward | 34,513 | 36,693 | 36,635 | 29,283 |
| Phuoc Tien Ward | 38,189 | 41,675 | 41,879 | 34,596 |
| Phuoc Hai Ward | 6,060 | 61,949 | 6,531 | 7,617 |
| Phuoc Long Ward | 4,228 | 4,399 | 4,552 | 6,312 |
| Phuoc Hoa Ward | 13,883 | 14,352 | 14,658 | 12,630 |
| Tan Lap Ward | 26,057 | 24,002 | 24,126 | 24,330 |
| Vinh Truong Ward | 7,563 | 7,940 | 8,237 | 6,607 |
| Vinh Luong Commune | 288 | 284 | 290 | 313 |
| Vinh Phuong Commune | 308 | 306 | 316 | 385 |
| Vinh Ngoc Commune | 1,180 | 1,206 | 1,239 | 1,837 |
| Vinh Thanh Commune | 2,606 | 2,969 | 2,730 | 3,119 |
| Vinh Hiep Commune | 2,559 | 2,837 | 2,766 | 3,040 |
| Vinh Trung Commune | 866 | 931 | 982 | 1,021 |

* Source: Statistical Year Books of Nha Trang

Figure 10.5. Population density in Nha Trang, 2009



Comparing the distribution of population density and migration, a close relationship is observed between them. In 2000-2003, in coastal areas, many people went to live in other areas so the population density in this zone decreased while population density in the ring increased. In 2003-2006, many people migrated to the coastal area of the city leading to increasing population density there while population density did not change in the ring (this fits with the percentage of immigration/population in the ring in this period being 0.79%). In 2006 – 2009, the population density increase in both the coastal area and ring, which accords with the percentages of immigration/population in these areas being 4.76% and 7.61%, respectively.

5. Conclusions

5.1 For Hai Phong city

There are three main observations. First, migration flows concentrate on the urban areas of the city. Internal migration is stronger than national and international migration flows. Secondly, Hai Phong is an attractive tourism site with some 4 million visitors a year (2011). This temporary mobility has negative impacts on the society and environment of the city. Thirdly, conflicts due to human mobility include: conflicts related to culture and lifestyle between local resident and migrant, and conflicts over the right to use and possess resources.

5.2 For Nha Trang city

The increasing of number of tourists in Nha Trang city also brings negative impacts to the environment and resources. The degrading of the environmental quality in Nha Trang Bay originated from poor management of tourist activities.

Immigration and the increasing population resulted in pressures on the environment and resources, especial land water resources. Many areas of forest and agricultural land may disappear and be replaced by residences or by developments such as the Trade Market Center. The pollution of water quality such as marine water, ground water, surface water as well as the lack of clean water, will become a major problem if reasonable exploitation measures are not put in place.

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CHAPTER XI.

Conclusions: Mobilities and Conflicts in Functional Urban Regions

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1. Final reflections

This book has brought together analyses of the relationships between mobility and urbanization by the eight partners in the EU FP7 project, SECOA. The papers are empirical in content rather than theoretical, because their primary purpose was to provide an essential building block for the larger project which is concerned with analysing conflicts in context of urbanization and urbanization in coastal regions. Nevertheless, the book does provide insights into recent rapid changes which have transformed many coastal regions both within and outside of the EU. Here, by way of conclusions, a number of key findings of the research are presented, drawing on both the introductory overview chapter, and the individual case studies that are the central focus of this book.

1.1 Scapes and flows

First, these urban regions are places where flows are articulated and interwoven (Massey 1994). This is a story about the fluidity, dynamism and constant reworking of how places are made and remade, and are understood by those who move within, and through them. The advantage of such a perspective is that it allows us to escape the limitations of more static urban analyses, which have focussed on structures, morphologies, and the built environment, rather than the flows which shape these. This is not however to advocate that we only focus on movement and flows, for these flows are deeply shaped by the scapes (Urry 2000) which define urban landscapes. Scapes are the technologies, infrastructures, and institutions which configure time and space (Urry 2000) in the metropolitan regions. These scapes are epitomized by the ports, the airports, railways, roads and other transport routes which dominate modern cities. Their importance lies not in their materiality, but in being the major routes along which people, knowledge, voices, and images flows. They are not immutable, but they do tend 'to wall in' flows (Urry 2000: 38). Those walls may change over time, but they also exercise an element of determinancy, even of path dependency in the way in which the mobilities of the past entrap those of the present, through the interaction of structures and processes. Roads which have their origins in Roman or even earlier periods, still act as the bases of scapes in modern day Rome, and railway and metro systems built at the peak of

empire still shape flows in present day London, for example. Within the individual chapters, the authors focused largely on flows rather than scapes. However, the latter are always implicit, and sometimes explicit, in the accounts of how say particular road structures in the Algarve, train services in Belgium, alternative transport provision in Sweden, or cruise ship facility developments in Rome, have contribute to shaping flows. This is, of course, not a simple one-way casual relationship, for flows contribute to the shaping of scapes – whether through market responses or state investments – as well as scapes shaping flows.

Second, the flows which they most obviously wall in, are journeys to work – those extraordinary double peaked, diurnal ebbs and flows of people – that are mutually shaping of labour markets, defining the arenas in which a large part of our daily lives are played out. Not surprisingly, then, journey to work data have been central to most attempts to define functional urban regions (Robson et al 2006). All the chapters in this volume record these massive movements of people within and between the different zones of the metropolitan regions. However, in none of them is the picture more vividly drawn than in Mumbai with trains continuing to transport workers into the core along the same routes as had prevailed decades or even a century earlier. Yet, these flows are matched in volume and temporal peaking, if not by spatial concentration and length of journeys, by the daily journey to school or college. Where data is available on such flows, as in the Portuguese or Vietnamese case studies, they can be seen to match or even surpass commuting, in terms of numbers of journey made.

Third, this brings us to one of the central themes of this volume. Whereas most of the long tradition of research on functional urban regions has focussed on journeys to work and migration, or perhaps on housing markets (see Robson et al 2006), these deeply patterned more ‘permanent’ (in the case of migration) or regular flows, are also paralleled by temporary mobilities – whether journeys to shop, for services, second home usage, or for leisure and tourism. Their impact can be immense, but these are rarely captured by secondary data sources, as is evident in this volume. Even where some of these temporary mobilities can be captured in secondary data, the picture emerges of sequential and overlapping flows of people who serve to swell the temporary populations of particular zones (often cores or coastal zones) at particular times of the day, and days of the week. The most extensive – but still sadly incomplete – data on such flows is found in the UK and Italian case studies, which paint statistical pictures of the competing and restless flows of users of urban spaces. The Lisbon case study, for example,

illustrates how new peaks of temporary visitors, both locals and tourists, add not just to the numbers of people in places of leisure, but also to the volumes of traffic moving around the city (see also Urry 2007 for a much fuller discussion of these mobilities).

Fourth, these chapters construct a picture of the changing spatiality of the city. The dominant picture in terms of the resident population is of relative decentralization with population growth in the rings tending to outpace those in the cores – although these necessary shift over time (van den Berg et al 1982; Cheshire 1995). Urban policy plays a role in framing these changing spatialities, including the patterns of land use extensification and intensification that have been mapped out in all the chapters. These policies mediate whether the materialities of the city involve vertical or horizontal expansions, the encroachment of new green spaces, or the filling in or brown or green spaces in the existing built up areas. In general they are creating increasingly dispersed cities, which in the case of say London and Mumbai, become mega regions in terms of their reach. This is often accompanied by the growth of decentralization of jobs and services, and to the creation of what some commentators term ‘edge cities’ (Garreau 1991). That in turn has promoted discourses about the merits of promoting the compact city (van der Walls 200).

Fifth, a theme which emerges strongly in many of the case studies is the globalization tendency evident in the flows of migrants, tourists, and even second home owners, shoppers and others. International migrants are important numerically, but also in social and cultural terms, in redefining how places are constituted and linked by transnational linkages to other places, and other lives (Smith 2001). These in turn lie at the heart of new discourses about migration and national identities, and drive policy debates about the openness of borders and, therefore, implicitly of functional regions. The international flows may be quite localised as in the case of Malmo, or be rooted in the economic functions of a global city and the legacy of empire, as in the case of London. But they are diverse stories of linkages, and internationalization whether in the case of Israel – and the example of relatively recent flows from the former Soviet Union – or Belgium’s colonial legacy, or Rome’s attractions for migrants from south eastern Europe, and across the Mediterranean. These flows must be seen not as single and simple movements of individuals, but as enfolded mobilities (Williams 2009). Today’s tourist may become tomorrow’s migrant, or today’s migrant may become the fulcrum of circulating flows of tourism (Williams and Hall 2000).

Sixth, there is a constant interplay between these flows and the shifting mosaic of social lives that are played out in the discreet but linked spaces of the cities (Marcuse and van Kempen 2000). This is a story, above all, of multi-layered polarisation – between rich and poor, newcomers and long term residents, gentrifying and residual populations, young versus old, those leaving families versus those making new families. They are constantly distributed and redistributed by flows across the boundaries of urban regions, and within these. They are expressions of the tensions between structure and process, between scapes and flows, and above all of the making and remaking of social polarization. Such polarisation lies at the heart of the conflicts over resources that are central to understanding life in metropolitan regions. Such conflicts are difficult to capture at the aggregate level of analysis in this volume, but they are at least hinted at by the analyses of second homes, land use changes, and the selectivity of migration.

2. Mobilities and conflicts

In this volume, human mobility-urbanisation' relationships are the central unit of analysis within the framework of the natural environment of the coastal areas, with a focus on identifying some of the key issues that inform unfolding major conflict categories/themes. The authors of these chapters were not asked to analyse in detail how mobility-urbanization relationships informed conflicts and challenges.. Within the SECOA project, that was a task for more micro level studies. Nevertheless, they were asked to reflect on what they saw as some of the conflicts that directly or indirectly arose from the processes of urbanization and mobility, recognizing that these would be mediated by institutions, policies and the contingencies of place-specific developments.

The reflections on the individual case studies are summarised in Table 11.1.

Table 11.1. *Conflicts related to mobility and urbanization*

| CASE STUDY | Key conflicts related to mobility. | Key conflicts related to mobility in coastal areas. |
|--------------|---|---|
| Brugge (B) | Residential and industrial expansion in ring v other uses. Tourism pressures v UNESCO listed heritage area. | Seasonal tourism and day visitor pressures v residents. Rapid second home growth v permanent residents and natural resources. Road traffic intensity v environmental quality. |
| Ostende (B) | Residential and industrial development v loss of agricultural land in ring. | Seasonal tourism and day visitor pressures v residents. Rapid second home growth v permanent residents and natural resources Road traffic intensity v environmental quality. |
| Mumbai (In) | Migration related: traffic jams, air pollution, disposal of sewage, management of solid wastes and depletion as well as contamination of surface and groundwater. Slums – often built in environmentally sensitive areas. Overcrowded public transport. Poor regulation of unplanned settlements. Sanitation and health problems. Air pollution – from residential and industrial areas. Local v outsider tensions. | |
| Chennai (In) | Migration related: traffic jams, air pollution, disposal of sewage, management of solid wastes and depletion as well as contamination of surface and groundwater. Slums – often built in environmentally sensitive areas. Overcrowded public transport. Poor regulation of unplanned settlements. Sanitation and health problems. Air pollution – from residential and industrial areas. | |

| | | |
|------------------------|---|--|
| Tel Aviv (Is) | Urban sprawl v protection of open spaces. Planning constraints v house prices. Traffic congestion. Tourism development v conservation. | Intense residential and tourism pressures versus strong environmental lobby. Social polarisation between coastal residential areas and inland ones. Public access to v private ownership of the coast. |
| Haifa (Is) | Urban sprawl v protection of open spaces. Population dispersal versus Jewish-Arab conflicts in suburban locations. Tourism development v conservation. | Intense residential and tourism pressures versus strong environmental lobby. Public access to v private ownership of the coast environmental lobby |
| Rome (It) | Increased commuting and traffic congestion related to unplanned decentralization and weak public transport. Conflicts between Roma camps and local populations | Second homes converted to primary residences. Cruise ships generate environmental pressures, but most economic benefits experienced in inland core. |
| Chieti-Pescara (It) | | Sea activity threatens tourism activities. Intense residential development causing speculation and land use conflicts. Conflicts between permanent residents v day visitors and beach house owners. |
| Lisbon (P) | Land-use conflicts. Increased traffic and commuting v quality of life and environmental quality. | Second homes v permanent residents, and resources. Waterfront regeneration – land use conflicts. |
| Eastern Algarve (P) | Urban sprawl v landscapes and open spaces. Poor public transport and traffic growth v quality of life and environmental quality. | Seasonal temporary populations v permanent residence. Pressure on natural resources. |
| Funchal (P) | Increasing travelling distances. Higher urban intensification. Private transportation use growth. | Tourism pressures. Dilapidation of the cliffs. |
| Gothenburg (S) | Increased socio-economic polarisation. Planning policies of concentrating new housing versus demand from investors. Personal v commercial river transport. | Conversion of summer houses into permanent homes. |
| Malmo (S) | Increased socio-economic polarisation | Conversion of summer houses into permanent homes Opening of bridge from Denmark is increasing pressures on housing, and also on fragile coastal areas |

| | | |
|---------------------|---|---|
| Portsmouth (UK) | Intense temporary mobilities impact on the highly constrained urban core. High population densities in the core v urban resources. Increased commuting and traffic congestion v quality of life and environmental quality. Planning v conservationist, and newcomer v local population conflicts in the ring. | Intense temporary mobility flows v permanent residents: impact on resources in the waterfront regeneration areas. |
| Thames Gateway (UK) | Increased traffic congestion v overloaded public transport. High and increasing population densities in the core v quality of life and environment. Planning v conservation issues in the ring, with tight controls inflating land and house prices, with social consequences | Increased traffic congestion, poor intra-regional connectivity in some areas: conflict over new Thames crossing. Prioritising brownfield land in Thames Gateway: building on low lying areas v inundation issues. |
| Hai Phong (V) | Local residents v migrants: cultural and life style conflicts. Migration and urbanization v management of demands for energy, water, and land, and environmental pollution. | Tourism development v needs of local population. |
| Nha Trang (V) | In-migration generates land use conflicts, and threatens water quality | Tourism pressures v management of the environment |

At the metropolitan level, they encapsulate issues relating to residential and economic developments, loss of open spaces, urban sprawl in some case study areas but intense pressures on housing and house prices in others as a result of restrictive planning policies. There were also significant infrastructure deficiencies in the Asian cities, and intense pressure on transport systems in all the case studies. Local v outsider conflicts were also noted, as were social polarisation tendencies, and conflicts between the needs and priorities of permanent residents v temporary occupiers of central urban spaces.

The conflicts in the ring partly replicated those noted in the core, but also included more emphasis on: a) tourism related pressures – seasonality, the incidence of second homes, and second homes being converted to permanent residences; b) intense seasonal pressures on transport systems; c) sea level inundation threats to both residential and tourism developments; and d) conflicts between day visitors and permanent residents.

Finally, this volume is brought to close by some brief future reflections. This volume was mainly produced in the period 2010-11, at a time when the enduring nature of the 2008+ economic crisis was becoming increasingly evident. Although that crisis has mostly been discussed in terms of economic outcomes, it is obvious that these have a number of significant implications for the issues considered in this volume.

First, the highly uneven territorial outcomes of the economic crisis, at world macro regional, national and regional levels, will have profound implications for the economic dynamism of all metropolitan regions, but particularly the European ones. This will lead to shifts in permanent mobility, or migration, reflecting the new geographies of employment and growth. However, care should not be taken to project migration as a simple function of economic conditions, because migration has non-economic drivers, and is also sustained by, for example, processes of family reunification, long after the initial economic conditions which attracted the lead migrants have faded. Social networks can represent powerful instruments of path dependency. The impacts on journey to work are more difficult to predict – while they can be expected to decline as the numbers in employment decrease, the intra-urban geographical shifts in employment are likely to be complex. The changes in tourism are also likely to be complex, especially where demand is strongly internationally driven, as in London or Rome, rather than dependent on relatively depressed domestic markets.

Secondly, changes can also be anticipated in terms of investment by the state and by private capital, investment that effectively shapes urban scapes, whether in terms of housing, retailing or transport infrastructures. After a long period of neo-liberal drift in many countries, the economic crisis has shifted focus to sharp reductions in public expenditure, and increased taxation, as a double fronted attack on national debts. Even in their own avowed terms, the implications of these programmes will be evident in reduced public investments due to cut backs, and to reduced private sector investments in the face of weaker demand. The unintended effects of the cutbacks on confidence, expenditure and growth may, however, be far greater, than was ever intended by policy makers. We therefore face a decisive moment in the evolution of coastal metropolitan regions as they have to come to terms with new economic and cultural landscapes, as well as shifts in political cultures. However, the importance of mobilities in shaping urbanization and framing will not so much decline, as taken on new, and perhaps unanticipated, directions.

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