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ENVIRONMENTAL CONFLICTS IN COASTAL URBAN AREAS
Towards a Strategic Assessment Framework for
Sustainable Development

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



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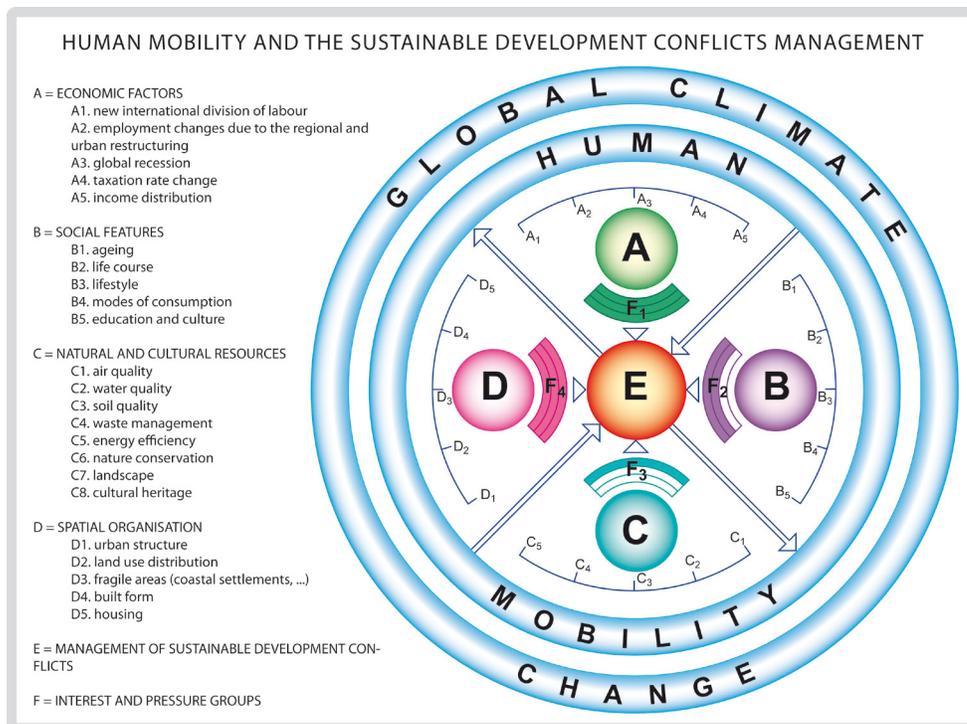
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Editor's Preface to the Series

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 many conflicts 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.

For this volume, the Series Editor wishes to thank his colleagues at the Vrije Universiteit Brussel (VUB) – first Luc Hens, later replaced by Eric Corijn – who coordinated the Work Package “Analysis of conflicts of uses of coastal resources amongst users and sectors “ (WP4), some of the results of which are reported in this book. Special thanks are also due to my Editorial Board colleagues, who took on the responsibility, as referees, of revising the text of the book, suggesting appropriate changes and requesting the necessary additions. Le Xuan Quynh participated from the start in managing WP4 research and producing this book, with the subsequent collaboration of Ahmed Z. Khan and Frank Canters. The VUB team contributed from the beginning to drawing up the WP4 project proposal. The success of any international project is at least partly due to the experience of existing and previously tested collaborations. The SECOA project proposal was organized along an “archipelago” collaboration model where networks of disciplines intersected, based on personal contacts and mutual appreciation. One such network of relationships already existed within the Department of Human Ecology (DHE) in Brussels, which, under Luc Hens’s leadership, had been for several years an international reference point for successfully integrating approaches typical of the natural sciences and those of the social sciences. My collaboration with Luc Hens began in the 1980s, when we were both working for environmental associations in our respective countries, with a keen interest in and awareness of European and international co-operation. In 1993 I was elected President of the Brussels-based European Environment Bureau, and the same year Luc Hens proposed my name as guest professor at the VUB, teaching an annual course on the “environmental aspects of recreation and tourism” at the DHE. It was a two-year Master’s degree course on creating an integrated relationship between people and the environment, aimed at helping students identify and manage environmental problems in their countries of origin. Teaching at the DHE, initially an occasional activity, became a regular process that I returned to every year from 1993 to 2000. A singular aspect of this project was the markedly international character of the DHE students, with graduates coming from 50 different countries. During my time at DHE, I encountered Karl Bruckmeier, who would later coordinate the Swedish research group for SECOA, and Tran Dinh Lan, the Vietnamese research group coordinator. When the DHE’s work wound up in 2010, the VUB continued to be a part of SECOA through its interdisciplinary research group Cosmopolis, which is part of the Department of Geography.

The WP4 initially produced two books. The volume “Sustainability in the coastal urban environment: Thematic profiles of resources and their users” draws on 17 SECOA project case

studies. It evaluates the main resources and the key users to identify the principal pressures on the environment and the main conflicts in the use of resources.

The volume “Sustainability in the coastal urban environment: Assessing conflicts of uses” provides detailed analysis and evaluation of the specific conflicts and types of resource use that make achieving sustainable development particularly problematic in the 17 coastal urban areas studied by SECOA, where 26 conflict types have been identified. The project analyzed the way these conflicts emerge and develop, classified them by theme and typology, and evaluated their current status and possible future impact.

The expertise of our colleagues at the VUB has undoubtedly contributed to the success of the research and the subsequent gathering of the contributions published in this volume. A multi-disciplinary and multi-national project proposal is based on specialist literature and the past experience of individual researchers. Despite their expertise and skill in everyday research, each project involves fresh difficulties because it always has to go beyond tried and tested means and methods. The ability of a research group cannot be judged by the fact that it finds itself tackling problems that were not anticipated at the programming stage. Research is primarily about innovating, and it is therefore natural for researchers to encounter unforeseen circumstances. What is far more important is evaluating how such unforeseen problems are tackled and resolved. While WP4 did come up against some unexpected situations, they were systematically tackled and resolved thanks to the collaboration and commitment of the VUB research group.

Armando Montanari

Rome, January 2013

CHAPTER 0.

Understanding Environmental Conflicts for Sustainable Development: an Introduction

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1. Introduction

In the context of global climate change and sea level rise, there is a growing awareness of the pivotal role of coastal cities as the front-line for action in the global sustainability debates (UN-Habitat 2008). They are the linchpin of the global economic system. Housing a significant proportion of global population, they harbour enormous exposure of financial and infrastructural assets to climate change effects, and at the same time, are home to some of the most fragile and over-stressed ecosystems (Balk et al, 2008; Chafe, 2007). Caught between the ever increasing economic pressures on the one hand and growing demand for environmentally and socially sustainable development on the other, the coastal areas are fast emerging as a locus for a new generation of environmental and land use conflicts. Demand on coastal space and natural resources for economic objectives increases whilst the supply diminishes threatening vulnerable coastal ecosystems. Hardin's (1968) thesis on the "tragedy of the commons" concerning the overexploitation of resources is thus comprehensively reflected in the contemporary restructuring processes of the coastal urban environments. Coastal areas epitomises this tragedy as the competing demands for economic development and environmental preservation continuously trigger conflicts. Seen from a Socio-Ecological Systems (SES) perspective (Ostrom, 1999; 2009), multiple processes at different scales are involved in the construction and shaping of these conflicts that change and evolve over time. They become 'complex adaptive systems' (Ostrom, 1999) as many of the sub-conflicts, and their underlying processes, generate properties through interactions that are not easy to predict by analyzing the separate sub-conflicts.¹ Managing and resolving such conflicts require the diagnostic and analytical capabilities for understanding the multiple processes shaping these conflicts through new insights and assessment frameworks that are based on a more integrated and interdisciplinary knowledge base (Ostrom et al., 2007). Developing such an interdisciplinary knowledge base for understanding environmental conflicts is our interpretation of the calls for 'going beyond panaceas' if sustainability science has to grow in

¹ According to Elinor Ostrom (1999, pp. 520-21) Complex adaptive systems are composed of a large number of active elements whose rich patterns of interactions produce emergent properties that are not easy to predict by analyzing the separate parts of a system (Ostrom, 1999, p. 520-21).

theoretical maturity.² With the intention of contributing towards the construction of such a knowledge base, the main objective of this volume is to develop diagnostic and analytical capabilities through developing an environmental conflict assessment framework that is based on an in-depth interdisciplinary understanding and analysis of the nature of these conflicts.

In the course of this volume, these intentions and objective are addressed by presenting detailed analyses and assessment of specifically identified environmental conflicts that threaten the sustainability in the respective coastal urban environment. They are twenty-six conflict cases in seventeen coastal areas of the SECOA project from eight different countries, which correspond to the eight chapters [2 till 9] of this volume.³ Underpinning these detailed analyses is the main argument that such an in-depth understanding of environmental conflicts – developing diagnostic and analytical capabilities about the way they emerge and evolve, their thematic and typological classification, their current trends and possible future impacts – is not only a prerequisite for their assessment, management and resolution but also for imagining alternative design and policy options for more sustainable futures in the coastal urban environment.

Scientific and scholarly interest in understanding environmental conflicts has considerably increased in recent years. In sketching out our understanding and use of the term ‘environmental conflicts’, we have observed that a significant body of research relies on theorizing them within the traditional framework of ‘security, conflicts and peace research’, also popularized as the ‘greening’ of peace research (Brown, 1989; Homer-Dixon, 1991; Pirages, 1991; Renner et al., 1991). At its core lies the environmental issues that have been becoming on the one hand part of a ‘widened security and being on the other hand assumed to play a rapidly increasing role as *causes of violent conflicts*’ (Libiszewski, 1995). Most literature in this strand,

² For a more elaborate discussion on interdisciplinarity, diagnostic and analytical capabilities for developing the sustainability science, see the articles in special feature of PNAS on ‘going beyond panaceas’ (2007) by Ostrom et al., Anderies, et al., and Perrings.

³ The project comprises of 8 partner universities that investigates 17 coastal urban areas in European and Asian countries (United Kingdom, Belgium, Portugal, Italy, Israel, India and Vietnam). The main challenge for the project is, how to manage contrasts through *sustainable urban planning*, consisting of environmental protection, economic development, and social cohesion? SECOA takes on board an integrated ecosystem approach with the aim to identify the contrasts, analyze their quantitative and qualitative effects on the environment, elaborate an innovative methodology, build alternative scenarios, develop tools for appropriate policies, and create models to synthesize the complexity of the different social, economic and environmental systems. See www.projectsecoa.eu

however, is limited to illustrating the causal linkage between ‘environmental’ causes of ‘conflicts’ through the evidence of facts or overarching definitions, such as the one advocated by ENCOP research project (1992-1996): ‘Environmental Conflicts manifest themselves as political, social, economic, ethnic, religious or territorial conflicts, or conflicts over resources or national interests, or any other type of conflict. They are traditional conflicts induced by an environmental degradation.’⁴ From this traditional premise, environmental conflicts research has spread widely across several disciplines (Burke, 2001; Escobar, 2006a,b; Martinez-Alier, 2005; Martinez-Alier et al., 2010; Mason et al., 2007),⁵ within which several challenges have emerged. First, and foremost, is the natural (pollution and the overuse of resources) and social (actors and their values, interests, capacities and resource use practices) sciences divide in ways of seeing and understanding environmental conflicts (Stepanova et al., 2013). Second is the science and policy divide, which roughly translates to scientific knowledge for conflict analysis and managerial experience in resource management and conflict resolution respectively (Portman et al., 2012; SPICOSA 2007-11). Third is the lack of attention for research on environmental conflicts in coastal research, which largely remains focused on ICZM and natural resources management.⁶ Transcending these various research strands and divides is the SES perspective that develops from a critical review of the analysis of “tragedy of the commons” by Hardin (1968).

In the SES perspective, interdisciplinary knowledge integration, multi-scalar analyses and going beyond panaceas are aspects that we consider central to advancing environmental conflict research. In the ‘general framework for analyzing sustainability of SES’ (Ostrom, et al., 2007), it is the concept of ‘interactions’ that is the premise for the development of our notion of environmental conflicts. More specifically, it is the interactions between environmental resources, their users and uses that triggers and shapes the evolution of environmental conflicts. This volume is dedicated to developing diagnostic and analytical capabilities for such

⁴ Based on ENCOP (1992-1995), ‘environmental conflicts are characterized by the principal importance of degradation in one or more of the following fields. Overuse of renewable resources; overstrain of the environment’s sink capacity (pollution); impoverishment of the space of living’.

⁵ For an excellent review of these researches, see Stepanova, O. and Bruckmeier, K. (2013) The relevance of environmental conflict research for coastal management. A review of concepts, approaches and methods with a focus on Europe, in *Ocean & Coastal Management* 75, pp. 20-32.

⁶ For example, several large scale European research projects, such as SUCOZOMA (1997-2004), FRAP (2003-06), SPICOSA (2007-11), INCOFISH, COASTMAN (2004-07).

environmental conflicts in the context of coastal urban areas in an attempt to formulate a strategic framework for their assessment. A further specificity of our notion of environmental conflicts is the way we connect their understanding and assessment to the unfolding of sustainable development.

Understanding and assessing environmental conflicts in coastal urban areas is crucial for unfolding sustainable development. This simple assertion that frames the SECOA research project refers to a scientific and paradigmatic shift in sustainability thinking; from the traditional notion of the Environmental Impact Assessment [EIA] – its successive development and diffusion over the last two decades making EIA now almost mandatory for most large scale projects – towards assessing the nature of conflicts that the economic projects and processes generate. Cognizant of the growing emphasis on inter- and transdisciplinarity and the need for integration of scientific and policy domains, this shift acknowledges that assessing environmental impact is necessary but not sufficient condition for implementing and unfolding sustainable development. In this regard, the focus on environmental conflicts and their sustainability connection was set out in the previous SECOA volume (Khan et al., 2012). These conflicts are triggered by competing use of natural, socio-spatial and cultural resources by a diversity of users and sectors in the coastal environment.⁷ The manner in which a multitude of these resources are exploited and used – in quantity and in speed, in patterns of consumption and production - provides a dynamic frame of reference for assessing the sustainability of the coastal settlement system in relation to its eco-system and natural environment. Resource exploitation and use is dominated by the ever increasing economic pressures exerted by globalization and rescaling processes, and intertwined with ‘human mobility’ and ‘climate change’ effects on urban settlements’ growth and restructuring in fragile environments of coastal areas. Such effects are contributing to negative consequences on natural and cultural resources, (e.g. increased consumption; pollution; waste; urban carrying capacity demands,

⁷ The objective of the first of the three volumes about understanding and assessing conflicts of uses in relation to ‘sustainability’ in a specific environment [coastal urban environments] is to build up thematic profiles of ‘resources’ and their ‘users’ based on the analysis of 17 SECOA case studies. In the course of the volume, this objective is addressed by making a detailed inventory, analysis and assesment of the main *resources* and *users* in each case study in order to identify the most important pressures and conflicts of uses that threaten the sustainability in the respective coastal urban environment. See, Ahmed Z. Khan, Le Xuan Quynh, Eric Corijn, and Frank Canters (eds., 2012), *Sustainability in the Coastal Urban Environment. Thematic profiles of Resources and their Users* (Rome. Sapienza University Press).

etc.). The need for controlling and reducing such unwanted consequences - an environmental, and increasingly societal and public policy and governance concern, whose awareness has grown widely - is contributing to the creation of contrasts [conflicts] among stakeholders belonging to different economic sectors and social spheres involved in the urban context [residents, commuters, tourists, and enterprises] that compete for resources, spaces and deciding powers.

In our view, understanding the interactions between environmental conflicts and sustainable development involves seeing spatial (re)structuring processes in temporal / generational, multidimensional (economic, social, political) and multi-scalar (local to global) ways. Seen from SES based perspective (Ostrom, 1990; Ostrom and Hess, 2006), such an understanding is about shared problematizing in developing an integrated knowledge-base that values long-term and collective benefits over the short-term interests for the few. For example, embedded in most of the economic development projects related to ports and infrastructure in the coastal areas is a kind of high-modernist rationale for development from above that would (eventually) trickle down and benefit a wider section of the society (Scott, 1998). Seen from sustainability perspective (eco-system, resource depletion, etc.), the economic promise of expanded handling capacity of the ports in creating jobs and boosting GDP, and an infrastructural logic of improved connectivity and efficiency for reducing the cost of doing business, clearly remains a uni-dimensional objective with short to medium term interests. From the detailed analysis of the conflict cases in this volume, it is discernable that such interests are in conflict with the long-term environmental benefits: benefits of the coastal nature and resources, landscape heritage and anticipated damage to the sustainability of natural eco-system and its services. The conflicts generated by such projects are aggravated by the lack of socially inclusive and participatory approaches on the one hand. On the other hand, and more importantly, they are intensified by, and shaping and further promoting the, environmental agendas along the coastal areas. Though environmental agendas are being promoted and previous plans for growth based economic development are disputed amongst regulators, the intricacy of this new generation of environmental conflicts and their underlying processes along the coastal areas prevent outright implementation of these agendas. Economic prosperity remains a pivotal feature along the coast as individuals and public agencies continuously, and on many occasions undisputedly by regulatory agencies, utilise coastal resources in order to achieve their goals, hence, the proliferation and intensification of conflicts. Comprehending the

modalities of such type of conflicts is therefore crucial for devising alternative policy options for transcending the status-quo and mediating the short and long term interests for unfolding sustainable development. The in-depth understanding of their causes and assessing their effects in a multi-dimensional, multi-scalar and comparative framework, however, is a major methodological challenge.

Addressing the methodological challenge in working towards the development of a shared framework for understanding – diagnostic, analytical and assessment capabilities combined - of this new generation of environmental conflicts is complimentary to the main objective of this volume. This challenge is addressed through implementing a shared methodological framework – a ‘multi-criteria mixed methodology’, prepared through a flexible combination of conceptual frames and typologies compiled from conflict research, methods in comparative studies of conflicts, and multi-scale analyses of coastal SES, etc. (see chapter 1) - in the analyses of all the twenty-six conflict cases presented in chapter two till nine. This is complemented by their meta-analyses in a comparative framework presented in chapter one and conclusions. In the meta-analyses, the focus is on a comparative reading of the methodological aspects of the analyses by our eight SECOA partners of their particular cases in terms of themes, stakeholders / coalition formation, typological classification and ranking. Behind this focus, the aim is to highlight and address methodological issues involved in comparative analysis and provide an analytical base for developing a conflict assessment framework.

Discernable from the analyses of a diversity of cases presented in this volume, the environmental conflicts of uses in coastal urban areas emerge as complex constructions. Due to the intensity of uses (ports / harbours, shipping, tourism, etc.) in the ecologically fragile environment of coastal urban areas, they are not only intertwined with each other but, more importantly, they are conditioned by each specific *local context* (institutional, environmental, cultural, socio-economic, political) in *different* ways. In this sense, SECOA is an ambitious project in that we are seeking to develop a comparative analytical framework and solutions for conflicts of uses across not only European boundaries and systems – north and south, but also in non-European ‘southern’ states (Israel, India and Vietnam). European planning systems, governance, cultures and historical trajectories differ and these differences are multiplied by the more tropical southern partners and their environmental and eco-systems. Presenting perceived conflicts in this international comparative context, framed by fragile macro and micro-level data

and assumptions and political (social, cultural) imperatives, must therefore be conditional on the rationale for intervention, as well as the quality of the evidence itself, and underlying theory and process (Pawson, 2006; Solesbury, 2002). So that whilst convergence and transference may be evident, and localised models of policy responses and intervention appear similar – *local context* (conditions and variations such as the historic, social and cultural identities, governance, geographies/scales) should be equally considered in order to avoid falling into a reductive trap of universality at the cost of understanding the particular (Wallerstein, 1991). This is a broader issue for comparative urban studies generally (Denters and Mossberger, 2006). The environmental conflict cases that have been presented, analyzed and ranked in this volume have therefore adopted a multi-criteria selection and mixed methodology in order to reflect these differences within a comparative framework.

Analyzing the complexity of these environmental conflicts of uses - their conditioning by each particular *local context* in different ways – within a comparative framework is the crucial base for unfolding the conflict assessment framework. This presents the methodological challenges of, first, a diagnostic nature i.e. the identification of conflicts and, second, analytical dimension i.e. isolating a conflict for scientific analysis, so that an assessment of its causes and effects is developed in a way that acknowledges its multiple dimensions, scales, temporalities and contextual specificities. For this purpose, as a first step, a methodological document for the analysis of these environmental conflicts of uses of coastal resources amongst users and sectors was drafted. This document provided an overview of different techniques and methods for conflict assessment and also proposed a research strategy of implementation – ‘multi-criteria mixed methodology’ - in the scope of the work package (4) that this volume is based on. The first deliverable of this work package (D4.1, and the subsequent volume based on that) provided an overview of coastal *resources*, identified *users* and *uses* in the SECOA case studies and also compiled an inventory of environmental conflicts. Based on the methodological document, and the output of the previous deliverable and subsequent discussion with the partners, guidelines were developed for identification and in-depth analysis of these environmental conflicts of uses in the case study areas with an intention of testing and developing a shared methodological approach.

In the identification of specific conflict cases for in-depth analysis, a strategic choice was made to focus on three themes that characterize this new generation of environmental conflicts, which in-turn also correspond to the broader objectives of the SECOA project. This thematic

choice was spelled out in the guidelines, which acted as an identification framework that facilitated the partners to identify most appropriate (and relevant) environmental conflicts from a much wider inventory of conflicts in each of the case study areas. Accordingly, each conflict case covers at least one of the following inter-related sustainability themes.

- Economic development (industrial development, tourist industry, harbour / port restructuring, marina re-construction, etc.) **vs.** environmental protection (creation, preservation and conservation of environmentally and ecologically sensitive, valuable and protected areas);
- Preservation of natural sites and biodiversity;
- Contrasts for the use of resources between residents and new comers for processes of human mobility.

For the purpose of in-depth analysis of the identified environmental conflict cases, an analytical structure based on the aforementioned 'multi-criteria mixed methodology' was provided to all partners so that the following aspects of each conflict can be unfolded.

- Nature of the conflict (the context and causes – structural, proximate or triggering);
- Parties / stakeholders involved in the conflict (interests, goals, positions, capacities, relationships, salience);
- Classification of the conflict into typologies (by manifestation, underlying cause, stage and scale);
- The current trend in the conflict (about conflict mediation and resolution);
- Ranking of the conflicts (based on criticality, urgency and duration).

The meta-analysis presented in the first chapter and conclusions of this volume are based on a comparative reading of all the 26 conflict cases (table 0.1) in methodological terms. In particular, the focus is on their comparative reading along methodological categories of analysis such as thematic, legitimation / construction (stake-holders and coalition formation), typological classification and ranking. Methodological insights from each case in chapters two till nine – that present context description and in-depth analysis of the conflict cases - together with the comparative reading of cases are formulated and synthesized as the building blocks towards conflict assessment framework presented in chapter one and reflected upon in the conclusion of this volume.

Table 0.1. *List of case studies of environmental conflicts of uses in this volume.*

SECOA Partner (country)	Case	Location	Conflict issues	Category of Uses
UNIROMA1 (Italy)	1. Civitavecchia	Rome Metropolitan Area	Pollution [air] due to power generation plants, Port and infrastructure development and increased human mobility	PH & EG. Production / Tourism / Development
	2. The "Costa Teatina" National Park	Chieti-Pescara urban area	Delimitation of spatial [definition of] boundary	NEH
	3. Ostia water-use & management	Rome Metropolitan Area	Coastal area erosion and water shortages due to problematic water use management and waste water drainage	UGD
VUB (Belgium)	4. Ostend airport	Ostend	Privatization and anticipated expansion of the airport	UGD
	5. Schipdonk canal	Zeebrugge-Ghent	Widening of the canal	PH
	6. Zeebrugge harbour	Zeebrugge	Expansion of the inland harbour	PH
IGOT (Portugal)	7. Trafaria and Costa da Caparica,	Lisbon Metropolitan Area	Second homes, leisure and port activities led urban growth threatening the Tagus estuary mouth & coastline area environment	UGD & NEH. Urban coastal / water front
	8. Barrier islands [Ria Formosa Natural Park]	Eastern Algarve	Economic activities (e.g. tourism, fishing, aquaculture) and infrastructures (e.g. airport) threatening ecologically sensitive islands	NEH & UGD. Urban growth, tourism and recreational activities
	9. Funchal bay [Madeira Island]	Funchal urban area	Tourism lead urban waterfront development and increased human mobility	NEH & UGD
LondonMet (United Kingdom)	10. Barking Riverside	Thames Gateway	Urban regeneration on scarce brownfield, and housing and employment resources	UGD Housing & HM
	11. Lower Thames Crossing	Thames Estuary	New Tunnel or Bridge across the lower Thames estuary	UGD & NEH
	12. Langstone Harbour / Farlington Marshes	Portsmouth	Protecting wildlife and amenity value from flooding & erosion	NEH & UGD
	13. Tipner Regeneration	Portsmouth	Housing and mixed use urban development in conflict with environmental protection	UGD & NEH

HUJI (Israel)	14. Palmachim beach	Tel Aviv metropolis	Development of beach resorts in conflict with environmental protection	UGD
	15. Netanya sandstone cliffs	Tel Aviv metropolis	Marina & urban development [housing & hotels] and coastal defences that are causing further erosion of the cliffs	UGD & NEH
	16. Haifa Port	Haifa's metropolitan coastline	Extending and developing the port of Haifa versus competing uses and conservation	PH
UGOT (Sweden)	17. Managing urban sprawl	Malmö area	Increased human mobility & clashing planning strategies / land-use in settlement development causing environmental stress	UGD
	18. Falsterbo-Peninsula	Vellinge municipality, Malmö area	Tourism lead urban development and climate change effects on an ecologically sensitive and cultural heritage rich area	PH, UGD & NEH
	19. Torsviken	Gothenburg	Port restructuring and expansion, industrial and urban [housing] development in an ecologically sensitive environment	PH, UGD & NEH
	20. Kungsbacka	Gothenburg area	Wind-power development in an area with rich cultural landscape requiring nature conservation and biodiversity maintenance	EG. Harvest
UNIPUNE (India)	21. SGNP [Sanjay Gandhi National Park]	Mumbai	Urban sprawl, slums and illegal quarrying heavily encroaching the park boundaries reducing its area and diminishing bio-diversity	NEH & UGD
	22. Pallikaranai Marshland	Chennai	Urban development, garbage dumping & untreated sewage disposal marshland area by 90% and bio-diversity close to extinction	NEH & UGD
	23. Mangrove forest	Mumbai	Deforestation & reclamation for housing, industry, slums, sewage treatment and garbage dumps destroying the mangroves	NEH & UGD
IMER (Vietnam)	24. Haiphong port	Haiphong	Port up-gradation / expansion and logistic services infrastructure occupying wetlands and biodiversity sensitive area	PH & UGD
	25. Industrial zone	Haiphong city	High rate of industrial zone expansion in a context of limited capacity for environmental control & management	PH & UGD
	26. Cat Ba and Nha Trang	Hai Phong	Increased tourism lead infrastructure and urban development in ecologically sensitive environment of islands	UGD & NEH
<p>Legend:</p> <p>PH. Ports and Harbours related uses;</p> <p>UGD. Urban Growth and Development in terms of specific urban functions including tourism;</p> <p>EG. Energy generation / production;</p> <p>NEH. Natural Environment and Habitat including national parks and protected areas;</p>				

From the meta-analyses of the diversity of these environmental conflict cases presented in this volume, a broader yet distinctive imaginary of coastal urban areas in terms of uses emerges. The construction of such an imaginary is useful for understanding the dynamics of coastal urban areas in a comparative way. More importantly, it is critical for conceptualizing a comparative assessment framework for environmental conflicts of uses in them. Based on the comparative analyses of all the cases, there are four main categories of uses that play a crucial role in the life-worlds of coastal urban areas, and in shaping the environmental conflicts within them. The first one is about ports and harbours (P&H). The coastal urban areas represent a world of ports (sea and also air) and harbours, and their related infrastructure (canals, industrial areas, etc.) that is being modernized, upgraded, restructured, expanded and transformed. Their transformation hinges upon the link between global economic processes and local demands for economic development within the context of a deepening environmental awareness. The competing use of resources (human, natural and capital) by such transformations, which generates a series of conflicts, is thus not limited to the local context alone. Rather it requires a multi-dimensional, multi-scalar and 'glocalisation' perspectives (Swyngedouw, 2001) for understanding the processes to unfold the dynamics that shape the evolution of these environmental conflicts.

The second category of uses in coastal urban areas is the one related to the growth and development of general urban functions (UGD), such as housing (and second homes), infrastructure, urban water / sanitation, utilities, recreation, resorts / hotels, beaches, coastal defences and related amenities and facilities. Such uses of urban growth and development are mainly due to tourism and port related economic activities that generates increased human mobility, and therefore necessitates taking the 'human mobility' perspective on board for environmental conflict analysis.

The third category of uses in coastal urban areas is, increasing more than ever before, the world of energy / power generation (EG). They include not only off and on-shore renewable energy but also conventional types of power plants because of higher density of urban, economic, industrial and tourism functions in coastal urban areas. More importantly, due to the immense importance given to the so-called ethically correct socio-political and economic position of renewable energy sector, the competition for land and sea use changes for

renewables (tidal, solar, wind, etc.) is unfolding these new generation of environmental conflicts of uses, which necessitates taking on board the energy perspective.

The fourth category of uses in coastal urban areas is the world of ecologically sensitive and fragile natural environments and habitat (NEH) in the form of nature reserves, national parks, bio-diversity zones and other protected areas. They are the foundation upon which all the preceding uses function.

The environmental conflicts covered in this volume are framed by interactions within and across these categories of uses that range from access (social exclusion and denying public access to coast), land-use change (conflicting / competing uses), port and coastal defences development, and tourism, to bio-diversity maintenance and pollution associated conflicts, and which move and evolve along multiple scales, contextual specificities and temporal dimensions. Each of the conflicts demonstrates more than one of these issues and as such represents different issues concerning sustainable development in the coastal environment.

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CHAPTER 1.

**Comparative Analysis and Assessment of
Environmental Conflicts: A Synoptic Overview of
Methodological Developments**

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1. Methodological framework for environmental conflict analysis and assessment

The methodological developments based on choices that are employed in the meta-analyses of the cases are explained in this section in three stages. The first stage (1.1.1) sketches methodological problems in comparative analyses and assessments of environmental conflicts at a conceptual level. It starts with outlining the premise of environmental conflicts as complex adaptive socio-ecological constructions and provides some basic definitions and characteristics of environmental conflicts. In a next step, the methodological challenges of comparative analysis and case-study approaches in relation to such environmental conflicts are identified and reflected upon together with an appraisal of the alternative perspectives (hybrid science and 'interactions' in SES framework). The last part of this stage outlines the logic behind choosing the 'Compram method' (DeTombe, 1994) together with the concept of 'interactions' (SES framework, Ostrom, 2009) as a general strategy for handling complex socio-ecological problems and to support the development of a comparative methodology for environmental conflict assessment. The second stage (section 1.1.2) presents a comparative overview of the methodological interpretations employed by our partners in the identification, data collection and analyses of their conflict cases. The third stage (section 1.1.3) combines the first two stages in outlining the methodological synthesis for meta-analyses as a way of working towards a conflict assessment framework.

1.1 Conceptualising methodological issues in the comparative analysis of environmental conflicts

Environmental conflicts in coastal urban areas are complex socio-ecological constructions. They arise from competing / conflicting use of the environment (space, land, sea, air and the resources embedded in them) by the society (groups, parties / stakeholders / users involved) that unfolds some form of ecological impact/damage (e.g. climate change, pollution, erosion, scarcity, etc.). Their nature changes and evolves over time depending on the type and level of interactions between different (multiple) processes and scales of Socio-Ecological Systems (SES) involved. They become 'complex adaptive systems' (Ostrom, 1999) as many of the sub-conflicts, and their underlying processes, generate properties through interactions that

are not easy to predict by analyzing the separate sub-conflicts.¹ Conceptualizing the methodological issues involved in the analysis of such conflicts, therefore, require the diagnostic and analytical capabilities for understanding the multiple processes shaping these conflicts through new insights and assessment frameworks that are based on a more integrated and interdisciplinary knowledge base (Ostrom et al., 2007). In moving towards such conceptualization, we have relied on taking an integrated view of the 'conflicts' and 'environmental' in the environmental conflicts research before assembling them as socio-ecological constructions.

In our literature review, we have observed two main perspectives underlying environmental conflicts conceptualization and research: (natural) resource conservation and management perspective; and a traditional security and peace research perspective. From the first perspective, conflict is defined as "an expressed difference between at least two interdependent parties who perceive incompatible goals, scarce resources or interference from another party in achieving their goals" (WRDC, 1992). Such a definition of conflict contains the essential (social) elements of a conflict, such as 'at least two parties', 'interdependence' and 'expressed struggle'. It also implies the presence of at least one of the perceptions in a conflict, such as 'incompatible goals', 'scarce resources' and 'interference from another party' (Bennet *et al.*, 2001). In such a conceptualization, 'environmental' becomes an element of 'perception' i.e. socially constructed. The second perspective owes to a significant body of research that relies on conceptualizing 'environmental conflicts' within the traditional framework of 'security, conflicts and peace research', also popularized as the 'greening' of peace research (Brown, 1989; Homer-Dixon, 1991; Pirages, 1991; Renner, M. et al., 1991). At its core lies the environmental issues that have been becoming on the one hand part of a 'widened security and being on the other hand assumed to play a rapidly increasing role as *causes of violent conflicts*' (Libiszewski, 1995). In this perspective, environmental conflict is conceptualized through the causal linkage between 'environmental' causes of 'conflicts' through the evidence of facts. Environmental Conflicts in this perspective are extensively defined as 'political, social, economic, ethnic, religious or territorial conflicts, or conflicts over resources or national interests, or any other

¹ According to Elinor Ostrom (1999, pp. 520-21) Complex adaptive systems are composed of a large number of active elements whose rich patterns of interactions produce emergent properties that are not easy to predict by analyzing the separate parts of a system (Ostrom, 1999, p. 520-21).

type of conflict. They are traditional conflicts induced by an environmental degradation.² From this traditional premise, environmental conflicts research has spread widely across several disciplines (Burke, 2001; Escobar, 2006a,b; Martinez-Alier, 2005; Martinez-Alier et al., 2010; Mason et al., 2007).³

In the proliferating landscape of environmental conflict research, whether adhering to one or the other perspective and in different disciplines, several challenges have emerged. First, and foremost, is the natural (pollution and the overuse of resources) and social (actors and their values, interests, capacities and resource use practices) sciences divide in ways of seeing and understanding environmental conflicts (Stepanova & Bruckmeier, 2013). Second is the science and policy divide, which roughly translates to scientific knowledge for conflict analysis and managerial experience in resource management and conflict resolution respectively (Portman et al., 2012; SPICOSA 2007-11). Third is the lack of attention for research on environmental conflicts in coastal research, which largely remains focused on ICZM and natural resources management.⁴ Transcending these various research strands and divides is the SES perspective that develops from a critical review of the analysis of “tragedy of the commons” by Hardin (1968).

In the SES perspective, interdisciplinary knowledge integration, multi-scalar analyses and going beyond panaceas are aspects that we consider central to advancing environmental conflict research. In the ‘general framework for analyzing sustainability of SES’ (Ostrom et al., 2007), it is the concept of ‘interactions’ that is the premise for the development of our notion of environmental conflicts. More specifically, it is the interactions between environmental resources, their users and uses that triggers and shapes the evolution of environmental conflicts. In these interactions, the start of the conflicts can be traced back to the competing uses (Bennet *et al.*, 2001) of the environment that always consist of two characteristic components – the natural / ecological ‘resources’ and the social / users ‘entities’ that want to make use of them i.e. socio-ecological construction of environmental conflicts. The conflict problematic lies in the

² Based on ENCOP (1992-1995), ‘environmental conflicts are characterized by the principal importance of degradation in one or more of the following fields: Overuse of renewable resources; overstrain of the environment’s sink capacity (pollution); impoverishment of the space of living’.

³ For an excellent review of these researches, see Stepanova, O. and Bruckmeier, K. (2013) The relevance of environmental conflict research for coastal management. A review of concepts, approaches and methods with a focus on Europe, in *Ocean & Coastal Management* 75, pp. 20-32.

⁴ For example, several large scale European research projects, such as SUCOZOMA (1997-2004), FRAP (2003-06), SPICOSA (2007-11), INCOFISH, COASTMAN (2004-07).

fact that multiple uses of resources are often excludable, which means that one use of a resource will exclude another use (Reed et al., 2009). Therefore, managing environmental conflicts typically deals with conflicting interest of various stakeholders since they use the same resources for different purposes. In the context of this chapter, our analysis of the twenty-six conflict cases captures the dynamics of a wide variety of socio-ecological interactions between stakeholders and resources that causes different types and levels of environmental degradation, and that their conflicting interactions change and continuously evolve the conflicts. These dynamics are captured through mainly a 'case study approach' (see section 1.1.2) in a way that facilitates their comparative analysis. This designed capacity for comparative analysis of the twenty-six case studies owes to shared methodological guidelines (Hens et al., 2010) that were provided to all our SECOA partners. They represent a multi-criteria mixed methodology approach based on a flexible combination of conceptual frames and typologies compiled from conflict research, methods in comparative studies of conflicts, and multi-scale analyses of coastal SES. The way they are implemented (and adjusted) in each particular context shows differences in interpretation that points towards the tension between case study research on the one hand, and comparative analysis on the other. Therefore, our starting point in linking case study approach with comparative analysis is first to acknowledge, reflect and build on their limitations and challenges in general, before outlining our general strategy for environmental conflicts analyses and assessment.

Comparative analysis is a familiar treatment of global phenomena such as 'climate change', 'resource depletion', 'poverty or social exclusion'. In contrast to the rich or "thick" case study, the comparative is therefore at risk of a "thin" and one-dimensional description of what are obviously complexities with plural not universal causations (Pickvance, 2001). As Harrison advises, the study of urban policy requires addressing a number of 'wicked problems' (2000, after Rittel and Webber, 1973) - an urban process may exhibit similar features, rationales and superficial impacts, but the trajectories and lived experiences may vary, and critically, causalities may be unproven or be very different from case to case: 'neither comparative analysis nor the case study is quite what it seems' (Pickvance, 1995, 53). This is particularly important where evaluation uses such evidence as the basis for urban strategy formulation and conflict resolution, since *cause* and *effect* - using policy instrumentally as a predictive tool - is generally not advisable. The shift in comparative urban research towards a 'framework rooted in international political economy' (Smith, 1991, 39) is reflected in meta-analyses of global cities (Sassen et al.) and an expansive list of developing cities (and over two thirds of the top 25

megacities are coastal). However, Abu-Lughod refers to this as a 'privileged view from the top, emphasising corporate networks rather than quotidian life and too readily passing over differences in state-specific policies' (2007, 400). This is pertinent here, in the case of environmental conflicts in coastal areas, where local and national-global competition interests and every-day life, nature and ecology of coastal environment come face to face, and in some cases collide.

An alternative perspective also seeks to integrate political awareness of environmental conflicts with a realist understanding of environmental change (Pawson, 2006). A key aspect of this approach is that it incorporates the construction of biophysical science into the political analysis of environment, based on the belief that biophysical reality is 'externally real' to human experience, because all knowledge we have of such reality is partial and socially constructed. In this sense, (critically) realist political ecology builds on advances in science and technology studies (STS) by seeking to indicate how supposedly apolitical scientific laws in fact reflect historic political and social relations. Most relevant here is the concept of 'hybridity' (Latour, 1993) recognising the false divide between 'nature' and 'society' to indicate the complex blending of social and biophysical factors within current concepts of nature and society, and the futility of attempting to 'purify' such concepts into separate natural and social components. So-called 'hybrid science' attempts to disentangle elements of biophysical change from social framings in environmental change by integrating aspects of physical and social science. The aim of hybrid science is not to uncover biophysical change in a final and complete realist manner, but to reveal how far hegemonic discourses of environmental degradation may actually match the experience of people within specific localities (Forsyth, 2001). Closely related to the ambition of hybrid science, the developments towards sustainability science in the framework of SES are also significant in conceptualizing a framework for environmental conflicts analysis and assessment.

From a SES perspective, a critical challenge faced by sustainability science is to develop strategies to cope with highly uncertain social and ecological dynamics (Anderies et al., 2007) that shape environmental conflicts. The principal challenge in building a science of sustainability is argued as the development of predictive models of system change that enable society at least to evaluate mitigation options alongside adaptation. Building sustainability science is about building capacity, methods, and protocols to analyze problems stemming from the dynamics of complex coupled SESs. One part of that task is figuring out how to break existing disciplinary biases about concepts, methods, and analysis. A second is to induce

reappraisal of the rules of thumb that structure both research and decision-making. In this regard, Ostrom (2009) presents a general framework for analyzing sustainability of SESs through systematic diagnosis of the structure and 'outcomes' of 'interactions' between complex, multitier SESs. Her premise is that 'all humanly used resources are embedded in complex, social-ecological systems' (2009, p. 420).

SESs are composed of multiple subsystems and internal variables within these subsystems at multiple levels, and that it is their 'interactions' that 'produce outcomes at the SES level, which in turn feed back to affect these subsystems and their components, as well other larger or smaller SESs.' In this framework, 'conflicts among users' are categorized as a second-level variable affecting first-level core subsystems of 'interactions' and 'outcomes'. The causal linkage between interactions (users, processes and activities) and outcomes (e.g. degradation of a SES) is a premise to build an understanding of environmental conflicts as socio-ecological constructions. In such an understanding, they become complex adaptive system embodying hybridity as well as dynamic change owing to the interactions between environmental resources, their users and uses at different scales that triggers and shapes their evolution. Therefore, hybridity and dynamic change through interactions are the conceptual features of our environmental conflict analysis and initial classification in methodological terms in this, and the following, chapters of this volume.

Our intention behind developing a 'conflict assessment framework', therefore, is to facilitate an in-depth understanding and appraisal of environmental conflicts by focusing on their hybridity and dynamic change through interactions in a way that allows mediating, resolving and eventually avoiding them. In methodological terms, understanding a complex whole (e.g. environmental conflicts) requires knowledge about specific variables and how their component parts are related and interact. However, understanding environmental conflicts as complex adaptive systems (i.e. dynamic) presents a methodological challenge: determining the variables of a hybrid ('Space / Natural resources' – the cause of the conflict, and 'Resources users' (direct and indirect) / Social – the parties in a conflict) and dynamic phenomenon (conflicts change and evolve over time). It also involves unfolding the possible 'future' consequences of the environmental conflicts based on discerning their patterns in the past evolution. Therefore, our starting position in framing the methodology for conflict analysis was that 'environmental conflicts in coastal urban areas are complex socio-ecological problems'. The complexity owes to the dynamic character of the problem, the hybridity of many phenomena included, the many actors and factors involved and the impact these problems have on society

(DeTombe, 2001). For the handling process of such complex problems, we outlined the Compram method 5. In particular, its first sub-cycle, namely ‘defining the problem’ was outlined as a general strategy to support the development of a comparative methodology. The first sub-cycle (Table 1.1) is a knowledge phase that implies a process of acquiring and communicating knowledge on what the problem looks like, how the situation came about, how it is now, why it is a problem, which organisations and factors are involved, what power they have, which phenomena are involved and how all these aspects relate.

Table 1.1. *The knowledge phases in the problem handling process.*⁶

The first sub-cycle of the problem handling process: defining the problem	
<i>Phase 1.1</i>	Becoming aware of the problem and forming a (vague) mental idea of the problem.
<i>Phase 1.2</i>	Extending the mental idea by hearing, thinking, reading, talking and asking questions.
<i>Phase 1.3</i>	Putting the problem on the agenda and deciding to handle the problem.
<i>Phase 1.4</i>	Forming a problem handling team and starting to analyse the problem.
<i>Phase 1.5</i>	Gathering data, exchange knowledge and forming hypotheses about the problem.
<i>Phase 1.6</i>	Formulating the conceptual model of the problem.

The *Compram* method is a prescriptive framework to analyse, guide and predict complex societal problems⁷. It is based on three basic elements: knowledge, power and emotion⁸. In such

⁵ Compram stands for the Complex Problem Handling Method and has so far been used in over 60 real life cases and is approved and applied by the OECD [source: <http://www.complexitycourse.org/>].

⁶ Source: DeTombe, 2001.

⁷ It was built on the recognition that, most often, complex societal problems are difficult to analyse for different reasons. The problems are often unstructured and undefined, data on them are missing or inconsistent, knowledge on their causes or on when and how they start is missing.

⁸ Knowledge includes the lack of knowledge, data with an uncertain status, missing/contradictory data, white spots and black spots. It also includes knowledge of different disciplines involved in the problem and knowledge about actors in the phenomena. Power element plays an important role in reaching an agreement between actors over the problem. Each actor has particular interests, goals, perceptions, positions toward the problem and how it should be solved/changed. It also describes how each actor see each other, their relations, and their ability to support or prevent change need to solve the problem. Emotion is a characteristic of human beings. It can block or stimulate certain changes and it becomes visible when actor’s personal interests are attacked. It also involves making priorities or setting objectives for changes (De Tombe, 2001).

a method, conflict assessment implies that ‘a handling process’ is needed that together with ‘a prediction of the outcome’ will facilitate the decision-making process aimed at conflict mediation and its eventual resolution. However, it only indicates the meta-steps that should be taken for handling complex societal problems. As such, it was proposed to all SECOA partners as a general strategy towards defining and analysing the problem (conflict cases) that would facilitate developing a conflict assessment framework (CAF). According to this proposed strategy (Table 1.2), the first phase of defining the problem is covered by the first and second steps of the data collection (DC, see 1.1.2.2, and Table 1.3). By identifying the available *resources* and their primary *users* (see Khan et al., 2012), one can make a vague idea of the problems. The focus group meetings, the snowball sampling method and the semi-structured interviews, being part of the third step, correspond with the second phase. This allows extending the knowledge and data, collected in the first two steps. Presenting the gathered data in a conflict matrix (step four) and determining the salience of the different stakeholders (step five), facilitate visualizing the conflicts present in an area and helps in classifying them (phase three). A problem handling team (phase four) can now be founded. This team should comprise the most important stakeholders (as users), the local government (as manager) and neutral scientists (those leading the investigation). An AHP or Delphi process, part of the conflict analysis, has to be done by this team. During these discussions an exchange in knowledge takes place and one can form hypotheses about the different conflicts and their origin (phase five). All the data and knowledge collected in the previous steps forms the basis of formulating a conceptual model of the problems (phase six) i.e. an assessment of conflicts arising in the research area.

Table 1.2. Schematic overview of the general strategy for conflict assessment.

General strategy	Problem Handling process		Methodology WP4**	
Problem Identification ↓	Phase 1	Sub-cycle 1	Step 1 & 2 of DC*	Conflict Assessment
	Phase 2		Step 3 of DC	
Problem Characterisation ↓	Phase 3		Step 4 & 5 of DC	
Problem Classification ↓	Phase 4 Phase 5		Conflict Analysis	
Problem Valuating ↓	Phase 6		Conclusion of Conflict Analysis	
*(DC = Data Collection, see Table 1.4); ** WP4 = Work Package 4 of SECOA project that this volume is based on.				

1.2 Methods used in the environmental conflict case studies

1.2.1 Conflict identification

In identifying environmental conflict case studies for in-depth analysis, the first step taken by all partners is the *mapping* of conflicts in their respective SECOA study areas. The time period chosen for this mapping ranges between the last 10 to 20 years. The material used for such mapping has been largely the objective and quantitative results / inputs from other (previous) work packages, in particular the deliverable 4.1 (see Khan et al., 2012), together with material on environmental organization, personal knowledge, local press and media reports, review of recent policy and planning documents and consultations with the stakeholders. Moreover, some partners (e.g. VUB, Belgium; IGOT, Portugal; and UGOT, Sweden) also used semi-structured interviews with SECOA end users, local NGOs, authorities and local residents as an approach for mapping the conflicts. As a result of this mapping, list of conflicts have been compiled by partners. The numbers of conflicts in these lists range from 5 up to 30 conflicts. Some of the conflicts are sub-conflicts of larger ones, some belong to more than one type and others have more complex relationships with each other. Some of the partners also attempted to organize these lists following certain categories, such as access related environmental conflicts (denying public access to the coast), conflicting/competing land uses, environment vs. tourism conflicts, pollution-associated conflicts, and offshore development and coastal defences conflicts.

In a second step, all partners have singled out 3 to 4 case-studies for in-depth analysis based on one or more of the following criteria:

- The need to reflect the specificities of environmental conflicts on the ground, such as reflecting on institutional and structural differences.
- The need to reflect the different temporal scales – duration and urgency - over which environmental conflicts are played out.
- Longstanding environmental conflicts that have not yet been resolved.
- Environmental conflicts that represent the different types and profiles.

- The degree of severity of the environmental conflict i.e. they have received wide media interest over the years, they are of high ecological value, and are still hot and current issues.
- They pose dilemmas and questions regarding the modern view of the coast involving different stakeholders and parties.
- They are environmental conflict cases that reflect the typical kinds of conflicts in the coastal metropolitan cities of the country in question.
- They are environmental conflicts that contribute to critical understanding of paradigmatic questions about coastal urban areas, such as: (i) the changing coastal planning and policy paradigms, (ii) the increasing role of diverse stakeholders and the particular role of the central state in these conflicts and their resolution, (iii) mechanisms of sharing cost-burdens and compensating those who are negatively affected by the decisions.

Besides the above mentioned criteria, the need to address the following key themes agreed by all partners played a crucial role in the final identification of the selected case studies:

- Economic development vs. environmental protection;
- Preservation of natural sites and biodiversity;
- Contrasts for the use of resources between residents and new comers for processes of human mobility.

Both of these first two steps - the initial identification of the list of conflicts and the singling-out of 3 to 4 case-studies - constitute what DeTombe (2001) defined as phase 1.1: *becoming aware of the problem and forming a vague mental idea of the problem.*

1.2.2 Data collection

In an effort to make each methodological stage of the environmental conflict cases comparable, the following five steps were outlined in the methodological guidelines (Hens et al., 2010) to all SECOA partners for data collection.

Table 1.3. *Steps in data collection.*

Step 1	Identification of the AVAILABLE RESOURCES	Which resources are available in each case study → manual collection of data at the selected coastal city. Examples: data on biodiversity, aquaculture, tourism, land-use. The resource data should be arranged in hierarchical lists, which allow putting them into a matrix and using AHP.
Step 2	Identification of the PRIMARY USERS	Based on city documents or others (exploitation documents, court cases over conflicts, media, etc...) Possible groups to focus on: fishery, tourism, trade, conservation/environmental, NGO's, and government.
Step 3	Identification of OTHER USERS & USES	Focus group: Groups made up from related stakeholder classes Identification of other users and uses → start Snowball Survey with questions generated in the focus group Identification of still forgotten users; stop snowball when users start to refer to each other.
Step 4	Identification of CONFLICTS	→ With steps (1), (2), and (3) a conflict matrix can be established (see Table 1.4) Based on this matrix a list of possible conflicts can be generated. Interviews with important groups (see 2.1.3) will help identifying actual content of each conflict and classifying them into typologies.
Step 5	Determination of STAKEHOLDER SALIENCE	Classification according to Driscoll & Starik (2004) Evaluating the social network of the high ranked stakeholders with SNA.

In terms of data requirement, three types of required information were suggested: i) *The available resources in an area*; ii) *The users (= stakeholders) of these resources* – such as, Tourism establishments, Restaurant/café/snack establishments, Industrial establishments, Other trading/commercial establishments, Fishing fleet, Farmers (land or aquaculture), Ports, Energy production companies, Environmental groups, Community groups, Second home owners, Other, area specific, users; and iii) *For what purpose the resources are used?* - such information can be obtained during the focus group meetings and the semi-structured interviews. In order to allocate a salience to the different stakeholders, it was suggested to have information on: (estimated/ranked) water and energy consumption of the different stakeholders (-groups); (estimated/ranked) waste generation of the different stakeholders (-groups); Aquaculture / agricultural production; Tourism intensity, and Socio-cultural or historical landscapes/monuments. A particular focus was given to acquire data that is helpful in indicating *past, present and future [the temporal dimension of] environmental conflicts* in the area. Moreover, the need for (GIS) maps with land-use types/changes, area application and other geographical data for in-depth analysis of the cases was to be abstracted from the other (relevant) work packages of the SECOA research project. Based on all this data, the making of a conflict matrix was suggested that contains the 3 main elements for environmental conflict analysis, i.e. the available *resources*, the *users* and their *uses*.

Table 1.4. *Example of a Conflict Matrix.*

	Resource A	Resource B	Resource C	...
User A (Class)	Use A	None	Use B	...
User B (Class)	None	Use C	Use B	...
User C (Class)	None	None	Use A	...
...

From the *Conflict Matrix*, conflict between User A and User B, and between User A and User C can be anticipated. For the classification of *resources* and *users*, a wide range of possibilities between the several case studies was expected. The examples of environmental resources include: beach surface, wind, wetland, sunlight, water, undeveloped land, fish, and so on. The examples of users are: fishermen, environmentalists, businessmen, tourists, wildlife, developers, and so on. Moreover, as described in the methodological guidelines (Hens et al., 2010), several classes (Sarkissian et al., 1997) to label the different stakeholders (i.e. users) can be advised. Whereas, a general categorization of the different types of uses was suggested (Table 1.5) in an effort to facilitate the comparability of further analysis.

Table 1.5. *Description and examples of the different types of uses.*

Name	Description	Examples
Harvest	Direct extraction from the environment, without initial input. Can be depleting or non-depleting.	Fishing, poaching, renewable energy, exploitation of minerals, hunting, ...
Production	Conversion of one or several products into another, intentionally or not.	Aquaculture, farming, industry, waste generation, ...
Recreation	Activities, pastimes, and experiences which are freely chosen and usually undertaken in free time and produce feelings of well being, fulfilment, enjoyment, relaxation and satisfaction.	Recreational fishing, (sun)bathing, sports, leisure activities, ...
Commerce	The retail of goods and services.	Hotels, restaurants, bars, sales shops, ...
Habitat	An ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.	Tidal zones, dunes, shallow waters, forests, ...
Livelihood	Activities that individuals perform to directly sustain in their way of life.	Jobs
Development	The conversion of an area to support some kind of service or activity.	Clean environment, harbousection r projects, residential area's, ...
...		

In data collection process, several partners used additional ways with certain criteria and sources that could be grouped in the following three types:

- Media reports– articles written regarding the case studies from different newsagents and Internet media sources. Also Internet sites regarding the case-studies and sites representing the different stakeholders involved.
- Official reports – reports prepared by environmental NGOs and government bodies such as the Ministry of Environmental Protection regarding the different case studies, and also writ petition and court judgements, if any.
- Interviews - semi-structured interviews with stakeholders/parties involved (directly and indirectly) and also the local residents: i) making sure to include opponents and proponents of the project, parties with environmental, economic and social motivations; ii) members of state and civil society institutions involved; ii) informal and spontaneous interviews with local residents in the vicinity of the conflict areas; iii) including questions to discern the views on coastal area development agendas in general from the different parties involved.

1.2.3 Environmental conflict Analyses

The data presented in the conflict matrix and the information gathered during the focus group meetings and semi-structured survey, allow to identify existing and likely nearby conflicts. Depending on the type of and intensity with which the environmental resources are exploited, conflicts between mutual users can arise. Some uses will be mutually excludable, some can co-exist, and even others can enhance one another. Depending on what sorts of coalitions are formed, conflict can acquire a group struggle or conflicts can arise even within one stakeholder class. Once the conflicts have been determined, one has to label them. In the methodology document (Hens et al, 2010) several typologies present in literature were discussed, and a combination of Cadoret (2009), Chandrasekharan (1996) and Rupesinghe (1995) was proposed. Cadoret will label the conflict's *manifestation over time* as Chronic, Anticipation, Hushed or Hybrid. Chandrasekharan provides an idea of what the *underlying cause* is: infringements over access, quality and availability, authority, value, lack of information or legal/policy reasons. The *stage of the conflict*, presented by Rupesinghe provides information on how far the conflict is evolved. Each environmental conflict stage offers data. An evolving conflict can be subject to a new mediation process; a conflict at its end shows how it was resolved.

For in-depth analysis of the cases, an analysing structure was formulated as a way to work towards developing a shared conflict assessment framework. The analysing structure consists of the following four main components:

- I. Nature of the conflict: The profile of the conflict should be described in detail, covering following (non exhaustive) issues:
 - a. What is the conflict about?
 - b. What are the social-cultural, economic, political contexts around it?
 - c. What is the historical context of the conflict? What are the critical events? What are the efforts to mediate? Are there external interventions?
 - d. What are the causes? (e.g. conflicting in the use of a resource for different purposes; using the same resource but the resource is depleting, etc.). Whether they are structural (i.e. factors built in the policies or structure of the society) or proximate (i.e. factors contribute to the overall climate of conflict) or triggering (i.e. some acts or events that trigger the conflict)?
- II. Parties involved in the conflict and their description: Following aspects should be investigated for each of the stakeholders:
 - a. Interests: the motivations of the stakeholders (in relation to the causes and other parties in the conflict)
 - b. Goals: which strategies do they use to pursue their interests?
 - c. Positions: how they place themselves in the conflicts, especially in any intervention?
 - d. Capacities: their potential that can affect the context of the conflict (both positively and negatively). This can be resources, access, social networks, alliance, etc.
 - e. Relationships: the interactions of the stakeholders and their perception of the interactions
 - f. Salience.
- III. Classification of the conflict into typologies.
 - a. The typologies described above (and in the methodology document, (Hens et al., 2010)) should be used.
 - b. When classifying a conflict into a typology, a short explanation should be given.

IV. What is the current trend? What has been done/will be done/can be done to resolve the conflict from the point of view of the involved parties. If something has been done, what are the results?

For concluding the analyses and assessment, a comparative ranking of the conflicts was proposed. This implied a Delphi ranking or an AHP ranking of all conflicts to be based on three criteria⁹:

- Criticality of the conflict: To which extent the conflict is critical to long-term development of the region/area? To which extent the conflict is an important event to local people?
- Urgency: To which extent the conflict needs to be resolved immediately? Is there a deadline involved?
- Duration: Whether the conflict is a short-term (acute) or a long-term (chronic) event?

1.3 Towards a diagnostic and analytical structure for conflict assessment framework

Environmental conflict assessment is an analysis of the conflict's dimensions, which often entails (Walker and Daniels, 1997, p. 22):

- Substance ("how things are?"): addresses the type and status of natural resource concerned.
- Procedure ("how things are done?"): addresses how a resource is managed (legislation policy, enforcement, strategy, planning and implementation). It also includes the type and nature of stakeholder engagement.
- Relationships ("how people behave?"): addresses the culture of individuals, organisations and society, and how they interact with each other.

⁹ Each criterion can be subdivided into indicators (example in the "Methodology" document) to allow assessment and rating (See Delphi methodological explanation for the process, Hens et al., 2010). The rating can be on 5-point Likert-type.

The results of the assessment should be recommendations to prevent or mitigate the conflict. Here we focus more on the 'conflict' part of the 'environmental conflicts' in order to pave the way towards an assessment framework. Conflicts between groups emerge for a variety of reasons, e.g. social dysfunction (the sociological perspective), from unbalanced power relations (the political perspective) or as a result of rational decision-making by an individual seeking to maximise its personal utility given a pool of scarce resources (the economic perspective) (Homer-Dixon, 1991; 1994). A conflict often occurs when there is a 'perception' that one group is gaining (or, in economic terms, maximising their utility) at the expense of another. Issues that may explain the emergence of a conflict are: (a) demographic change (a sharp influx of new-comers perhaps driven by declining economic or ecological well-being in other sectors); (b) competition for (scarce) natural resources (increased dependence upon the natural resource can heighten competition for space and resources); (c) developmental pressures (as government policy switches from livelihood protection to food production); (d) structural injustices (changes in legislation that deny or severely restrict access to a resource by dependent groups in society) and (e) institutional failure (Bennet et al., 2001; Warner, 2000).

For analysing the multiple dimensions of the environmental conflict, the previous sections outlined the conceptualization aspects and proposed a general strategy for defining environmental conflicts (section 1.1.1); and data collection and analysing structure that consists of four components: nature of the conflict; parties involved; typological classification and current trends (section 1.1.2). From the application of this analysing structure for in-depth analyses by all SECOA partners, some additional aspects have emerged that contribute to working towards developing a shared environmental conflict assessment framework (CAF).

In analysing the nature of the environmental conflict, most partners highlighted the role of the background and historical context, the socio-economic, political and institutional settings in discerning what the conflict is about. In principle, this discussion revolves around issues that are best captured by different themes. However, not all issues can be synthesized by thematic description and classification. There are local contextual elements in each environmental conflict case that condition and render themes differently. Therefore, we keep both the thematic description and nature of conflict as part of the analytical structure for the CAF, so that the local contextual specificities don't fizzle out, as well as a generic frame of reference in the form of themes remains available for analyses across cases and contexts.

In the analyses of 'parties involved', some partners have carried out SNA (social network analysis) and DA (discourse analysis) in addition to other methods. These additional categories allow capturing the sort of 'networks' and 'coalitions'¹⁰ (stakeholder groups) that emerge during the evolution of the environmental conflict, and which have a critical role in legitimizing and shaping of the conflict. For example, in the Israeli case studies (chapter 6 of this volume), the coalition between 'grass roots activists', 'NGOs', 'bureaucratic gatekeepers' in the local authority and 'ministry of environmental protection' emerged that shaped not only the conflict but its present outcome as well. On the other hand, 'developers', 'central government' and 'land administration authority' emerged as a coalition in the conflict to preserve the original transfer of rights of the land. Another example is in the Vietnamese case-studies (chapter 9), where the stakeholders are grouped into four: development group, conservation group, primitive production group and modern group. Therefore, it is crucial to add the category of 'coalitions / networks formed' in the analyses structure that will allow to understand the legitimization and shaping of different agendas within the environmental conflict.

In addition to the typologies mentioned in the previous sub-section (1.1.2.3, and Hens et al., 2010), some SECOA partners have also used other typologies, such as Warner (2000) and Bruckmeier (2002) for the scales involved in natural resource conflicts: Intra micro-micro conflicts; Inter micro-micro conflicts; and Micro-macro conflicts. Furthermore, more conventional categories of scales are also used to typify the conflict cases, such as local, regional, national and global, and the respective inter / intra and trans variations.

Based on the foregoing, the following scheme is drawn to sum up the main elements that constitute the environmental conflict assessment framework (CAF) in the context of coastal urban areas. Our meta-analyses focus on the interpretation and application of each of these elements by our SECOA partners in the different environmental conflict cases, which is presented in the following sections.

¹⁰ For a more elaborate and theoretical understanding of the term 'Coalitions', see Soja 'Seeking spatial justice' [2010].

Table 1.6. Schematic overview of the diagnostic and analytical structure for Environmental Conflict Assessment Framework.

Assessment STRUCTURE	Identifying / Defining the Conflict		Analysing the Conflict			Ranking the Conflict
	THEMATIC Classification	NATURE of the Conflict	ACTORS / Parties involved & Coalitions emerged	TYPOLOGICAL classification	Current TRENDS	RANKING criteria
Research METHODS	SES framework, the Compram method, conflict matrix, focus groups, interviews and snow ball sampling		4R, Q-methodology, Social Network Analysis [SNA] / Discourse Analysis [DA]	Cadoret [2009], Chandrasekharan (1996) and Rupesinghe (1995), Warner (2000), Bruckmeier (2002, 2005), Schmitz (2002)	Compram, interviews, Delphi or AHP	Delphi / AHP / Spatial AHP
CONTENT	Urban / Economic development Vs. Environmental protection Preservation of natural sites and biodiversity Human mobility and contrast of resources use 	Context - local [socio-economic, political & cultural contexts] and historical Critical events Mediation efforts Interventions Causes [structural, proximate or triggering]	Interests Goals Positions Capacities Relationships Salience	By Manifestation / Dynamics By underlying Cause / Reason / Substance By Stage By Scale By Ethics / Roots By Forms of Behaviour By Physical Existence	Measures taken [and their results] Measures proposed Measures possible	Criticality Urgency Duration
SYNTHESIS	Conclusions on the USES / resources involved		Conclusions on the USERS	Conclusions on the TYPE	Conclusions on the EFFECTS	
	Proposals for possible SCENARIOS mapping – generating ALTERNATIVES for conflict mediation/ resolution					

2. Thematic overview of the environmental conflicts in the case studies

Thematisation of environmental conflicts in coastal urban areas allows defining coastal area problems in their wider dimensions. Coastal environments display a wide diversity of assets, physical-biological capital as well as cultural, historical and beautiful landscapes. Coastal environmental resources provide extensive opportunities for wealth creation and the maintenance and enhancement of the quality of life. However, they are increasingly under severe pressure due to intensity of uses. The causes for such pressure and intensity of uses owes to relentless and cumulative process of global environmental change, driven by population growth, urbanization, industrial expansion, trade and capital flow, liberalization of transnational corporation activities and changes in lifestyle and attitude. Coastal environmental resource systems are exploited by growing and multiple uses of the coastal area that generates competing demands (Tyler, 1999). Coastal managers have to respond to wide varieties of issues, such as the strong demand for housing that results in land pressure, balance between the need to foster economic growth and the protection of ecological welfare, and the social balance between the local residents, commuters and new comers / migrants. In these settings, conflicts can build up.

The main elements that trigger conflicts are infringements of the rules of use, the real or potential impact of an infrastructure or a practice on a use or on the environment, the change in land or coastal allocation and the distribution of space and resources. The environmental component of the 'environmental conflict' appears when a disruption exists both to spatial practices and to the physical environment. For example, a conflict can concern the construction of a facility that causes pollution (water pollution through the discharge of dangerous products), which has effects on the environment (fish mortality, water toxicity) and on humans (health problems) and/or for its activities (fish production). Spatial configurations seem to favour the emergence of the opposition in environmental conflicts; this is particularly the case with lagoons, edges of reservoirs, peri-urban zones, adjacent areas between industrial zones and reservoirs or between tourism zones and protected areas (Cadoret, 2009). Urban sprawl is also a significant dimension of environmental conflicts that leads to the land use changes and generates additional pollution (waste water and solid waste management). Solid waste offers enormous problems worldwide. It affects small communities and large cities alike. Improper waste disposal leads to health problems, contamination of water resources, environmental

degradation, loss of livelihood and landscape degradation (UNESCO, 2002). Seasonal conflicts are generated by the mass influx of tourists.

As mentioned in the methodology document (Hens et al., 2010), environmental conflicts can be classified using different thematic conceptualizations, often based on their two core dimensions:

- I. Actors (i.e. stakeholders): the parties that are involved in a conflict. Actors can be an individual, a group, a society, an organization, a nation or even a transnational organization.
- II. Roots/Causes/Substances: the reason over which the environmental conflict occurred between the actors. The reason can be incompatible goals, difference in usages, difference in values, disparity in power, etc.

So far, a lot of studies have devoted their attention to environmental conflict description on one single or two conflict themes like forest related issues, disagreements over the implementation of ecotourism, clashes over fishery policies, etc. or to the analysis of (urban coastal) conflicts over environmental resources in developing countries (Hens et al., 2010). However, there is little attention in the available literature on comprehensive thematic description of environmental conflicts in a coastal area in a way that can be replicated elsewhere. There are some exceptions like the works of Cadoret (2009) and Suman (2001). The former attempts and illustrates her analyses with a research on the coast of Languedoc-Roussillon, a multifunctional area that extends over 220 km of coastline, and where more than 50% of the region's population is concentrated in a 10 kilometre-wide coastal shoreline. She focuses on the expression of environmental conflicts and particularly their processual complexity in thematizing them, by borrowing analytical tools from several disciplines. Her understanding of interactions, between socio-spatial dynamics linked to the environment of coastal territories, relies on a qualitative and pragmatic approach. This allows the assessment of a large number of conflicts, and the analysis of most of the associated symbolic aspects in a more detailed way. The combination of several materials has allowed conflict processes (causes, factors of emergence, expressions, modes of regulation) and the actors involved (network structuring, positioning within a system of actors, mode of involvement, representations, etc.) to be identified in time and in space. She concluded that environmental conflicts are generally long processes, characterized by successive phases of dissent and interdependent regulations.

The processes are not linear (a cause, a demonstration, a regulation): conflictual episodes can return in a recurring manner within chronic conflicts that are fixed within a long time-scale, a conflictual event can generate a hushed conflict, which sees the causes of conflict increasing without regulation, and the conflict can even proceed the action which generates it, with anticipation conflicts.

On the other hand, Suman (2001) makes use of a comparative review of 6 case studies. The cases selected were not only significant because of their diverse geographical focus and the institutions where they were written. They also highlight a wide range of issues in coastal management; illustrate various types of environmental conflicts that have diverse economic, environmental, and social implications; present different institutional arrangements to address the issues; and offer a set of innovative strategies for a wise management of coastal areas. Based on these studies he shows that the basis for the environmental conflicts between uses/users will be anchored in one or more of the following reference points:

- I. Incompatible uses of coastal space and/or resources because one use fully occupies the space, completely utilizes the resource, or damages the resource for other users.
- II. Different environmental values and worldviews, particularly the balance between development vs. conservation.
- III. Level of government, the public authority, or the institutional arrangement that makes the allocation decisions regarding resource use.
- IV. Involvement of the public in the decision-making process.
- V. Use and interpretation of scientific and technical information in decision-making.
- VI. Allocation of funding for government action or intervention.

These underlying causes cover a much wider spectrum of conflicts than those presented by Cadoret (2009), who solely looked at disputes related to the environment and gave little attention to the socio-economic dimensions.

Within the framework of the SECOA project, our ambition has been to develop a multi-dimensional thematic understanding of environmental conflicts embedded within SESs. This imply taking into account the core dimensions of the environmental conflicts (Actors / Stakeholders / Parties and Roots /Causes/ Substances), being cognizant of the processual nature and dynamics of the environmental conflicts (Cadoret 2009), and the multiplicity of the

reference points in the making of the environmental conflicts (Suman, 2001). More importantly, it also implies taking into account the broader focus points of the SECOA project (environmental contrasts, urban growth and restructuring, and human mobility). Based on these considerations, a strategic choice was made to focus on three themes that correspond to the broader objectives of the SECOA project. This was to facilitate the identification and definition of the conflict cases for in-depth analysis. This thematic choice was spelled out in the guidelines (Hens et al., 2010), which acted as an identification framework that facilitated the partners to identify most appropriate (and relevant) environmental conflicts from a much wider inventory of conflicts in each of the case study areas. According to this thematic choice, each environmental conflict case was supposed to cover at least one of the following themes:

- Economic development (industrial development, tourist industry, harbour restructuring, marina construction) **vs.** environmental protection (creation of protected areas);
- Preservation of natural sites and biodiversity;
- Contrasts for the use of resources between residents and new comers for processes of human mobility.

In the following table, an overview of the extent and coverage of these themes in the twenty-six case studies is presented. For representation of the intensity of a particular theme in a case, a 5-point scale is used. Moreover, the categories of 'case across themes' and 'thematic intensity across cases' give an overall measure of thematic coverage and their interrelationships.

Table 1.7. *Thematic overview of the environmental conflict cases.*

Cases	Themes	Economic Development Vs. Environmental protection	Preservation of natural sites and biodiversity	Human mobility and contrast for use of resources	
1. Civitavecchia, IT		5*		3*	8 / 2
2. The Costa Teatina National Park, IT		3	5*		8 / 2
3. Ostia water-use & management, IT		3		3	6 / 2
4. Ostend airport, BE		4		3	7 / 2
5. Schipdonk canal, BE		5		2	7 / 2
6. Zeebrugge harbour, BE		5	2	2	9 / 3
7. Trafaria and Costa da Caparica, PT		5		2	7 / 2
8. Barrier islands, PT		2	5	1	8 / 3
9. Funchal bay, PT		5	1	2	8 / 3
10. Barking Riverside, UK		1		5	6 / 2
11. Lower Thames Crossing, UK		2	4	2	8 / 3
12. Langstone Harbour / Farlington Marshes, UK			5	2	7 / 2
13. Tipner Regeneration, UK		5		2	7 / 2
14. Palmachim beach, IL		5	1		6 / 2
15. Netanya sandstone cliffs, IL		2	5		7 / 2
16. Haifa Port, IL		5			5 / 1
17. Malmö urban sprawl, SE		3		4	7 / 2
18. Falsterbo-Peninsula, SE		1	4	4	9 / 3
19. Torsviken, SE		5	4	2	11 / 3
20. Kungsbacka, SE		5	4		9 / 2
21. SGNP [Sanjay Gandhi Nat. Park], IN		3	4	4	11 / 3
22. Pallikaranai Marshland, IN		3	5	2	10 / 3
23. Mangrove forest, IN		3	5	2	10 / 3
24. Haiphong port, VN		5	3	2	10 / 3
25. Industrial zone, VN		5	3	2	10 / 3
26. Cat Ba and Nha Trang, VN		5	4	2	11 / 3
		95	64	53	
* The ratings are based on a 5-point scale that represents the intensity [the higher the more intense and vice versa] of the theme present in a case.					

2.1 Economic development vs. Environmental protection

The conflict between economic development and environmental protection has been the dominant theme present in almost all conflict cases. Such a presence characterizes and even proves the argument that coastal urban areas are under immense pressure due to increase and expansion of economic activities. These economic activities covered in the case studies (chapters 2 till 9) have been mainly about port / harbour restructuring and expansion, tourism lead infrastructure and urban development, energy / power generation, waterfront and brownfield regeneration, industrial zones and airports expansion. Such activities obviously bring environmental resources under increased stress and heighten the competition for space in coastal areas. These activities are part of an economic agenda that is farmed within the logic of 'competitiveness' to be attained through logistics flexibility and connectivity, diversification of services and industrial base, expanding tourist facilities, and so on. It is within this frame that projects are conceived and investment (both global and local) is sought as a way of creating growth and more jobs. With such projects come naturally increased flows of human mobility in the form of commuters, migrants, tourists, etc. Growth and more jobs are seen as a local need to offset socio-political demands and pressures. The environmental aspect is quite often considered as a collateral / external ('externally real', Pawson, 2006) issue and not as an alternative logic for meeting local needs with the long term benefits view of the commons. Besides the environmental issues embedded within the economic development projects, with the increased economic activities and flows of human mobility heightens also the need for environmental protection and the creation of protected areas. All these needs of uses compete for space – in the context of coastal urban areas where it is already under pressure – that generate different intensity of interrelated environmental conflicts across scales.

In this theme, certain relationships can be observed in the cases that provide the basis for the emergence of environmental conflicts. For example, the ports / harbours are expanded either inland or towards the sea, which not only consume and transform those resources, but the expansion of their allied activities increases the competition for space and disrupts the local eco-system. The proponents of the project continue to adhere to the logic of economic competitiveness, whereas the environmental groups embed their positions in eco-determinism. The tourism lead infrastructure and urban development, if on one side meets the local demand for growth and creating more jobs, on the other side it brings ecologically sensitive environments under increased flows of human mobility, and so on. In this process of increasing use of and pressure on coastal space for economic activities, the need for environmental

protection unfolds along several lines, such as: wild life habitat protection, landscape / nature conservation, protection of parks / beaches / protected areas, and protection from pollution (air, soil, water) associated problems. In the case studies (chapters 2 till 9), all these uses develop different sets of relationships and intensities in the formation and development of the conflict.

Table 1.8. *Conflicts of uses in the theme 'economic development vs. environmental protection'¹¹.*

Table 1.8.1. *Economic Development.*

Cases \ Uses	Port / harbour restructuring, expansion & infrastructure	Tourism lead infrastructure & urban development	Industrial zones and airports expansion	Waterfront & brownfields regeneration	Energy / power generation
1. Civitavecchia, IT	1	1			3
4. Ostend airport, BE		1	3		
5. Schipdonk canal, BE	4	1			
6. Zeebrugge harbour, BE	4		1		
7. Trafaria and Costa da Caparica, PT	2	4		1	
9. Funchal bay, PT	1	3		2	
13. Tipner Regeneration, UK		1		4	
14. Palmachim beach, IL		3		2	
16. Haifa Port, IL	4			1	
19. Torsviken, SE	3		2		
20. Kungsbacka, SE					5
24. Haiphong port, VN	5				
25. Industrial zone, VN			5		
26. Cat Ba & Nha Trang, VN		5			
	24	14	11	10	8

¹¹ The criterion for categorizing cases under this theme is based on the intensity of the presence of this theme in the case in correspondence to Table 1.7. Only cases with maximum rating [5] are included. Moreover, the cases included show the presence of one or more uses indicated on the x-axis of the tables 9.1 & 9.2.

Table 1.8.2. *Environmental protection.*

Uses Cases	Pollution [air, soil, water] associated	Landscape / nature conservation	Wildlife habitat protection	Parks / Beaches / protected areas	Waste water management
1. Civitavecchia, IT	5				
4. Ostend airport, BE	5				
5. Schipdonk canal, BE		4	1		
6. Zeebrugge harbour, BE	3	1	1		
7. Trafaria and Costa da Caparica, PT	2	1	1		1
9. Funchal bay, PT		2	3		
13. Tipner Regeneration, UK	1		4		
14. Palmachim beach, IL		1		4	
16. Haifa Port, IL	1	1		3	
19. Torsviken, SE	3	1			1
20. Kungsbacka, SE		4		1	
24. Haiphong port, VN	3		1		1
25. Industrial zone, VN	3				2
26. Cat Ba & Nha Trang, VN		1		1	3
	26	16	11	9	8

2.2 Preservation of natural sites and biodiversity

This theme has pronounced presence in several cases and lateral presence in many others. In terms of significance, this theme is crucial for the sustainable functioning of the coastal urban areas. They constitute the foundations upon which settlements (and their expansion) are created and the frame within which they function. In the case studies, several environmental conflicts under this theme have been brought forward that range from national parks, preservation of natural sites, cultural landscape and heritage sites, protection of biodiversity, and so on. Conflicts in national parks are often about defining spatial boundaries, competing land-use interests of local, regional and national levels or dealing with the problem of encroachments (proliferation of slums) that are eating up the area of the national parks. The natural sites in the cases range from sandstone cliffs, marshlands, mudflats, ecologically

sensitive islands and dunes that are threatened by increase in economic activities, tourism, navigation, fishing, flooding and other competing land-uses. In many cases, the islands provide crucial eco-system services and also act as a natural barrier to the mainland from climate change effects and erosion. The marshlands have high biodiversity value and natural sites like sandstone cliffs are not only crucial for the physical processes (erosion, etc.) but also contain high cultural value.

The range in cultural landscape and heritage sites include picturesque / scenic landscapes, agricultural fields, parts of urban areas with high cultural and historic value that are threatened by uses such as renewable energy (wind energy farms), tourism infrastructure and other economic activities. The threats to areas of bio-diversity habitats are port expansion, industrial activities, increased human mobility, and construction of coastal defences. They typically bring local communities and conservation groups in conflict with local, regional and sometimes even national governments.

Ensuring the preservation of natural sites and biodiversity is highly complex. In most cases, they don't conform to administrative boundaries, and thereby, faces jurisdiction problems. They are in most cases high value sites that create competing interests among conservation groups and (urban / tourism related) development lobbies, which result in increased pressure. Moreover, in most cases, the national-level strategic (economic) goals and sector interests are not thoroughly co-ordinated and harmonized with those about nature conservation, cultural heritage and protection of bio-diversity habitats. The dynamics of off and on tourist seasons, climate change effects, the incompatibility of local, national and international interests further add to their vulnerabilities and challenges for local and regional nature protection and conservation agencies.

Table 1.9. *Environmental conflicts in the theme 'Preservation of natural sites and biodiversity'*¹².

Cases \ Uses	Preservation of natural sites / islands / marshlands	Protection of biodiversity habitats	National Parks	Cultural heritage & landscapes
2. The Costa Teatina National Park, IT		3	5	
8. Barrier islands, PT	3	1	1	
11. Lower Thames Crossing, UK	4	1		
12. Langstone Harbour / Farlington Marshes, UK	2	3		
15. Netanya sandstone cliffs, IL	4			1
18. Falsterbo-Peninsula, SE	2	2		1
19. Torsviken, SE	3	2		
20. Kungsbacka, SE		1		4
21. SGNP [Sanjay Gandhi Nat. Park], IN	1	1	3	
22. Pallikaranai Marshland, IN	4	1		
23. Mangrove forest, IN	4	1		
24. Haiphong port, VN	1	1		
25. Industrial zone, VN	2	2		
26. Cat Ba & Nha Trang, VN	1	3		
	31	22	9	6

2.3 Human mobility and contrasts for the use of resources

This theme is mainly concerned about the processes of human mobility in terms of their environmental effects in the coastal urban areas. In particular, it focuses on the contrasts for the use of resources, between residents and newcomers, which are involved in the processes of human mobility. This theme has been the most difficult to map and comprehend in terms of its effects in the conflict case studies. Its presence has been thin across the cases. Although the scope of this theme is very significant, it has scored much lesser than the previous two themes in terms of presence across the cases. In the conflict cases, the main uses attributed to this theme have been tourism (housing, recreational facilities, 2nd homes and related infrastructure), commuting (job related daily, weekly), physical infrastructure (road / rail, bridges, utilities,

¹² The criterion for categorizing cases under this theme is based on the intensity of the presence of this theme in the case in correspondence to Table 1.7. Only cases with maximum rating [3 to 5] are included. Moreover, the cases included show the presence of two or more uses indicated on the x-axis of the table 1.9.

water and waste disposal) and social housing and infrastructure (local social needs, migrants / new-comers). The tourism related growth is obviously related in terms of the effects on local physical and social infrastructure capacities and environmental constraints. The physical infrastructure and commuting go hand in hand in the making of the sprawl with devastating consequences for socio-spatial and environmental sustainability of coastal urban areas. The increasing flows of human mobility, particularly the migrants and lower classes, also end up in creating the serious problems of social exclusion, gentrification / ghettoization, mushrooming of slums that pose great threat for social cohesion in coastal urban areas.

Large scale transportation infrastructure in most cases is seen as not only connecting coastal urban areas to their hinterlands and other important cities, but also as a sector that creates tremendous economic opportunities in several other sectors. It also brings the more “green” rural municipalities in the surroundings as popular residential areas for those commuting to the jobs in the coastal urban centre. Its by-effects of increasing persons, car and goods traffic and an increasing need for space for communications and housing leads to negative impacts such as consumption of valuable agricultural land, fragmentation of urban space and ecologically valuable areas, sealing of ground (causing water run-off/flooding), intensifying urban heat island effect, noise, vibrations and decreasing air quality.

Inside the coastal urban areas, many cases show that the projects aimed at dealing with the flows of human mobility and contrast of resources are seen as solution both to local and regional housing need and related social problems, including high levels of unemployment and deprivation. Although the promise of new housing and other social infrastructure is proffered as a solution to local need, concerns endure over the distribution of employment and housing opportunities that generate a series of conflicts. Such conflicts are characterized by three principal and inter-related social cleavages: incomers (migrants) versus locals, ethnicity, and class. Local and regional planning authorities, and housing developers (private and voluntary sectors) play key roles in mediating these conflicts.

Table 1.10. *Environmental Conflicts in the theme 'Human mobility and contrast of resources use'*¹³.

Cases \ Uses	Physical Infrastructure [Transport, utilities & waster water]	Social infrastructure [Migrants / new comers, social exclusion / segregation, slums]	Tourism [Housing, recreation & second homes]	Commuting [Job related, daily, occasionally]
1. Civitavecchia, IT	3		3	3
3. Ostia water-use & management, IT	3	2	3	3
4. Ostend airport, BE	2		1	1
5. Schipdonk canal, BE	3			
6. Zeebrugge harbour, BE	2			1
9. Funchal bay, PT			2	
10. Barking Riverside, UK	1	4		
11. Lower Thames Crossing, UK	4			1
12. Langstone Harbour / Farlington Marshes, UK	1	1		
13. Tipner Regeneration, UK		1		
17. Malmö urban sprawl, SE	1	1	1	3
18. Falsterbo-Peninsula, SE	2	1	1	1
19. Torsviken, SE	1	1		
21. SGNP [Sanjay Gandhi Nat. Park], IN		4		
22. Pallikaranai Marshland, IN		2		
23. Mangrove forest, IN	1	1		
24. Haiphong port, VN	1	1		1
25. Industrial zone, VN	1	1		1
26. Cat Ba and Nha Trang, VN	1		4	
	27	20	15	15

¹³ The criterion for categorizing cases under this theme is based on the intensity of the presence of this theme in the case in correspondence to Table 1.7. Only cases with relative maximum rating [2 and above] are included. Moreover, most of the cases included show the presence of two or more uses indicated on the x-axis of the table 1.10.

3. Legitimation / [social] construction of the environmental conflicts in the case studies

Next to the resources (the cause of the conflict), the resource users (direct and indirect) - the actors / parties / stakeholders in a conflict – are the main variables that construct and legitimize environmental conflicts. They draw their agenda from the broader societal context, for example, sustainability – a good enough reason to trigger their motivations, draw interests, develop interactions, and within them, generate conflicts. However, most relevant here are the concept of ‘hybridity’ (Latour, 1993) and the SES perspective (Ostrom, 2009) recognising the false divide between ‘nature’ and ‘society’ to indicate the complex blending of social and biophysical factors within current concepts of nature and society, and the futility of attempting to ‘purify’ such concepts into separate natural and social components. It is in the complex blending of nature and society as a hybrid SES within which interactions among actors co-define each other, as well as, legitimize conflicts. Not only their ‘interactions’ become ‘variables’ in legitimizing the conflict, but also their interactions produce ‘internal variables’ that are conditioned by contextual forces (economic, social, environmental). The ways of identifying and determining them - crucially important for conflict assessment – begins with identifying the actors with a stake in the environmental conflict i.e. ‘stakeholders’.

An overview of the ‘stakeholder approach’ (Freeman, 1984) and its many nuances (Alkhafaji, 1989; Bowie 1988; Mitchell et al., 1997) were presented in the methodology document (Hens et al., 2010) to all SECOA partners. It was highlighted that the debate in the literature on the definition of stakeholders is in part due to the problem of defining what a legitimate stake is (Reed et al., 2009). It was concluded that we have to start with a broad definition of stakeholders within the framework of environmental conflicts, such as the one provided by Starik (1995): *“Any naturally occurring entity that affects or is affected by organizational performance.”* Such a definition leaves room for a wider interpretation. *“Any naturally occurring entity”* gives us the possibility to include more than just people (Freeman, 1984). It may involve living and non-living entities, or even mental-emotional constructs, such as respect for past generations or the wellbeing of future generations. Some even argue that the natural environment itself should be seen as a (primary) stakeholder (Haigh & Griffiths, 2009; Starik,

1995). Further, by using “*performance*” instead of “*objective*” Starik (1995) formulated his definition more from a stakeholder’s perspective, which is what makes it more appropriate for the management of natural resources and environmental conflicts in the context of coastal urban areas.

Twofold reasoning was advanced in favour of Starik’s definition that centres on stakeholder’s perspective. First, the success of natural resource management cannot be expressed in terms of profit or market value; it is only dependent on the sustainability of the project. Sustainability, described as meeting the needs of the current generation, without compromising those of the future ones (WCED, 1987), implies that it is a constant process in which stakeholders’ attendance and interests changes over time. So the sole beneficiaries should be the stakeholders and not the manager or the board of directors. Secondly, stakeholders in an urban coastal setting are extremely varied in terms of stake. From residents to tourists, from fishermen who wants to feed their families, to people who want that their grandchildren are able to enjoy the taste of fish, from harbour planners and the companies that depend on providing transport for the goods, to people who leave their home for the expansion or who just want to enjoy the natural beauty of a coastal area, and so on. Besides the economic, ecological and social values at stake in these areas, there are the less tangible concepts like the right to a clean environment, the protection that wetlands and dunes offer in case of floods, or doesn’t the exploitation of this site put a strain on future development or discoveries (for example the conversion of the coastal mangrove forest into hotels and resorts will limit the use of that mangrove by *future generations*, who perhaps wants to use it as aqua farms)? And is it ethically possible to deny plants or animals in this debate? Furthermore, is it even possible to allocate an owner to natural beauty or surroundings? So the presence of a human spokesman cannot always be guaranteed in the case of natural resources management. Therefore, Starik’s (1995) interpretation of stakeholder identity seems the most indicative one to be adopted for environmental conflicts in the context of coastal urban areas.

The reason for stakeholder survey and analysis, in principle, is to understand their interests and influence in the construction, shaping and legitimation of nvironmental conflicts. In general, within policy, development, and natural resource management, stakeholder analysis is increasingly seen as an approach that could empower marginal stakeholders to influence

decision-making processes (Reed et al., 2009). As mentioned earlier, in the context of coastal urban areas, the stakeholders are very varied. In the methodology document (Hens et al., 2010), several methods for identifying them were outlined such as ‘focus groups’ (Dürrenberger et al., 1999) for qualitative insights in specific topics and behaviour, ‘semi-structured interviews’, and ‘snowball sampling’¹⁴. Moreover, based on literature review, the following classification of stakeholders was provided to all SECOA partners:

Table 1.11. Stakeholders classification.

Stake-holders in environmental decision making [Sarkissian et al. 1997]	Groups to be added in urban coastal area settings	Groups to be included that cannot speak for themselves
i. Client groups	xi. Fisheries/aquaculture	xiv. Future generations
ii. Industry	xii. Farmers	xv. Natural environment
iii. The general public	xiii. Tourism	
iv. Politicians		
v. State agencies		
vi. Local agencies		
vii. Local councils		
viii. Business/traders		
ix. Media		
x. Community activists		

The well-being of future generations is one of the main goals of sustainable development. Taking them into consideration will allow the prevention of future environmental conflicts. The last category refers to the fact that the local fauna and flora also has a right to be a stakeholder in conflict analysis over resources. They are important to be

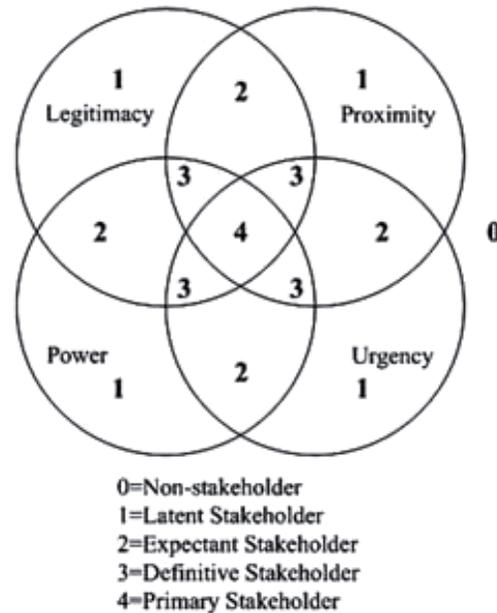
¹⁴ Snowball sampling is a widely employed qualitative research method across the social sciences. The method uses pre-identified stakeholders who reveal, previously unknown, stakeholders during discussions or interviews. It is an iterative approach whereby one or two individuals from a stakeholder category can be interviewed; these interviews will lead to new nominations and interviews until names or groups begin to repeat. Applications of this research method in resource management can be found in Prell et al. (2009) and Weilbe (2007).

recognised in our analysis, because neither future generations, plants, animals nor even a whole ecosystem can speak up during a debate. To represent their stake, environmental organizations and/or NGO's, being part of the community activists' class, will act as spokesmen.

Looking at the definition of environmental conflict, one need to have at least two interdependent stakeholders / parties and an expressed struggle. Their level of attendance and composition will be different for each case. However, the question of 'who really matters?' is a perplexing one. Inputs required for doing that - comprehensive analysis and evaluation of conflicts that involve environmental, economic and social dimensions - are beyond the scope of a single discipline, no matter how wide its scope and how holistic is the training (Harrison et al., 2000). For practical purposes, it is desirable to merge or delete groups to reach a shortlist of the most directly affected stakeholders. In this regard, three models to qualify the importance of different stakeholders were outlined to all SECOA partners. The first model is based on the theories of Mitchell et al. (1997) and allows determining the salience of stakeholders in terms of 3 factors / attributes: power, legitimacy and urgency¹⁵. Given that the salience of a stakeholder can change during the conflict, Driscoll & Starik (2004) proposed to add another (fourth) attribute to the list: *proximity*. This refers to those who are spatially related to the organization or planned intentions. This generates a fourth group of stakeholders: the *primary* stakeholder, those who possess all four characteristics (fig. 1). According to Haigh & Griffiths (2009), the natural environment will always be a primary stakeholder in these analyses.

¹⁵ According to Mitchell et al. (1997) stakeholders' salience is determined by 3 factors: power, legitimacy and urgency. Power means that the stakeholder is in a position to influence decisions. Legitimacy implies that they have a legal, moral or presumed claim, and urgency comes from a demand that deserves immediate attention. Stakeholders who only show one of these three attributes are called latent. If they represent two out of three attributes, they become expectant, and finally, when the three categories are present, they are definite. This is a dynamic system in which stakeholders' salience can rise or decline over time. A stakeholder who has the power and legitimacy to ask for attention will stay silent as long as they don't feel the urge to speak up. A sudden change in plans can alter this situation.

Figure 1.1. *The four characteristics of stakeholders (Haigh & Griffiths, 2009).*



Source: Adapted from Mitchell, Agle and Wood (1997) and Driscoll and Starik (2004)

The second model for determining the salience of stakeholders, *social network analysis*, depends on accumulated data and gives a calculated, objective classification of the stakeholders. Social networks are comprised of actors who are tied to one another through socially meaningful relations. The data is organized in matrices, representing the relational ties linking stakeholders together. The matrix makes use of numbers representing: the presence/absence of a tie; and the relative strength of a tie¹⁶. Data is typically gathered through structured interview, questionnaire or observation (Reed et al., 2009). The data can be analysed with specific software and presented in social network diagrams. This technique ensures that key groups are not marginalized, and specifies representatives that are well connected with and respected by the groups they need to represent (Prell et al., 2009). In this way, even small stakeholders can have, through their connections, a voice.

¹⁶ Actors sharing a strong tie tend to (Prell et al., 2009): influence one another more than those sharing a weak tie; share similar views; offer one another emotional support or help in times of emergency; communicate effectively regarding complex information and tasks; and be more likely to trust each other. Moreover, each matrix represents a unique relation, for example, communication, friendship, advice, conflict, trust, etc...

The third model is about [social] *discourse analysis* using Q-methodology¹⁷. The discourse analysis identifies the ways in which people think and talk about an issue and in particular the shared perception and common grounds between individuals. The methodology is used to group individuals into 'social discourses' based on these shared perceptions and commonalities. Any particular individual does in general not represent these discourses; instead, they represent a 'pure' or 'ideal type' version of a way of seeing the world (Barry et al., 1999).

3.1 Stakeholders / Parties involved in the environmental conflict cases

Several approaches and methods are used by our SECOA partners in the case-studies for the identification of stakeholders / parties involved. Depending on the case, some of the partners carried out 'stakeholder survey' through 'semi-structured interviews' alone. Others have combined the interviews with 'focus groups' and 'snowball sampling'. Yet some have also used a combination of them together with S-NA (Social Network Analysis) and S-DA (Discourse Analysis). The variety of the methods used, and also the diversity of the contexts involved and the different institutional structures, have produced a wide range of stakeholders involved in the environmental conflict cases. Their comparison is not only difficult because of different methods used or their nomenclature that is quite different, but also the way of grouping and classifying them varies significantly from case to case, as well as, from context to context. What remain common are their description categories that were provided in the methodological guidelines (Hens et al., 2010), such as interests, goals, positions, capacities, relationships, and salience.

¹⁷ In Q methodology, one starts by means of a structured interview with a sample of the relevant population. From these interviews the reviewer obtains a series of statements about the areas of interest. These statements are the basis for the subsequent analysis, perhaps supplemented by statements taken from other media (e.g. newspapers). This approach to statement generation is taken so that the research focuses on issues, which are mostly or wholly raised by the participants, rather than by the researcher. Next, the researcher makes a selection of these statements, for use in the 'Q sorts'; i.e. one establishes a set of statements to which participants are asked to respond. He has to decide upon the number of statements that will be presented to participants. Third, the participants are asked to rank the statements on the scale 'Agree most strongly' to 'Disagree most strongly'. This set of ranked statements constitutes the 'Q sort' for a particular individual. Fourth, from these Q sorts, statistical analysis allows the extraction of a few 'typical' Q sorts that capture the common essence of the variety of individual Q sorts. Each individual usually has aspects of several 'typical' Q sorts contained in their particular Q sort. Finally, these typical Q sorts must be interpreted verbally, to give the social discourses uncovered by the statistical analysis.

Table 1.12. *Scheme for the analysis of stakeholders involved in the environmental conflict cases.*

Parties / Actors / Stakeholders	Interests	Goals	Positions	Capacities	Relationships	Saliency
	The motivations of the stakeholders (in relation to the causes and other parties in the conflict)	Which strategies do they use to pursue their interests?	How they place themselves in the conflicts, especially in any intervention?	Their potential that can affect the context of the conflict (both positively and negatively). This can be resources, access, social networks, alliance, etc.	The interactions of the stakeholders and their perception of the interactions	Through 4 R's stakeholder analysis or SNA / DA
1.						
2.						
3. [and so on].						

Some of our partners have grouped the stakeholders in 'Interest: Pressure' groups, where the interest group includes all those who are motivated by a desire for economic efficiency and the pressure groups are those motivated by a desire for socio-spatial and environmental sustainability. Groupings of stakeholders are also made as 'players' and 'key-players' (also 'key-stakeholders'). For example, institutional players (regional, provincial, and local government); economic players (fishery, farmers, builders, tourism); Trade unions and entrepreneurs' associations; Environmental, cultural associations and NGOs. The classification of 'key-players' include: government (regional or federal), concerned ministries / departments (public works and mobility, or environment), city administration (municipality, port authority), environmental NGOs and local residents. Some have used the categories of 'institutional and non-institutional' (and also 'government and non-governmental categories'), where the former implies central and local government institutions and the later implies residents, fishermen, commercial and community associations. Some have used the categories of 'development' (government), 'conservation' (environmental organisations, departments, boards), 'primary' (local residents, owners, workers) and 'modern' (builders, developers and investors) groups. An attempt is made in the following table to cover all the stakeholders identified in the case studies. A detailed description and analysis of their interests, goals, positions, capacities, relationships, and saliency in each conflict case can be found in following chapters (2 till 9).

Table 1.13. An overview of the Stakeholders / Actors / Parties involved in the environmental conflict cases.

		Parties / Stakeholders	Interests	Goals	Positions	Capacities	Relationships	Salience
GLOBAL		EU / International / Multi & Trans-National						
STATE	Government [Ministries, depts., agencies, councils]	Central / Federal [Transport, Environment, Public works, housing, urban development, Planning, Fisheries, Economic affairs, Wildlife, Nature, Water]						
		Regional / Provincial						
		Local						
		City-regional / metropolitan area						
	City Administration & Authorities	Municipality / city-council						
		District / Commune						
		Local board / Neighbourhood Council						
		Town council [surrounding]						
		Port/ harbour authority						
		Maritime Authority						
		Water / river Authority						
		Airport authority						
	Public-private partnerships [Authority, company]	Infrastructure / facility management companies						
		Development authorities / corporation						
Housing company / authority / association								
Water management company								
CIVIL SOCIETY	Politics	Politicians						
		Political parties						
	Business / Industry / Agriculture [economic players]	Tourism						
		Fisheries / aquaculture						
		Business / traders						
		Developers / Builders						
		Power / energy producers						
		Farmers / landowners						
		Community Activists						
	NGOs [Non- Governmental Organisations]	Environmental Organisations						
		Wildlife Trusts / Societies						
		Conservation groups						
		Cultural associations						
PUBLIC	The general Public [non-institutional]	Trade unions & Entrepreneurial Associations						
		Local residents						
		Tourists / seasonal						
		Commuters						
		New comers / migrants						
		Future residents						

3.2 Social networks / Coalition formation in the environmental conflict cases

In the analyses of 'parties involved', some SECOA partners have carried out SNA (social network analysis) and DA (discourse analysis) in addition to other methods. These additional categories allow capturing the sort of 'networks' and 'coalitions'¹⁸ (stakeholder groups) that emerge during the evolution of the environmental conflict, and which have a critical role in legitimizing and shaping of the environmental conflict. For example, in chapter six about the Israeli case studies, the coalition between 'grass roots activists', 'NGOs', 'bureaucratic gatekeepers' in the local authority and 'ministry of environmental protection' emerged that shaped not only the conflict but its present outcome as well. On the other hand, 'developers', 'central government' and 'land administration authority' emerged as a coalition in the conflict to preserve the original transfer of rights of the land. Another example is the chapter nine about Vietnamese case studies, where the stakeholders are grouped into four: development group, conservation group, primitive production group and modern group. Therefore, it is crucial to add the category of 'coalitions / networks formed' in the analyses structure that will allow to understand the legitimization and shaping of agendas within the environmental conflict. For this purpose, the following scheme was distributed among SECOA partners.

Table 1.14. *Scheme for the analysis of coalitions / networks emerged in the conflict cases.*

	Interests	Goals	Positions	Capacities	Relationships	Salience
Coalitions / networks emerged in the conflict	Their combined motivations (in relation to the causes and other parties in the conflict)	Shared strategies to pursue their interests	How they place themselves in the conflicts, especially in any intervention?	Their potential that can affect the context of the conflict (both positively and negatively). This can be resources, access, social networks, alliance, etc.	The interactions of the stakeholders within coalition and their perception of the interactions	Using one or a combination of 4 R's method and SNA / DA
1.						
2.						
3. [and so on].						

Based on the coalition identification and analysis in different case studies, we have observed several variations of coalitions in terms of their agendas and the ways of formation (table 1.15). In most cases, a pattern of three types of coalitions emerges: the institutional,

¹⁸ For an elaborate theoretical understanding of the term 'Coalitions', see Soja (2010).

interest and pressure group coalitions. The ‘institutional’ coalition is mainly composed of governmental authorities (central, regional local) that find their joined / common interest around political, development or policy issues. They possess the necessary legal and political backing to regulate, implement and even distribute the compensations in the conflict. Their formation is top-down but also sometimes bottom-up. Most of their members are elected representatives, whose interests change over time. This often leads to the breaking or re-making of coalitions. The ‘interest’ coalitions are brought about mainly by shared economic interests and is composed of economic players like builders, industrialists, investors and corporations / companies (e.g. energy). The ‘pressure’ group coalitions are mostly formed around safeguarding the interests of the environment or local residents (their livelihoods, etc.) and composed of environmental NGOs and other civil society organisations. They are the most crucial players in raising awareness, and eventually legitimizing conflicts by mustering support from institutional players involved in the conflict.

Table 1.15. An overview of the coalitions / networks emerged in the [selected] environmental conflict cases.

Coalitions / Networks formed in the Cases	Interests	Goals	Position	Capacities	Relationships	Saliency
1. Civitavecchia, IT Institutional coalition [Commune, Province, Region & some local authorities]	Energy production is a national and regional priority. Increase Port activities is a local development priority	To reduce air pollution is a major goal since local population became more sensible to the issue for the impact on human health	To mediate between the issue of economic development, environmental protection and human health	They can offer compensations, regulations but they can also distribute sanctions	From a theoretical point of view their activity should be fully coordinated. But since they are elected bodies they can represent over time different interests	
Interest group coalition: ENEL and Tirreno Power	To produce electricity	To produce in an efficient way, also reducing air pollution since it is requested by public opinion and local authorities	To demonstrate that all instruments reducing air pollution are implemented	They employ a large quantity of local manpower and play a fundamental role in the local economy	Being an important energy plant they can play a social role as well and talk together with local authorities and NGOs	
Pressure groups coalition: Local NGOs with their national & international connections	To make pressure on public opinion, public administration, and pollution producers	Environmental and cultural protection and citizens health	To find any possibility to reduce air pollution at local level	Each NGO, with different specialisation and constituency, has its own capacity to deal with different society components. They cooperate in order to achieve synergies	They are able to orient public opinion in occasion of debates. At the occasion of local elections each NGO refers to its own constituency and representatives	

2. C. T. N. Park, IT Institutional coalition: region, province, municipalities	Territorial management and development	To preserve the authority/control power they would lose after the creation of the Park	They develop actions to keep the control on their territory	Political power that can influence the National government's decisions	Strong interactions with all the other stakeholders to keep their political power	Very important political power
Interest groups coalition: farmers', builders', industrial entrepreneurs' associations	Development of their economic activities	To preserve the profitability of their economic activities	They organize public and non-public events to resist against the Park	Possibility of orienting their votes against the local and national government	Conflicting interactions with the Pressure groups and bargaining interactions with the local institutions	Very important electoral power
Pressure groups coalition: environmental, cultural associations and NGOs	Protection of the general interests, (present and future) of the local community	To preserve the natural environment, the cultural heritage, the quality of life	They organize public events to support the existence of the Park and its wide size	Possibility of convincing the local community through networking activities	Strong but conflicting interactions with the Interest groups	Weak electoral power
8. Ria Formosa, PT Residents and users of the Praia de Faro	Against the demolition of their homes, some of them constructed illegally	To keep their homes	Victims; they do not perceive themselves as part of the conflict	Some influence	They make pressure among institutional stakeholders	Important at the Local scale
12. L. H/ F. M, UK Langston Harbour SMP: Advisory Network	Protect social, economic and ecological situation in Langdon Harbour	Find a compromise on identifying the best possible response to an increased flood risk	Network members hold different institutional mandates	All members are public bodies that largely depend on central government funding	Equally strong reciprocal communication ties with each other – Mode of communication: Telecomm./ Email	Informal: Network advises role. No executive rights or recognised as a public body
13. Tipner Reg., UK Advisory Network to Portsmouth City Council's Planning Committee	Diverse set of interests: Members pursue individual goals in relation to Tipner development	Diverse set of goals: Members are interested in identifying best possible response to increase own profit	Network members hold different institutional mandates	Members have different capacities/ resources, e.g. fiscal, legal or information	Members monitor each others' preferences and activities: Weak coordination, which does not necessarily include reciprocal ties or contact based-relations.	Informal: Network advises but has no executive rights nor is it recognized as a public body
21-23,SGNP, Pallikaranai Marshes & Mangroves, IN Gov't agencies and forest department	Many times work in combination with NGOs	Common interests with NGOs	Law enforcement, public order, state's position	High potential both negatively and positively	Fairly high level of interaction with the NGOs and low with the residents	Very important
Pressure groups coalition: NGOs	Work in favour of both as mediators	Share common goal as residents at times and gov't at another	As mediators	Moderate potential	High level of interaction with both the parties	
Local residents	Work with NGOs	Common interests		Moderate potential	Low level of interaction with the gov't agencies.	

26. CatBa & N T, VN Development coalition: [District & provincial gov't, Ministry of Culture, Sport and Tourism]	To increase number of tourists and turnover, also the diffusion of Viet Nam image in general and Cat Ba, Nha Trang in particular	Contribute to economic growth, eliminate hunger & reduce poverty, ensure social security, conserve cultural values, protect environment	Authority and state [people's] power	Strategic solutions for the development of tourist sectors	Interaction with NGOs, research institutions, and local residents is not well coordinated	Very powerful
Conservation coalition: [Park mgmt. boards, ent'l assoc. WWF, FFI, etc.]	To develop sustainable tourism	Building efficient wastewater treatment stations, sanitary dumping sites, control encroachments and the discharge of tourist boats on sea	Critical role in voicing the concern for environmental protection	Coordination and overseeing the implementation of environmental projects& raising awareness	Moderate interaction with other players	Very important
Coalition of Primary groups [tourist boat owners, hotels/restaurant owners, local residents]	To earn a livelihood from tourism activities	Their goal is economy and their serving subject is tourist; the higher the number of tourists the higher their income	They are instrumental in providing local services and the workforce that keep the tourist facilities running	They are least concerned with environmental protection, if given orientation and incentives, they can play a crucial role	They form relationships through unions and associations for the protection of their livelihood	Primary but vulnerable
Economic players / modernising coalition: [builders, investors]	To increase opportunities for their economic / profit interests	Financial benefit from Creating / implementing more building, infrastructure and services projects	Influential in steering the development of the area	Technical know-how, investment in tourism related projects	They will develop strong interaction with other influential players to maximise their profits	Very influential

Another pattern of coalitions discerned from the case studies presented in chapters two till nine is based on shared / common way of doing something about the environmental conflict. Three types can be differentiated in such coalitions: agree and cooperate; disagree and communicate; disagree and limited communication. These are highly dynamic and flexible type of coalitions in which the stakeholders and groups switch sides as and when it suits them. Such coalitions are discernable from the Belgian case studies in chapter three.

There is also another category of coalitions observed in the cases, which is differentiated in terms of voice/visibility and profile i.e. some coalitions are clear and loud in their manifestation and presence, and others that keep a low profile. Such coalitions emerged in the Israeli cases presented in chapter six. In the Palmachim beach case, the grassroots activists

promoted the first type of coalition. They wished to form a coalition against the developer and development in order to gain power and influence against a stronger stakeholder. The network, which eventually succeeded in achieving its goal, included the activists, NGOs and the Ministry of Environmental Protection. The activists were limited in resources. Forming this coalition increased their influence beyond the public arena. The NGOs offered legal assistance in the judicial arena, which was beyond the means of the activists and the MEP offered a voice in the regulatory arena. The network of stakeholders offered a powerful coalition that, together, was able to halt the project. The second type of coalition was formed between the developer and the local authority. However due to the problematic combination of the two the coalition was not voiced as much as the other. The local authority had in its interest to promote the development of the beach resort and was the initiator of the project hence supported the developer's ambition and struggle; however any plausible situation constituting personal agenda could raise legal issues. Due to these problems the coalition was somewhat limited in addition to the position of the local authority in the planning hierarchy and the strength of the coalition they were facing.

Another pattern discerned in the coalition formation from the analysis of conflict cases is that different coalitions and networks exist in the same conflict without really clashing with each other (Netenya case, chapter six). Governmental agencies, environmental agencies and NGOs are most often the likely partners in forming a coalition. The economic players are ready to change and shift tactics and form coalitions with unlikely partners as long as it serves their interest. The local residents are quite often easily manipulated and brought into different camps by interest parties. Coalitions can be long term or temporary, their interest can be in preventing conflicts as well as contesting against certain types of developments. Coalitions and networks can also typify sub-conflicts that exist in an environmental conflict. The coalitions can be powerful, resourceful, influential as well as weak and struggle to survive. They can achieve their goals fully or partially, change with events and also become mediating instruments, but most importantly, they construct, legitimize and fuel the life of the environmental conflicts.

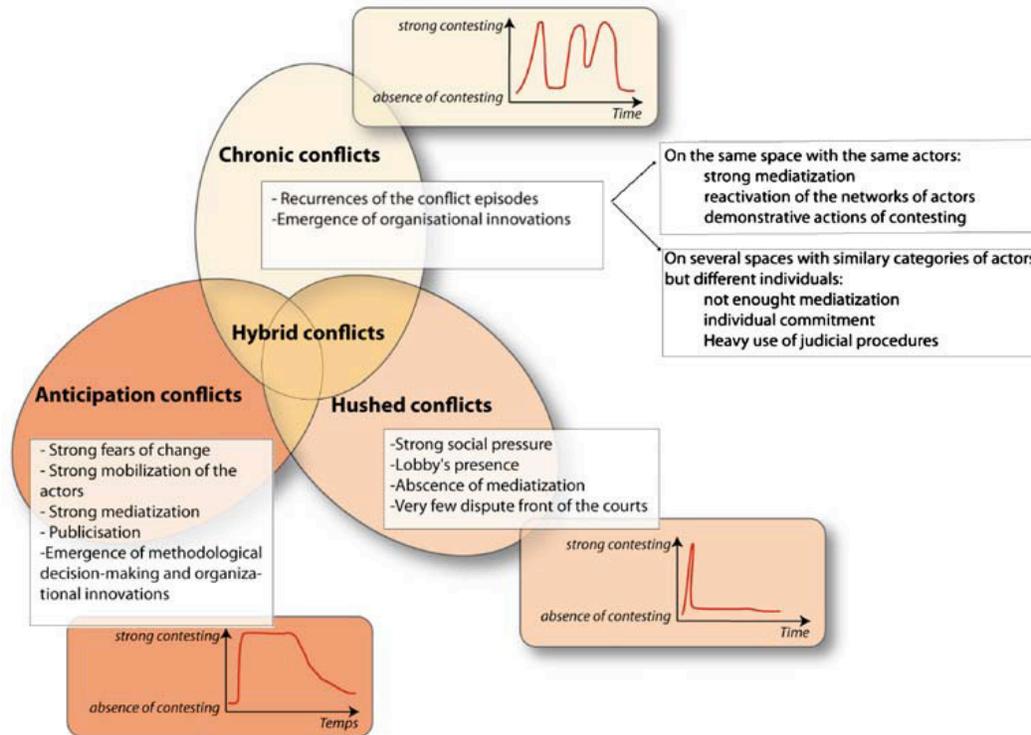
4. Typological classification of the environmental conflict case studies

Typological classification of environmental conflicts is about systematic differentiation of conflicts based on specific characteristics and dimensions. In other words, labelling the environmental conflicts according to their characteristics and dimensions that are obtained from analysing their nature and parties involved in their construction. Such classification is critical for comparative analysis and assessment of environmental conflicts. Once conflicts are typified, comparisons and generalisations about their possible future evolutions can be made. However, environmental conflicts are dynamic socio-ecological constructions and their characterisation involves several factors, actors and dimensions, which make their typification a complex task. Therefore, before analysing a certain case (or a number of cases) for typological classification it is important to understand the different ways of characterising the dynamics of the conflict along, for example, dimensions, scale, manifestation, ethics, substance, stage, and so on.

In the methodological guidelines (Hens et al, 2010) provided to all SECOA partners for conflict analysis, several ways of making typological classification available in the literature were discussed. For example, by dimensions, Charles (1992) proposes a typological classification along: (a) Jurisdiction: Conflicts over who owns and controls access to what; the optimal form of management and the role of government in the fishing system; (b) Management mechanisms: Conflicts over how policy is carried out, often short-term conflicts over harvest levels, (over-) enforcement and the consultative process; (c) Internal allocation: Conflicts resulting from how different fishery stakeholders interact; and (d) External allocation: Conflicts resulting from how fishery groups and 'outside' activities interact. By scalar dynamics, Warner (2000) proposes a typological classification that distinguishes between (a) intra micro–micro conflicts, (b) inter micro–micro conflicts and (c) micro–macro conflicts. However, such classification does not include elements that are not directly related to immediate stakeholders in the resource (such as project funders, elites) and other more intangible issues such as cultural difference and corruption. For obtaining useful insights, a combination of these typologies were applied elsewhere by Bennet *et al.* (2001), Noakes *et al.* (2002), Marshall et al. (2007) and Cadoret (2009). However, the most relevant for our cases is the study of conflict dynamics in coastal zones by Anne Cadoret.

Based on the environmental conflict dynamics observed in the coastal zone of Languedoc-Roussillon (France), Cadoret (2009) proposed a typological classification (fig. 2) along three categories. *Chronic conflicts* are the result of an opposition which is spread over a relatively long period of time (+ 10 y) and which is characterized by several crises, namely by conflictual episodes where dissent is more marked (more media coverage, a period with a high level of non-compliance, a higher number of demonstrations, etc.). Examples include pollution or infringements of legal and regulatory measures. The latter can be a group of micro-conflicts, where the categories of actors are the same, but the individual stakeholders differ depending on the area of the conflict. *Anticipation conflicts* can occur when people express a form of fear. They anticipate the consequences of change, without necessarily having a clear vision of these. They usually concern infrastructure projects leading to change in practice, in landscape, in the function of an area, etc. Generally speaking, this will be a NIMBY-reaction, expressed by demonstration, writing letters to the public authorities and placing notices in the area of conflict. *Hushed* or *deferred conflicts* evolve very fast and are due to social pressure quickly hushed. This doesn't mean that the conflict is solved; rather it is deferred to later. The length of these conflicts is very short, when confined to the expressions of conflicts. They are regulated by social pressure and by the removal or avoidance of the problem. When conflicts have an intersected profile, Cadoret (2009) will label these as *hybrid conflicts*.

Figure 1.2. Interpretative framework for conflicts of use related to the environment (Cadoret, 2009).



In addition to Cadoret (2009), and also Charles (1992) and Warner (2000), following are some of the other ways of making typological classification of environmental conflicts:

Table 1.16. *Environmental conflicts by different typological classifications.*

Conflicts by physical existence (Bruckmeier, 2005)	Conflicts by forms of behaviour of the conflicting parties (Rapoport, 1970)	Conflicts by ethics/roots (Schmidtz, 2002)
Manifest and latent conflicts	Fights (unwillingness to compromise)	Conflicts in use
Constructive and destructive conflicts	Games (with pre-established rules for conflict solution)	Conflicts in values
True and virtual conflicts	Debates (based on contradicting values, interests or world views)	Conflicts in priorities or needs

Although environmental conflicts can be classified differently based on one or more of the typologies mentioned above, there are common approaches in analysing a conflict that can be used: the actor-oriented approach; the stake-oriented approach; the resource-oriented

approach, or a combination of the three. All these approaches allow a conflict to be analysed and classified in one or more typologies. Often, the selection of the approach should be based on the objective of the analysis and characteristics of the conflict. The stake-and-resource approach was recommended for understanding the broader picture of the conflict and direct and indirect stakeholders, while the actor-oriented approach seemed more suitable for understanding the parties directly involved in the conflict. Moreover, a time dimension can be added to all these typologies, which will make it possible to analyse conflicts between generations, which is needed in considering sustainable use of coastal resources. Based on the foregoing, a combination of Cadoret (2009), Chandrasekharan (1996), Rupesinghe (1995) and Warner (2000) was proposed for typological classification of environmental conflicts to all SECOA partners in the following scheme.

Table 1.17. Scheme for typological classifications of environmental conflicts in the case studies.

By MANIFESTATION	By CAUSE / REASON	By STAGE	By SCALE
<u>Cadoret</u> (2009) For labelling the conflict's <i>manifestation over time</i> as:	<u>Chandrasekharan</u> (1996) For an idea of what the <i>underlying cause</i> is:	<u>Rupesinghe</u> (1995) For the <i>stage of the conflict</i> - information on how far the conflict is evolved	<u>Warner</u> (2000) For the scales involved in natural resource conflicts
- Chronic - Anticipation - Hushed or deferred - Hybrid	- Infringements over access Change in resource quality and availability Authority over resource, Conflicts that are Value based Conflicts associated with information processing & availability Legal / policy reasons.	- Conflict formation, - Conflict manifestation, - Conflict endurance, - Conflict management, - Conflict transformation.	- Intra micro-micro conflicts - Inter micro-micro conflicts - Micro-macro conflicts Or more conventional scales can be used, e.g. inter / intra local, regional, national, global.

4.1 By dynamics / manifestation over time

This category of typological classification is based on Cadoret (2009, see figure-2), who will label the conflict's *manifestation over time* as *Chronic*, *Anticipation*, *Hushed* or *Deferred* and *Hybrid*. The following (Table 1.18) gives an overview of all the SECOA conflict cases labelled for their dynamics / manifestation over time.

Table 1.18. *Typological classification of environmental conflict cases by dynamics / manifestation over time.*

Cases \ Types	Chronic	Anticipation	Hybrid	Hushed or Deferred
1. Civitavecchia, IT	1			
2. The "Costa Teatina" National Park, IT	1			
3. Ostia water-use & management, IT	1			
4. Ostend airport, BE	1			
5. Schipdonk canal, BE	1			
6. Zeebrugge harbour, BE	1			
7. Trafaria and Costa da Caparica, PT	1	1		
8. Ria Formosa, PT		1	1	
9. Funchal bay, PT		1		
10. Barking Riverside, UK	1	1		
11. Lower Thames Crossing, UK		1		
12. Langstone Harbour / Farlington Marshes, UK	1			
13. Tipner Regeneration, UK	1	1		
14. Palmachim beach, IL				1
15. Net. Cliffs, IL		1		
16. Haifa, IL		1	1	1
17. Malmö urban sprawl, SE	1		1	
18. Falsterbo-Peninsula, SE	1		1	1
19. Torsviken, SE			1	
20. Kungsbacka, SE		1	1	
21. SGNP [Sanjay Gandhi Nat. Park], IN	1			
22. Pallikaranai Marshland, IN	1			
23. Mangrove forest, IN	1			
24. Haiphong port, VN	1	1		
25. Industrial zone, VN	1	1		
26. Cat Ba and Nha Trang, VN	1			
	18	11	6	3

4.2 By underlying cause / substance

This typological classification is based on Chandrasekharan (1996), which provides an idea of what the *underlying cause* is: conflicts over access; conflicts due to change in resource quality and availability; conflicts regarding authority over resource; conflicts that are value based; conflicts associated with information processing and availability; and conflicts occurring for legal/policy reasons. The difficulty in such a kind of classification is that the main environmental conflict can be attributed to a certain type for its under-lying cause, however the accompanying sub-conflicts in each conflict can be related to a different cause/reason, and

hence the complexity of the environmental conflict case. An attempt is made to give an overview of typologies of SECOA conflict cases by substance in the following table.

Table 1.19. Typological classification of environmental conflict cases by underlying cause / substance.

Cases	Types	Change in resource quality and availability	Legal / policy reasons	Infringements over access	Authority over resource	Conflicts that are Value based
1. Civitavecchia, IT		1				
2. The Cos. Teatina National Park, IT					1	
3. Ostia water-use & management, IT		1				
4. Ostend airport, BE		1			1	
5. Schipdonk canal, BE		1				
6. Zeebrugge harbour, BE		1			1	
7. Trafaria & Costa da Caparica, PT			1		1	
8. Ria Formosa, PT		1			1	
9. Funchal bay, PT		1		1		
10. Barking Riverside, UK		1	1	1		1
11. Lower Thames Crossing, UK			1	1		
12. Lang. Harbour / Far. Marshes, UK		1		1		1
13. Tipner Regeneration, UK		1	1			
14. Palm. Beach, IL		1	1	1		
15. Net. Cliffs, IL			1			
16. Haifa port, IL					1	1
17. Malmö urban sprawl, SE		1	1	1		
18. Falsterbo-Peninsula, SE		1	1	1		1
19. Torsviken, SE		1	1	1	1	
20. Kungsbacka, SE		1	1			1
21. SGN. Park, IN		1				
22. Pallikaranai Marshland, IN		1				
23. Mangrove forest, IN		1				
24. Haiphong port, VN		1				
25. Industrial zone, VN		1	1			
26. Cat Ba and Nha Trang, VN		1				
		21	11	8	7	5

4.3 By Scale

In the methodological guidelines to all SECOA partners, several typological classifications by scale were outlined. Chief among them were Bruckmeier (2002) and Warner (2000). According to Bruckmeier, there are following general conflicts by types and levels:

- Intra-personal conflicts (psychic conflicts).
- Inter-personal conflicts (personal relations, small groups).
- Social conflicts: intra-societal conflicts (national- and sub-national levels) between groups (political, religious, economic, social, ethnic, race, gender conflicts); conflicts related to information, communication, knowledge (access or exclusion, distribution); technology related conflicts (e.g. use of nuclear energy); environmental conflicts (conflicts in environmental policy; “livelihood conflicts”); violent conflicts (civil war, criminality, terrorism).
- International and global conflicts: power-based conflicts (for example trade wars); war; competition between socio-political systems and worldviews (East-West conflict / cold war); global conflicts about resources and distribution of resources.

However, the classification used by most of our partners is the one provided by Warner (2000). He proposes a typology that is more relevant for environmental and natural resource conflicts and distinguishes between:

- Intra micro–micro conflicts (boundary disputes, elite capture of benefits, community differences)
- Inter micro–micro conflicts (lack of co-operation between communities, conflicts over wealth disparity and conflicts between long-term settlers and new arrivals) and
- Micro–macro conflicts (cultural disputes, relations between project sponsors and communities, environmental problems and contradictory resource needs).

In addition to Warner’s classification for the scales involved in natural resource conflicts, more conventional categories of scales are also used to typify the environmental conflict cases, such as local, regional, national and global, and the respective inter / intra and trans variations. The following table gives an overview of the typological classification of SECOA conflict cases by scale.

Table 1.20. *Typological classification of environmental conflict cases by scale.*

Cases \ Types	Micro-macro conflicts	Inter-micro-micro conflicts	Intra-micro-micro conflicts	Conventional scaling [inter / intra] local, regional, national, global
1. Civitavecchia, IT	1			Local vs. National / global
2. The "Costa Teatina" National Park, IT	1			Local vs. National
3. Ostia water-use & management, IT	1			Local vs. Rome Metro. area
4. Ostend airport, BE	1			Local-Regional-Global
5. Schipdonk canal, BE	1			Local vs. Regional / global
6. Zeebrugge harbour, BE	1			Local-Regional-Global
7. Trafaria and Costa da Caparica, PT		1		
8. Ria Formosa, PT	1			
9. Funchal bay, PT	1			
10. Barking Riverside, UK		1		Locals vs. Migrants
11. Lower Thames Crossing, UK	1			
12. Langstone Harbour / Farlington Marshes, UK			1	
13. Tipner Regeneration, UK				Hybrid
14. Palmachim beach, IL	1			
15. Netanya Cliffs, IL	1	1		
16. Haifa port, IL	1		1	
17. Malmö urban sprawl, SE				Hybrid
18. Falsterbo-Peninsula, SE				Hybrid
19. Torsviken, SE				Local-Regional
20. Kungsbacka, SE				Local-Territorial
21. SGNP [Sanjay Gandhi Nat. Park], IN	1			
22. Pallikaranai Marshland, IN	1			
23. Mangrove forest, IN	1			
24. Haiphong port, VN	1			
25. Industrial zone, VN	1			
26. Cat Ba and Nha Trang, VN	1			
	18	3	2	

4.4 By Stage

Typological classification of environmental conflicts by stage allows discerning the evolution of the conflict and its present situation. For this purpose, we proposed the classification of Rupesinghe (1995), who distinguishes the five different stages of conflict, or 'cycle of conflict' as:

- Conflict formation - at this stage the conflict is still a dispute. If addressed at this stage the conflict may not escalate and manifest itself.
- Conflict manifestation - at this stage the dispute evolves into a conflict that is manifested. Intervention at this stage is usually oriented towards preventing the conflict from escalating even further and possibly mitigating any destructive aspects of the conflict.
- Conflict endurance - at this stage the conflict is on-going, as is the development of the process, to address the conflict. Depending on the conflict, this stage may allow for community empowerment and/or mediation.
- Conflict management - at this stage the process for better addressing the conflict is started. This can include negotiation/problem solving, training, and workshops.
- Conflict transformation - this can be considered the implementation stage of the conflict resolution. This stage includes new institutional development. In the case of natural resource conflicts, it is possible at this stage to implement projects or a programme that assist in better addressing the natural resource conflict.

The *stage of the conflict*, presented by Rupesinghe provides information on how far the conflict is evolved. Each conflict stage offers data. An evolving conflict can be subject to a new mediation process. Whereas, a conflict at its end shows how it was resolved. However, the different sub-conflicts of a conflict may still be at different stages that make the precise determination of the stage of a conflict quite a complex task. The following table gives an overview of the environmental conflict cases by stages.

Table 1.21. *Typological classification of environmental conflict cases by stage*¹⁹.

Cases \ Types	Endurance	Management	Formation	Transformation	Manifestation
1. Civitavecchia, IT		1			
2. The Cos. Teatina National Park, IT	1				
3. Ostia water-use & management, IT	1				
4. Ostend airport, BE	1				
5. Schipdonk canal, BE			1		
6. Zeebrugge harbour, BE				1	
7. Trafaria & Costa da Caparica, PT	1				
8. Ria Formosa, PT		1			
9. Funchal bay, PT			1		
10. Barking Riverside, UK		1			
11. Lower Thames Crossing, UK	1				1
12. Lang. Harbour / Far. Marshes, UK	1				1
13. Tipner Regeneration, UK		1			
14. Palm. Beach, IL	1	1			
15. Net. Cliffs, IL	1			1	
16. Haifa port, IL	1	1			1
17. Malmö urban sprawl, SE		1	1		1
18. Falsterbo-Peninsula, SE	1	1		1	
19. Torsviken, SE	1				
20. Kungsbacka, SE			1		
21. SGN. Park, IN				1	
22. Pallikaranai Marshland, IN		1			
23. Mangrove forest, IN				1	
24. Haiphong port, VN			1		
25. Industrial zone, VN			1		
26. Cat Ba and Nha Trang, VN	1				
	12	9	6	5	4

¹⁹ The order of stages listed in this table deviates Rupesinghe [formation, manifestation, endurance, management, and transformation]. The logic followed is to have the highest ‘intensity of stage across cases’ first and the lowest as the last [all other tables of classification also follows similar logic]. The idea is to show the importance / presence of the stage common to most cases in a descending order.

5. Conclusions:

Comparative ranking of the environmental conflict case studies

The idea behind ranking the conflicts is their overall assessment and to make them comparable in the sense of “which conflict requires the most attention,” according to the predicted scale and urgency of the impact of the different conflicts? Which conflicts require immediate action to solve the conflict? This might appear to be a valuable result for policy makers to detect priorities for their actions. However, it is very important to see ranking as ‘relative assessment’ and part of the other elements of the analysing structure of the conflict case [e.g. type, theme, parties involved / coalitions]. Therefore, we reiterate that the conflict assessment framework (CAF) proposed here is not only about ranking the conflicts. Rather the CAF is about the application of a multi-criteria analysis approach, as outlined in the previous sections, to unfold a nuanced understanding of the causes, dynamics / evolution and effects of the environmental conflict in a multidimensional way.

Having acknowledged in conceptualising methodological issues in the previous sections that comparative analysis is a familiar treatment of global phenomena and that, in contrast to the rich or “thick” case study, the comparative is therefore at risk of a “thin” and one-dimensional description of what are obviously complexities with plural not universal causations (Pickvance, 2001). An attempt has been made to partially address this problem by first asking SECOA partners for ranking [of conflicts] within their case studies. In other words, what we present here as ‘comparative ranking’ is derived from the case study approach and than compared i.e. a case-study based comparative ranking. This was proposed in the methodological guidelines which implied a Delphi ranking or an AHP ranking of all conflicts to be based on three criteria:

- Criticality of the conflict: To which extent the conflict is critical to long-term development of the region / area? To which extent the conflict is an important event to local people?
- Urgency: To which extent the conflict needs to be resolved immediately? Is there a deadline involved?
- Duration: Whether the conflict is a short-term (acute) or a long-term (chronic) event?

Each criterion was supposed to be subdivided into indicators to allow assessment and rating following the Delphi methodological explanation for the process. The rating was suggested to be done on 5-point Likert-type.

Some of the partners complied with this way of ranking. Others followed a more descriptive approach. Some also pointed to the inadequacy of the suggested methods of Delphi or AHP ranking in terms of results for the comparative analysis and assessment of the conflicts studied. They argue that the conflicts were identified out of a large list following several criteria (thematic, etc.) and that this selectivity of conflict topics implies already defined priorities in selecting conflicts that cannot be “objectified” by a more systematic ranking of the conflicts. A ranking could not go beyond the simple statement that the conflicts chosen for analysis are important ones locally seen; but they cannot be compared and ranked with the many other local conflicts in the area that have not been analysed in-depth. Also in a more systematic study of all conflicts identified there would be difficulties of ranking because conflicts are in different phases of their unfolding and mitigation, with certain conflicts being rather recent ones for which it would not be possible to predict their relevance and intensity.

Some of the SECOA partners made a meticulous attempt to rank their environmental conflicts. An example is the ranking of the Belgian case studies (chapter 3) derived from ‘absolute’ and ‘relative’ ranking of the conflicts. In this approach, “Absolute” is the rank per conflict: If the conflict is critical, it is ranked with “xxx” or 3 (highest), if it is critical to a limited extent: xx or 2, not critical: “x” or 1. Whereas, the relative “Ranking” ranks the conflicts in comparison with each other: the most critical conflict: “xxx” or 3, the second critical conflict: “xx” or 2, the least critical conflict: “x” or 1. The same process is repeated for the other 2 criteria ‘urgency’ and ‘duration’. The final ranking is shown in the column “Total”, which contains the counted sum of all marks (“x”) for each conflict.

In the following table (1.22), an attempt is made to present the ranking of all the SECOA conflict cases in a comparative way. A common scale of 1-5 is devised for rating each environmental conflict per category of rank. The criteria for each category of rank follows the aforementioned description i.e. Criticality – long-term effects and degree of involvement of people in the conflict; Urgency – degree of demand for resolution and involvement of a deadline; and Duration – time period in past [history] and future of the conflict. On the basis of the rating per category, an indicative ranking of the conflict is derived.

Table 1.22. An overview of the comparative ranking of the environmental conflict cases.

Cases	Ranks	Criticality	Duration	Urgency	
21. SGN. Park, IN		Critical 5*	Chronic [> 2decades] 4*	Urgent 4*	1[13]
23. Mangrove forest, IN		Critical 5	Chronic [> 2decades] 4	Urgent 4	1[13]
26. Cat Ba and Nha Trang, VN		Critical 5	Chronic 4	Urgent 4	1[13]
1. Civitavecchia, IT		Critical [air pollution, port + power plants, long-term development of the area] 5	Chronic [since 1950s] 5	Moderate urgency 2	1[12]
3. Ostia water-use & management, IT		Critical [water pollution, entire population is involved] 5	Chronic [since 1900s] 5	Moderate urgency 2	1[12]
6. Zeebrugge harbour, BE		Critical [long term development of the area] 5	Chronic [since 1980s] 4	Urgent 3	1[12]
15. Net. Cliffs, IL		Critical 5	Chronic 3	Urgent 4	1[12]
22. Pallikaranai Marshland, IN		Critical 5	Chronic [> 1decades] 3	Urgent 4	1[12]
7. Trafaria & Costa da Caparica, PT		Critical 4	Chronic 4	Moderate urgency 3	1[11]
13. Tipner Regeneration, UK		Critical [long term development] 5	Acute 2	Urgent 4	1[11]
16. Haifa port, IL		Critical 4	Chronic 4	Moderate urgency 3	1[11]
2. The Cos. Teatina National Park, IT		Critical [log-term development of the region] 4	Chronic [since 1990s] 3	Urgent [09.2011, will unfold new conflicts] 3	1[10]
5. Schipdonk canal, BE		Critical 3	Chronic [since 1960s] 5	Moderate urgency 2	1[10]
8. Ria Formosa, PT		Critical 4	Chronic 4	Moderate urgency 2	1[10]
9. Funchal bay, PT		Critical 5	Acute 2	Urgent 3	1[10]
12. Lang. Harbour / Far. Marshes, UK		Critical [long term development] 5	Chronic 3	Moderate urgency 2	1[10]

10. Barking Riverside, UK	Critical [social issues & local involvement] 4	Chronic [since 1990s] 3	Moderate urgency 2	2[9]
11. Lower Thames Crossing, UK	Critical [long term development] 5	Chronic 3	Low urgency 1	2[9]
18. Falsterbo-Peninsula, SE	Critical 4	Chronic 4	Low urgency 1	2[9]
17. Malmö urban sprawl, SE	Critical 4	Chronic 3	Low urgency 1	2[8]
19. Torsviken, SE	Critical 4	Chronic 3	Low urgency 1	2[8]
24. Haiphong port, VN	Critical 4	Chronic 3	Low urgency 1	2[8]
25. Industrial zone, VN	Critical 4	Chronic 3	Low urgency 1	2[8]
4. Ostend airport, BE	Critical 2	Chronic [Since 1980s] 4	Low urgency 1	2[7]
20. Kungälv, SE	Critical 4	Acute 2	Low urgency 1	2[7]
14. Palm. Beach, IL	Critical 3	Acute 2	Low urgency 1	3[6]
	4.3 [112/26]	3.4 [89/26]	2.3 [60/26]	
<p>Legend:</p> <p>* Ranking per category is deduced from the ones done by the partners in the report and represented here on a scale from 1 – 5 [1 being the lowest and 5 representing high criticality, urgency or duration]. The partners have ranked their cases on a scale depending on the number of cases they have, e.g. if the number is 3, they have ranked the cases from 1-3. Some partners have done ranking on the 5-likert type. Many others have ranked their cases only in description, so the score given above for those cases is a close representation based on the description provided.</p> <p>** Ranking per case is done by allocating 1st [meaning highest ranking] for the score 10 and above. The 2nd rank is for the cases with score from 7 to 9 and the 3rd for 6 and below.</p>				

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ABSTRACT: This chapter presents a meta-analysis and assessment of the specifically identified twenty-six environmental conflict cases of the SECOA project in a comparative framework. The underlying intention is to provide a synoptic overview of the methodological developments as a way of working towards the formulation of an environmental conflict assessment framework (CAF). This involves several methodological challenges and limitations in environmental conflict analyses and assessment that are identified and reflected upon in three stages of the first section (1.1). This first section leads to the proposition of a diagnostic and analytical structure for the CAF, which is built upon the insights generated through meta-analyses of the conflict cases. Thus, the proposed CAF represents a synoptic overview – a design synthesis of the methodological developments in our comparative analysis of all the environmental conflict cases. The meta-analyses used to build-up the structure of the CAF comprises of a comparative reading of all the cases along methodological categories of analysis such as thematic (section 1.2), legitimation / construction (stake-holders and coalition formation, section 1.3), typological classification (section 1.4) and concludes with comparative ranking of the conflicts (section 1.5).

KEYWORDS: Comparative analysis, environmental conflicts, methodology.

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CHAPTER 2.

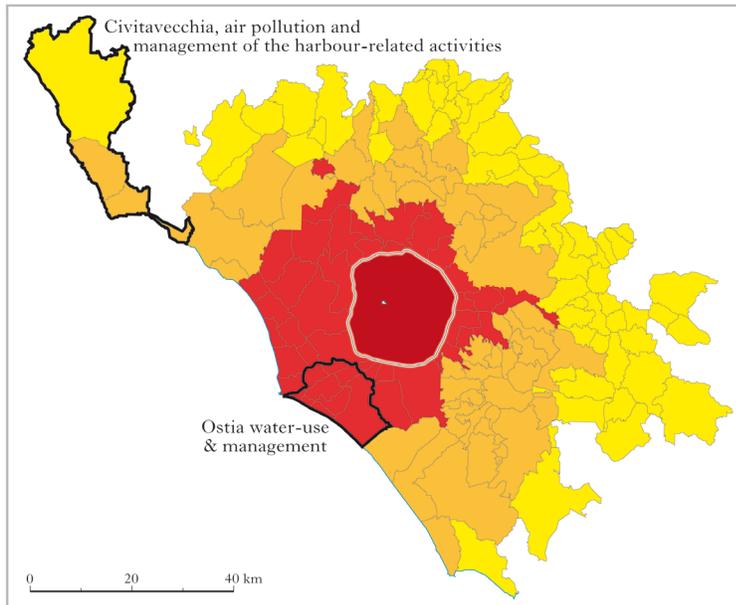
**Global Changes, Coastal Areas and Conflicts:
Experiences from Italy**

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1. Introduction

In this chapter three case studies in Italy are analysed – Civitavecchia, Ostia, and Costa Teatina National Park – presenting three different conflicts. Civitavecchia and Ostia are included in the Rome Metropolitan Area (Figure 2.1), while the Costa Teatina National Park is in the Chieti-Pescara urban area (Figure 2.2).

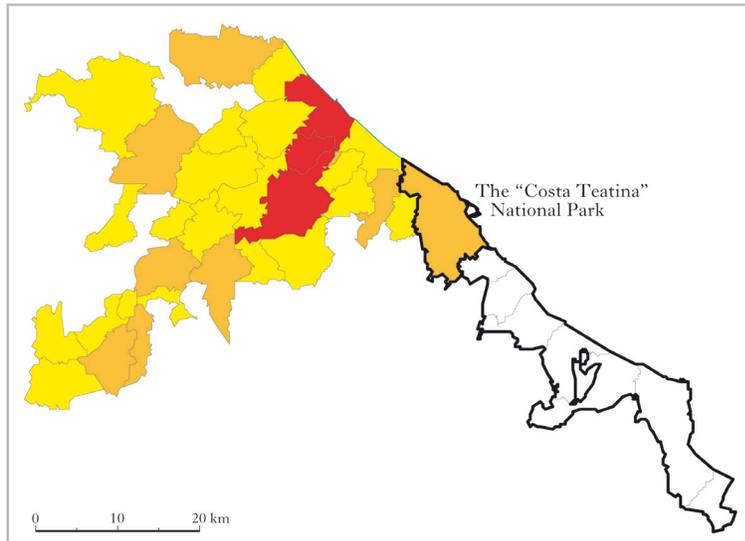
Figure 2.1. *The Rome Metropolitan Area (Authors' own elaboration).*



Rome Metropolitan Area – identification of the conflicts' spaces

In Civitavecchia the major conflict is environmental: about air quality and pollution. Related to this is a secondary conflict that entails competition for local development in the context of air pollution. The primary focus of conflict is the presence of two power stations (a third was dismantled in 1995) close to the city centre. During the last ten years new activities have been promoted with the opening of the sea highways connecting central Italy with the west Mediterranean. Starting from 2000, Civitavecchia has become the premier cruise port of the Mediterranean. The power plants are at the root of the conflict because of a long history of events and of promises over them that have not been kept. These conflicts started during the 1950s when the first plant was built.

Figure 2.2. *The Chieti-Pescara Urban Area (Authors' own elaboration).*



Chieti-Pescara Urban Area – identification of the conflict's space

The second conflict is about the use and management of water and the processing of waste water and drainage systems in Ostia. That, in fact, was built on a marsh and floods due to rises in the River Tiber and, in particular, the sea levels, tides and winds. The relationship between the supply of water and the number of water users, which even in normal conditions is problematic, has been dramatically exacerbated by the presence of non-registered residents, visitors and illegal workers. While their actual number is unknown it is estimated to be equivalent to the number of official residents. There is also the problem of the erosion of the coastal area. While this should be of concern to the thousands of beach users, they can always ignore it by moving to another place that does not suffer from erosion. The erosion, thus, is mainly perceived to be a problem by the local entrepreneurs' associations.

The third conflict analysed here is linked both to legal matters and the spatial definition of the boundaries of the Costa Teatina National Park. This is a coastal park, not a marine park, that includes the territories (excluding the sea) of one municipality, Ortona, that are part of the Chieti-Pescara urban area. The conflict started from 1997–2001, when local level discussions on the creation of a park were taking place. At that time the conflict was mainly political. The current conflict concerns the definition of the spatial boundaries of the park even if bias against the existence of the Park still exists. Should a restrictive or a wide definition prevail?

The first and the third conflicts are much more clear-cut than the second one, since the latter involves a more complex system of issues. All three concern the contrast between economic development and environmental protection. The first and the second also include competition for the use of resources at a time characterized by extensive human mobility. The third case study specifically concerns conflicts occurring over the protection of the natural environment and biodiversity.

2. Methodology

The research presented here has been designed in three steps: (i) defining and identifying, (ii) analysing and (iii) classifying the conflicts.

- i. (The conflicts have been identified through an analysis of the results of previous researches carried out by the authors (Montanari and Staniscia, 2012a; Montanari and Staniscia, 2012b); a subjective evaluation of those results was conducted through a groupware of the researchers and of end users involved in the SECOA project, as well as through an in-depth analysis of articles in the local press.
- ii. They were analysed through in-depth interviews with key players, direct participation in seminars, conferences (Montanari, 2011a; Staniscia, 2011), even protests organized by the stakeholders, through articles published in the local press (Montanari, 2011b; 2011c) and through an in-depth analysis of articles of other authors in the local press¹.
- iii. They were classified through in-depth interviews with stakeholders and with the SECOA end users, accompanied by a Delphi for ranking.

¹ CivitavecchiaToday (<http://civitavecchia.romatoday.it/convegno-progetto-secoa.html>); Lega autonomie Lazio (<http://www.legaautonomielazio.it/leggi.php?id=4115&/>); Centumcellae News (<http://www.centumcellae.it/politica/all%E2%80%99authority-un-convegno-sul-progetto-europeo-secoa/>).

3. Detailed analysis of the conflicts

3.1 Civitavecchia case study

3.1.1 Nature of the conflict

The main conflict taking place in the city of Civitavecchia, part of the Rome Metropolitan Area, focuses on an environmental issue: air quality and pollution. Related to this is a secondary conflict which entails competition for local development in the context of air pollution. The local commercial sector and shop managers wonder whether the local community can accept the air pollution resulting from activities which don't produce economic advantages to them.

In detail, the primary source of conflict is the presence of two power stations (a third was dismantled in 1995) close to the city centre. One is a 1980 MW coal thermal power plant with a 250-m height multi-stack chimney located at Torrevaldaliga Nord, 6 km north of the centre of Civitavecchia and owned by Ente Nazionale per l'Energia Elettrica (ENEL, the National Electricity Board). ENEL has been partially privatised since 1992 but the Italian government has maintained control over it through the Ministry of Economy (13.9%) and the state-run bank Cassa Depositi e Prestiti (17.4%). The other is a 1520 MW combined cycled turbogas power plant located at Torrevaldaliga South, 3 km north of the Civitavecchia centre and owned by a private company, Tirreno Power SpA. Following the restructuring of the electric sector the company was founded in 1999 and operates as a subsidiary of ENEL SpA. A fourth power station in the municipality of Montalto di Castro, 35 km north of Civitavecchia, was built as a nuclear plant. Before it had been completed it was dismantled following the results of a referendum on nuclear energy which was held in 1987 after the Chernobyl disaster. During 1992 to 1998 the Montalto Plant was converted into a 3600 MW thermal power station. Following their election victory in 2008, the new Italian government announced that by 2013 the construction of the first new Italian nuclear-powered plant would start. The citizens of Civitavecchia are afraid that Montalto could be the site of this plant. The disaster in Japan in March 2011 and a new referendum on nuclear energy in June 2011 have reopened the discussion. In any case, non-governmental organizations have testified that the yearly production of energy in Italy equals 1.38 KW per person, but in the north of Latium, where Civitavecchia is located, energy production is equal to 70 KW per person, which is perceived to be a 50 times greater health risk than the national level.

Civitavecchia, located 80 km north-west of Rome, is a town of 52,000 inhabitants and a population density of 725 inhabitants per square km. Since the end of World War Two its economy has been mainly based on port activities (especially the numerous ferries connecting central Italy to Sardinia) and the power stations, constituting a major source of income due to their continuous restructuring. Today with about 2 million cruise passengers landing there every year, Civitavecchia is the most important Mediterranean cruise port as well as one of the more important ferry ports for the connections from central Italy to Sardinia, Sicily, Malta, Tunis and Barcelona.

The area where the two power plants are located is named after the Valdaliga Tower, which was built during the 17th century as part of the area's infrastructural defence against pirates. The walled tower was built, in turn, on the ruins of a Roman villa. Conflicts over air pollution started at the end of World War Two when it was decided to build the first power plant in Civitavecchia. The location was chosen because of the presence of the harbour – necessary for liquid or solid fuel handling –, of the proximity to the sea – for access to large quantities of water –, and its central location with respect to the country – for the energy distribution network –. Civitavecchia was heavily bombed during World War Two and the building of the power plants was considered necessary for its economic recovery. The decision to do this was taken by the government at the time with the support of prevailing socioeconomic forces and most of the citizens of Civitavecchia. In 1949 the Società Termoelettrica Tirrena established for this purpose started to produce plans for building a coal thermal power station. The area selected, Fiumaretta, was identified as it was in the port and within the urban centre of Civitavecchia in a location close to the sea where there were the collapsed remains of an alum production plant that had been destroyed during the war. The power plant plan was accomplished thanks to financial help from the USA as part of a general programme to help the Italian economy to recover from the war. All machinery was provided by USA on favourable terms: the alternator and turbine by General Electric, the boiler by Combustion, and other parts by Westinghouse. The first coal power plant unit was commissioned in 1953 producing 320 KV. Due to the costs of handling coal it was substituted by naphtha in 1957. In 1958 a second unit producing 140 MW was commissioned. In 1963 ENEL became the owner of the power plants. At the end of 1960s a third unit of 240 MW was built. In the middle of 1970s the unit built in 1953 was dismantled because of its low productivity and transformed in an education and information centre. On the night of 8 September 1990 the boiler of the third unit exploded and its wreckage was dispersed over a large area but without

causing fatalities. ENEL tried to reopen the plant but due to protests of the citizens and pressures by the local authorities the Fiumaretta plant was closed, completely dismantled in 1995 and transformed into offices for ENEL.

The Torrevaldaliga North was planned during the 1980s and operated for 20 years on oil. The present plant is coal-operated and was commissioned in 2009. The local residents were strongly opposed to the reconversion to coal but ENEL opposed their wishes because they needed to upgrade energy production in line with the new European regulations in order to attain higher energy efficiency and reduce the impact of energy production on the environment. The Torrevaldaliga Sud used oil from 1964 to 1973 and was restructured to use natural gas in 2005.

Less dramatic, in terms of the residents' perceptions, but in line with the power industry in terms of its contribution to air pollution is the increasing volume of private car, cruise and ferry traffic in the area. Furthermore, NGOs also say that although the power plants are less polluting than before in terms of energy produced, they are the cause of other sources of pollution. About 150 km of electric cables crossing the Commune, the port activities and many other polluting activities are more or less correlated with the operations of these plants (Figure 2.3).

Figure 2.3. Civitavecchia from the sea. Cruise ships, the chimney of the power plant, and the fortress designed by Michelangelo Buonarroti (XVI Century) (Authors' own picture).



During the last ten years new enterprises have been promoted with the opening of the sea highways connecting central Italy with the west Mediterranean. Starting as a cruise port in 2000, by 2010 Civitavecchia was the largest cruise port of the Mediterranean, receiving about 2,000,000 cruise passengers per year. These cruises were promoted during the year 2000 to contribute to an increase in hotel beds for pilgrims coming to Rome. This initiative was very successful and now many of the cruisers crossing the Mediterranean stop in Civitavecchia to allow passengers a visit of a few hours to Rome.

Less evident to Civitavecchia residents at the moment are all the other possible sources of air pollution. The power plants constitute the root of the conflicts, because a long history of events and of promises not kept lies behind them (Forastiere, Corbo and Michelozzi, 1992). The conflict started during the 1950s when the first plant was built. At the beginning the intellectuals took the lead in protests since the rest of the community perceived the plant to be an instrument of economic development following the wartime destruction. In any case the confrontation took place on two different operational levels. The power plant was built in Civitavecchia because of national priorities. Italy needed energy for its economic development and the Civitavecchia location was considered strategic at the national level. Furthermore, although the location of the first power plant was not convenient to the local community, it was considered to be a good opportunity to use already existing infrastructure and a derelict industrial area. All the subsequent decisions concerning new plants or the restructuring of the existing ones were taken on the basis of their new economic efficiency, or because of new rules decided at national, European or world level. The imbalance between local and supra-local needs exists not only at the level of decision-making but also in the timing of these decisions. Technological innovation needs time and develops at an international level. Decisions concerning when to implement innovation using medium-term and short-term policies are taken at the national level. The Civitavecchia community, with its limited local economic interests, is not able to conceptualize short-term and medium-term policies, let alone long-term ones. Furthermore, local administrators have very limited capabilities to make plans lasting longer than their 5-year term of office.

There is in any case a difference between effective air pollution as measured in a control unit and the air pollution which is perceived by the local community, because it is also difficult to distinguish between the air pollution produced by power plants, cars or ships. When, for technical or climatic reasons, the smoke of the power plant becomes more dense or changes to

an unusual colour, people immediately perceive that this is a threat to their health, whether it really is or not, and regardless of whether the pollution is caused by other sources.

Ships arrive in the morning and leave Civitavecchia in the late afternoon; in order to keep up the energy production for the numerous necessary services for between 3,000 and 5,000 passengers and their crew, their engines are in operation throughout the whole time they are docked. The cruise passengers are bussed on to Rome; there are so many of them that for each shipload between 20 and 30 buses are needed; all of which contribute to the air pollution.

Since the 1990s – and especially during the last decade – Civitavecchia, and in general the whole coastal area of the Rome Metropolitan Area, have suffered the effects of residential deconcentration; that was due to a nearly 100% increase in housing costs in Rome related to the introduction of the Euro. As one of the major urban settlements of the northern coastal areas, Civitavecchia has started to attract new commercial and service enterprises for the communes served by the Rome-Livorno railway and the Rome-Civitavecchia highway. These new enterprises favoured new intra-metropolitan flows using private cars and contributing to air pollution. Mobility and car traffic is sure to increase when the port restructuring will be completed, together with the new Civitavecchia-Orte railway, and the Civitavecchia-Livorno and Civitavecchia-Orte highways.

The cruises contribute to destabilizing the relationships of groups in the local community. Cruise operators are large multinational companies quoted on the New York Stock Exchange and make economic calculations which are unlikely to be familiar to Civitavecchia. Cruise operators make plans within a financial market which takes no account of the Civitavecchia dimension (Soriani, Bertazzon, Di Cesare and Rech, 2009). Cruise passengers constitute an international group whose age, habits, behaviour and culture are known only to the operators. The shipbuilding industry has to anticipate the tastes and habits of the future users who form part of a market that is continuously evolving and will last for longer than a decade. Cruise operators have to prepare economic feasibility plans, find financing and then go ahead to build ships that will eventually seek entry into the Civitavecchia port ten years later. At that point the conflicts will no longer be over the issue of air pollution or on the use of resources, but if the current situation continues it will divide the local residents into winners (those who benefit from the industry) and losers (those whose wellbeing is compromised by the pollution). There are not many viable alternatives since if the residents of Civitavecchia confront the cruise operators there are many other ports in the Mediterranean that will welcome them with open arms, and the whole of Civitavecchia will stand to lose as a result. What

characterises this case study is the enormous difference in the time scale operating at the local level and that operating at the global level. In fact, at the local level the time scale is very short, competences are limited and the winning post is set for the time when the next elections will be held.

Local entrepreneurs complain furthermore that although Civitavecchia also has a significant natural and cultural heritage, the city does not itself attract tourists, but is used only as an area through which visitors transit. These visitors contribute to the air pollution and consume services and infrastructure, which are probably paid for by local taxpayers and do not constitute a market opportunity for the local economy to benefit from.

3.1.2 Parties involved in the conflict

With the assistance of the local administration (Commune of Civitavecchia) the following stakeholders have been identified: 1. Comune di Civitavecchia, Assessorato all'Ambiente, (Civitavecchia Municipality); 2. Interest groups: Ente porto (port authority), Associazione Commercianti (association of shopkeepers), Osservatorio ambientale, gestione centraline qualità dell'aria (air pollution monitor office), Compagnie di crociere, Costa Crociere (cruise operators), ENEL (centrale a carbone) (coal power plant), Tirreno Power - Edison (centrale a gas) (gas power plant), Tirrenia (ferry company), Ferrovie dello stato moby lines (ferry company owned by the railways); 3. Pressure groups: NGO, Forum ambientalista (environmental), NGO, Diario di bordo (consumers), NGO, Italia nostra (environmental).

Those stakeholders have diversified interests: the interest groups are motivated by a desire for economic efficiency; the pressure groups are motivated by a desire for human health. In order to pursue their interests they use different strategies: the interest groups try to find compromises, the pressure groups try to influence public opinion and arouse interest in their case; the interest groups use their knowledge of the problems to pretend to solve them, the pressure groups try to transfer the issues on the political arena. Their capacities are also very different: the interest groups in Civitavecchia have unlimited resources, the pressure groups have very limited resources. There is no interaction among the different groups.

Table 2.1. Summary of the parties involved in the Civitavecchia case study.

Parties	Interests	Goals	Positions	Capacities	Relationships
Comune di Civitavecchia, Assessore all'Ambiente, (Civitavecchia Municipality)	to integrate environmental policies into any other initiative of the Commune's administration	to reduce the distance among the stakeholders point of view and solve conflicts in view of the next electoral competition	to place themselves in a central settling position with reference to their political programme and coalition	to intervene, also closing the polluting sources, in situations of over pollution when citizens' health is at risk	the Commune has a central position in intervening in a effective way
Autorità Portuale di Civitavecchia, Fiumicino e Gaeta, (Port Authority of the Latium Region)	to coordinate the maritime sector in the Latium Region	to integrate the port activities with the ones taking place inland	to protect the interests of those operating in the port areas	to contribute with ordinances to the reduction of air pollution	their position is in line with the institutional authorities
Osservatorio ambientale, gestione centraline qualità dell'aria (Air pollution monitor office)	to manage air pollution junction boxes in the Commune of Civitavecchia and neighbouring municipalities	to indicate air pollution levels	to allow legal instruments to be implemented on time	to elaborate data indicating when air pollution limits are exceeded	they base their authority on correct data distribution
ENEL (public owned Coal Power Plant) & TIRRENO POWER (private owned Gas Power Plant)	to produce electricity as a publically owned energy plant	to produce efficiently, reducing air pollution. The recent new use of coal by ENEL has made local community more sensitive to the issue of air pollution	to demonstrate that all instruments reducing air pollution are implemented	they offer job to a large quantity of local workers and small enterprises. They play a key role in the local economy	being an important job offer they play a social role as well
Tirrenia & Moby Lines Ferry Company	to propose good quality of services in connecting Central Italy and Sardinia	to be competitive over services and prices at regional level	to be sensible to demand of pollution reduction by residents	they can reduce air pollution emission if it is the major consumer target	they constitute an important pillar of the local economy
Costa Crociere (Cruise Company)	to propose good quality services in the global competition over Mediterranean cruising	to be competitive over services and prices at global level	to be sensitive to demand of pollution reduction by their clients	cruiser passengers are more sensitive to the pollution issue and induce operators to be competitive also on air pollution	their global dimension and choice capability
Associazione commercianti (Shopkeepers' association)	to serve, through services and support, their constituency	to achieve positive results for shopkeepers	to achieve more advantages for local economy	to reduce air pollution could be an element of quality supply achievement	they are numerous, economically important and able to influence local elections

Forum Ambientalista, NGO (Environmental association)	to make pressure on public opinion, public administration, and pollution producers	to protect the environment, the cultural heritage and the citizens' health	to reduce air pollution	each NGO, with different specialisation and constituency, has its own capacity to deal with different society components	they are able to orient public opinion in occasion of debates and local elections
Environmental & Consumers' Associations (NGO)	to make pressure on public opinion, public administration, and pollution producers	to protect the environment, the cultural heritage and the citizens' health	to reduce air pollution	each NGO, with different specialisation and constituency, has its own capacity to deal with different society components	they are able to orient public opinion in occasion of debates and local elections
Source: authors' own elaboration					

Table 2.2. Coalitions among stakeholders formed in the Civitavecchia case study.

Parties	Interests	Goals	Positions	Capacities	Relationships
Institutional bodies. The group includes Commune, Province and Region. It includes also the Autorità portuale and the Ossevatorio Ambientale which are local control authorities	Energy production is a national and regional priority. Increasing the port activities is a local development priority.	to reduce air pollution is a major goal since local population became more sensible to the issue for the impact on human health	to mediate between the issue of economic development, environmental protection and human health	they can offer compensations, regulations but they can also distribute sanctions	From a theoretical point of view their activity should be fully coordinated. But since they are elected bodies they can represent over time different interests
Interest groups: ENEL and Tirreno Power	to produce electricity	to produce in an efficient way, also reducing air pollution since it is requested by public opinion and local authorities	to demonstrate that all instruments reducing air pollution are implemented	they employ a large quantity of local manpower and play a fundamental role in the local economy	being an important energy plant they can play a social role as well and talk together with local authorities and NGOs
Interest groups: the ferry and cruise companies are not forming any coalition	their interest is focused on commercial competition at regional and international level	their goal is focused on different clients, all non resident in Civitavecchia by definition	they respond to local authorities requests and to the market behaviour	their capacity is limited by international competition. They could move to other ports if more convenient	there is no coalition

Pressure groups: all the NGOs present at local level with their national and international connections	to make pressure on public opinion, public administration, and pollution producers	environmental and cultural protection and citizens health	to find any possibility to reduce air pollution at local level	each NGO, with different specialisation and constituency, has its own capacity to deal with different society components. They cooperate in order to achieve synergies	they are able to orient public opinion in occasion of debates. At the occasion of local elections each NGO refers to its own constituency and representatives
Source: authors' own elaboration					

3.1.3 Classification of the conflict

The Civitavecchia conflict is long-lived and cannot be brought to an end without closing the power plants which are so close to the urban settlement. Following the definition given by Cadoret (2009) this conflict can be defined as chronic, since it seems highly unlikely that Italy will stop producing energy. Due to the power plants the quality of air has deteriorated. The conflict has reached the stage where the only possible solution is in the hands of the power plants owners: the management of the power plants should try to find a compromise with the residents and inform them about the new technologies that are being introduced to reduce air pollution.

More recently other air pollution sources have been identified in the huge development of the port passenger traffic and in the new central role of the Municipality of Civitavecchia. The conflict takes place around the different needs at the local and national level for energy production and accommodating ferry passengers; but it also occurs at the local and international level with respect to the cruise passengers, which refers also to the allocation of activities by external forces. These intra-societal conflicts can be seen as part of the social typology which includes the technology issue. This was evident when ENEL recently decided to substitute oil with coal. The decision was taken on the basis of the considerably greater efficiency of coal and in view of the new European directive, together with the existence of more efficient technologies that can contribute to reducing air pollution. Coal, which was used in the early period, is perceived by the citizens as a regression and this initiative became an even more open source of conflict (Bruckmeier, 2005). All the parties involved are convinced

that Civitavecchia will have to coexist with power plants and the port activities, but by coming to terms with their different interests, values and priorities they could achieve a reduction in air pollution (Rapoport, 1970; Schmitz, 2002).

The conflict characterising the case of Civitavecchia looks like an issue without a definitive solution. Italian society needs energy and the only possibility is to make further compromises.

3.1.4 Ranking of the criticality, urgency and duration of the conflict

The conflict of Civitavecchia dates back to the end of World War II. The city had been intensively bombed and the decision was taken to locate there a thermal plant in order to revive the local economy. That first plant slowly became the largest national producer of thermal energy. This had a direct impact on air pollution and on the sensitivity of the residents. Therefore the conflict, which was already critical, significantly increased in the early 2000, also because of the increase of the human mobility. The number of passengers on ferries and cruise ships getting off at the port of Civitavecchia reached several millions in the year 2011. The conflict has, therefore, become highly critical for two aspects: economic development and air pollution. The production of electricity is a central element in the local economy as it involves thousands of jobs. Despite this fact, there are some stakeholders who are calling for the plant closure, others requesting measures to offset the emission of CO₂. Pollution from ships and cruise passengers has not been counterbalanced yet by any benefit for the local economy: ship passengers spend only few hours in town. The implementation of the procedures for the docks electrification would be extremely urgent for the reduction of the conflict. A form of mitigation of the conflict may be a better and more effective integration of the Civitavecchia port economy – especially its tourism sector – still very backward. Some stakeholders consider the introduction of a policy of sustainability applied to any activity a possible way of conflict alleviation. The large number of players and interests operating between the global and local levels let foresee that this conflict will last for a long time.

Table 2.3. Ranking of the criticality, urgency and duration of the conflict in the Civitavecchia case study.

Criticality	Urgency	Duration
Criticality of the conflict	High, moderate or partial urgency	Acute or chronic in terms of duration
For its consequences on human health air pollution is considered critical to the long-term development of the Civitavecchia Region. The entire population is involved in the conflict. The limited knowledge of the responsibility of the different sources of air pollution and the consequences on health makes the situation more critical.	There is no deadline involved since the two major sources of air pollution, power plants and port activities, are activities essential for the local community. The local authorities should play a more active role both in achieving air pollution decrease and economic compensation for local economy	The conflict has been a chronic event since the Fifties. It is based on air pollution due to thermo energy plants and to port activities. Both are the results of decision taken at an upper administrative level, national and international
Source: authors' own elaboration		

3.2 Ostia case study

3.2.1 Nature of the conflict

The conflict is about the use and management of water and the management and processing of waste water and drainage systems. Ostia was built on a marsh and is easily flooded whenever the River Tiber rises and in particular conditions of sea levels, tides and winds. The relationship between the supply of water and the number of water users which, even in normal conditions, is problematic, has been dramatically exacerbated by the presence of non-registered residents, visitors and illegal workers. While their actual number is unknown, it is estimated to be equivalent to the number of official residents.

The numerous public swimming pools which offer leisure and free time services utilise the narrow strip of sand that has been afflicted by continuous erosion as a result of the diminished contribution of sand by the Tiber, the intense human use of the beach, the rising sea level, the rapid and temporary variations in the sea level that are experienced from time to time. The regional government has intervened by financing the soft accretion of the coastal area but has not succeeded in stabilizing it. The pool managers complain that the sandy shores have become many metres narrower. Some of them have tried to estimate this decrease and have arrived at the figure of 150,000 m³. Around 10,000 truckloads of sand would be needed to re-establish this.

Municipio XIII, where Ostia is located, is a decentralized administration of the Commune of Rome. It is located along the Tyrrhenian coastal area with a surface of 150,643 km² and a resident population of about 220,000 inhabitants. The numerous citizens, residents in other areas of Rome, who spend their free time in Ostia, the numerous legally registered and illegally unregistered foreign workers who live in Ostia because of the cheaper housing, have to be also taken into account when considering the human pressure on the coast.

The territory along the coastal area has been urbanized since the 4th century BC, starting with a military camp and having been, since the 1st century AD, a commercial settlement serving the port. The area remained uninhabited from the 5th century onwards when flooding by the River Tiber transformed it into a swamp and lakes from which the water could not flow. The area remained in this condition till the 19th century and was characterized by three different geo-morphological areas: (i) a hilly area covered with forests contributed to the flooding of low level areas; (ii) a marshy area and (iii) coastal dunes formed by the action of the wind, which prevented the flow of water, as well as draining the water from the area above sea level. Malaria made any settlement impossible and the only activities undertaken here were wild breeding and the production of salt. The situation changed dramatically during 19th century when Rome became the capital of the Kingdom of Italy. It was considered insupportable that such insalubrious areas could exist so close to Rome. The conversion of the area to agriculture was not successful because of the residual salinity of the soil. During the 1920s it was decided to build a residential seaside settlement there to be connected to the centre of Rome by rail and road. In the year 1933, the area received the name of Lido di Roma (beach of Rome); it was included in the general plan of the Expo 1938 which conceived of the expansion of Rome toward the sea; the Lido di Roma was thought as constituting the "Third Rome" along the Tyrrhenian Sea. The Lido di Roma plan included a residential strip along the coast with holiday homes where the Rome middle classes could spend their leisure time, and a denser, more inland, area for the working class. Following the end of World War Two, the new settlement underwent a more intense and informal development underpinned by land speculation, with little attention being paid to planning and building quality. After the end of World War Two, in the year 1949, the new settlement was called Lido di Ostia and was divided in 1961 into Lido di Ponente (West Beach), Lido di Levante (East Beach) and Castel Fusano. Over the last few decades, Ostia has become more and more an outer suburb of Rome. Behind Ostia, the Pineta di Castelfusano (Castelfusano Pine Forest) lies, an area of about 1,000 ha planted during the 18th

century with thousands of pine trees for the production of pine seeds. The Castel Porziano and Capocotta area together, with the nearby urban park of Castel Fusano, cover an area of about 7,000 ha.

Grievances over the distance from the city centre, the lack of infrastructure and the numerous problems related to water were channelled in a form of a protest asking for a referendum on the proposal to reorganize Ostia and the Municipio XIII into a new, autonomous administration. The proposal was rejected in the first referendum held in 1988; in the second one, held in the same year, a quorum was not reached. Ostia, thus, could not attain autonomous status and it is still a suburb of Rome. The number of non-permanently occupied houses – because they are used as holiday homes or rented out unofficially, even to non-registered immigrants – is still high: 25–30% at Ostia Ponente and Ostia Levante, and 60–70% at Castel Fusano and Castel Porziano. Their real estate value is still two or three times lower than in central Rome. For this reason, about 40,000 people have relocated to Ostia over the last 20 years. The Ostia beach has about 60 bathhouses, small and medium enterprises hosting thousands of bathers every day during the summer, and numerous other persons during the night time leisure activities. Ostia is, nonetheless, far from being a tourist resort, especially considering its proximity to the Fiumicino International Airport: it receives only 200,000 tourists a year and 440,000 are the overnight stays.

Conflicts emerge in hazardous situations: on 1 May 2011, one of the main city water supply burst, opening up a 5-m chasm in the road. The Committee of Interested Citizens complained about the lack of water and the impossibility of keeping schools, shops and services open under these conditions. In the press release, aimed at the municipal administration, the Committee said: “we don’t like to claim that a random incident is a catastrophe ... but this is not a random event ... for many years in our district the water pipelines have regularly been damaged and every time we have to wait for years for the necessary repairs, together with enduring all the accompanying discomfort. This demonstrates the cavalier attitude by the administration towards maintaining vital services such as water. The real cause of such catastrophic situations is nothing more than the lack of planning, maintenance and foresight by the administration”. In difficult climatic situations the sewerage systems overflow, flooding flats, shops and services. In many of these situations the Committees of Citizens assemble at the Consorzio di Bonifica (Reclamation Consortium) to complain that the sewerage drains are not properly maintained or cleaned, and the lateral water piping used during the summer are not

removed during the winter. In the above-mentioned examples the community has shown that it is aware that a real environmental problem exists, especially in times of emergency. The non-functioning of the sewerage system and the overflowing drains have alerted the citizens to the problem, especially now that these events are more frequent. The citizens committees' and environmental NGOs are well organized and they also make use of the support of experts. But they cannot fund the research and studies required for making mid-term plans. In April 2009 the Committee Ostia Antica – Saline presented a memorandum to the President of the Municipio XIII which listed several priorities. The first of these was the water emergency because after heavy rainfall the area becomes an emergency zone with roads flooding and sewage spilling even inside houses. The situation is caused by a lack of an appropriate storm-water drainage system and inadequate ground water collection and disposal. The storm-water pours into the sewage system, which in consequence tends to collapse.

There is also the problem of the erosion of the coastal area (Figure 2.4).

Figure 2.4. Ostia. The erosion of the coastal area (Authors' own picture).



The thousands of beach users should be interested in this problem but in practice they can always move on to another place. The problem is mainly perceived by the entrepreneurs' associations. At the opening of the new season, in April 2011, they complained to local administrators of a decline in custom of about 20% in areas where erosion is more severe, especially around the Rotonda Ostia, where the beach has "disappeared". This new situation, also in light of the present economic crisis, has contributed to the change in consumer behaviour. An entrepreneur of a Lido di Castel Fusano Bath explains that "the trend is to book season subscriptions, but only for the months of July and August. Also, Italians are changing their behaviour: before deciding where to spend their day of rest they want to read the price tag". The La Vecchia Pineta Bath says that the decline has been on the increase for several years and the only instrument for economic recovery is to offer new activities, such as a restaurant and evening events.

Previous researches (Lupia Palmieri *et al.*, 2010) on the possible trends of such phenomena indicate that the issue of water, combined with soil erosion, will become more urgent than it is today, especially in the situation of rising sea levels. A permanent rise in the sea level could contribute to a rise in the ground water level, with the immediate effect of flooding residential areas. Even a limited rise in the ground water level could oblige the authorities to reconsider their reclamation plans.

3.2.2 Parties involved in the conflict

The following stakeholders are involved in the on-going conflict: Comune di Roma, Municipio XIII (institutional body, commune administration), Regione Lazio, (institutional body, regional administration), Provincia di Roma (provincial government), ARPA Lazio (environmental agency of the regional administration), Acea Ato2 Spa (water management company), Autorità di Bacino del fiume Tevere (River Tiber authority), Istituto ISPRA (State environmental agency), Porto Turistico di Roma (marina administration), Associazione Italiana Imprenditori Turistici Balneari (bathing entrepreneurs association), Comitato Ostia Antica – Saline (NGO citizens association).

Table 2.4. *Summary of the parties involved in the Ostia case study.*

Parties	Interests	Goals	Positions	Capacities	Relationships
Comune di Roma, Municipio XIII, (Rome Municipality)	to integrate environmental policies into any other initiative of the Municipality administration which concerns Ostia	to reduce the distance among the stakeholders point of view and solve conflicts in view of the next electoral competition	to place themselves in a central position with reference to their political programme and coalition	to intervene in case of emergencies and when citizens health is at risk	the Municipality, within the principle of subsidiarity, has a central position to intervene in an effective way
Regione Lazio & Provincia di Roma (regional government)	to integrate environmental policies into any other initiative of the Region administration which concerns the coastal area and the River Tiber	to reduce the distance among the stakeholders point of view and solve conflicts in view of the next electoral competition	to place themselves in a central position with reference to their political programme and coalition	to intervene in case of emergencies and when citizens health is at risk	the Region, within the principle of subsidiarity, has a central position to intervene in an effective way
Arpa Lazio, Agenzia regionale per la protezione ambientale (environmental agencies of the Region)	monitoring	publication of the results of their monitoring activities	they inform public authorities on the health risk for the population	they support the public administrations activities. They are also consulted by NGO	their interaction is on the data exchange
Acea Ato2 Spa, (water management company)	water filiere supply service	check their service quality	their activity is focused in supporting local authorities	they are in direct relationships with users	they intervene when the situation is at risk
Autorità di Bacino del fiume Tevere, (River Tiber basin authority)	to monitor water management in all 369 Communes of 6 Regions interested by the River Tiber	environmental protection of the entire river basin	to protect the water quality, to rationalize its use and to control the territory	they support the public administrations activities. They are also consulted by NGO	their interaction is based on technical information exchange
Istituto ISPRA, (State environmental agencies)	to advice the state on environmental protection	to make research on the state of the environment under the control of the Ministry of Environment	to protect the environment with effective instruments	they support the public administrations activities. They are also consulted by NGO	their interaction is based on scientific and technical information exchange
Porto Turistico di Roma, (marina administration)	to manage a marina	to offer good quality services to their clients	to develop and to enlarge their activities	through the marina clients users	the marina building had major consequences on the coastal area management
Associazione Italiana Imprenditori Turistici Balneari, (bathing entrepreneurs association)	to develop their activities as bathing entrepreneurs	to attract public opinion attention on the issue of coastal areas erosion which endanger their activities	to defend the present shore line as a priority for their survival	they constitute an important component of the coastal area economy	they are numerous, economically important, many of them live and vote in Ostia and can orient local elections

Environmental and Citizens' Associations (NGO)	to make pressure on private and public bodies having competence on water chain	citizens health and wellness, proper functioning of services	to reduce water chain accidents and catastrophes	each NGO with different specialisation and constituency has its own capacity to deal with different society components	they are able to orient public opinion in occasion of debates and local elections
Source: authors' own elaboration					

Table 2.5. *Coalitions among stakeholders formed in the Ostia case study.*

Parties	Interests	Goals	Positions	Capacities	Relationships
Institutional bodies. The group includes Comune, Province and Region. It includes also Ispra, Acea, Arpa, Autorità di bacino which are under local authorities control	the proper management of the water chain is a provincial and regional priority. Increase economic activities is a local development priority.	To reduce problems in the water chain is a major goal since local population became more sensible to the issue for the impact on human health and wellness	to mediate between the issue of economic development, environmental protection and human health	they can offer compensations, regulations but they can also distribute sanctions	From a theoretical point of view their activity should be fully coordinated. But since they are elected bodies they can represent over time different interests
Interest groups: Porto turistico e Associazione balneari	to produce advantage for the activities of their clients and their constituency	to produce in an efficient way, also reducing impact on water filiere and soil erosion since it is requested by public opinion and local authorities	to demonstrate that they need support by public authorities in reducing negative impacts on their activities by environmental problems	they employ local manpower and play a consistent role in the local economy	they are not making any coalition
Pressure groups: all the NGOs present at local level with their national and international connections	to make pressure on public opinion, public administration, and pollution producers	environmental and cultural protection and citizens health	to find any possibility to reduce water pollution at local level	each NGO, with different specialisation and constituency, has its own capacity to deal with different society components. They cooperate in order to achieve synergies	they are able to orient public opinion in occasion of debates. At the occasion of local elections each NGO refers to its own constituency and representatives
Source: authors' own elaboration					

3.2.3 Classification of the conflict

The typology of water resource conflicts sees the confrontation as being one between residents and the local administrators. The responsibility for the conflict is found in a choice made a century ago to build an urban area that is located below sea level. According to the Cadoret (2009) definition the conflict can be defined as chronic and cannot be easily solved. The more recent problems are due to the growing number of residents arising from cheaper housing costs and land speculators. The coastal area is also very attractive to day visitors during the summer season. The water resource issue includes both water procurement, ground water and waste water management and the unanticipated doubling of consumers, creating conflicts over the availability of the resource, thus being one of the possible cases identified by Chandrasekharan (1996). At the moment the water resources are not adequate for the number of people living in Ostia. A second cause, of global origin, has been added to this situation, with climate change and its attendant risks of rising sea levels. Soil erosion is the consequence of a decision taken at the level of the Rome Metropolitan Area to protect the centre of the City of Rome from flooding. Dams and other activities prevent solid materials from reaching the sea. At this point the conflicts are in a stage of endurance, according to the definition provided by Rupesinghe (1995). The components of conflicts are social, according to the definition provided by Bruckmeier (2002) since there is competition for the use of resources between officially registered residents, irregular residents, visitors and daily commuters. The conflict has always been manifest – according to the classification proposed by Bruckmeier, 2005 – since the consequences of the lack of water management policies and practices became clear; nonetheless, it is not evident yet to the parties involved which is the real dimension of the problem. The instruments of the conflicts are debates, not least because the only definitive solution for the use of the resource water is to demolish the settlement and return the area to marshland.

These conflicts are related to contemporary events. The complexity of these phenomena require a more appropriate planning regime and taking decisions that society is not ready to accept. In fact, previous researches (Beccari et al., 2010) indicate short-term solutions such as: building of new water infrastructures, maintenance of the water pipeline networks, building a new system to collect rain water, introducing good practices in agriculture, increasing the collection of differentiated waste, evaluating the ground water system in order to increase capacity to manage it.

3.2.4 Ranking of the criticality, urgency and duration of the conflict

The conditions of the conflict were initiated after the establishment of the Italian State when having a marshy area affected by malaria was deemed unsuitable in Rome. The problem started between the first and second World War when the reclamation work was followed by residential developments. After the Second World War the existing infrastructures remained the same as in the previous years, while the number of houses and residents increased. The conflicts are linked to rising sea levels and coastal erosion, all that contributing to a different equilibrium of the internal water system. Ostia is affected by intense mobility within the metropolitan area of Rome. During the summer those who want to spend a day on the beach cross the metropolitan area and travel to Ostia. Resorts can provide less and less sand because of the coastal erosion. Ostia is also a district of Rome where housing prices are lower than in the central areas; many inhabitants, therefore, relocated to Ostia even keeping their jobs in central Rome. In addition, migrant workers find convenient residing in Ostia, even using underground dwellings which are cheaper. The reclaimed area, more or less close to the coastline, is subject to rising sea level. Global climate change is most evident in Ostia during extreme events such as torrential rains lasting hours. In this case, the groundwater level rises, the underground dwellings are flooded as much as large areas of the city. The conflict has to be solved with high urgency but it is expected that it will have a long duration.

Table 2.6. Ranking of the criticality, urgency and duration of the conflict in the Ostia case study.

Criticality	Urgency	Duration
Criticality of the conflict	High, moderate or partial urgency	Acute or chronic in terms of duration
For its consequences on human health and economic development water pollution is considered critical to the long-term development of the Ostia coastal area. The entire population is involved in the conflict. The limited knowledge of the responsibility of the different sources of water pollution, at local and global level, and the consequences on health makes the situation more critical.	There is no deadline involved since the two major causes (non resident population and sea level rise) of water pollution, ground water, waste water are under the control of local authorities. Local authorities should play a more active role both in achieving a better water management and economic compensation for local economy	The conflict has been a chronic event since the beginning of XX Century. It is based on lack of proper management of water chain also due to a major mistake in the early stage decisions.
Source: authors' own elaboration		

3.3 The Costa Teatina National park

3.3.1 Nature of the conflict

The conflict here described is linked to, first, the legal institution of the Costa Teatina National Park, then the definition of its spatial boundaries. It is a coastal park (not a marine park) including the territories (but excluding the sea) of one municipality, Ortona, included in the Chieti-Pescara urban area. It covers nine municipalities of Chieti Province along the Adriatic coast in central Italy, with a length that exceeds 60 km.

The Costa Teatina area is characterized by a relatively low degree of urbanization. The two main municipalities, Ortona and Vasto, consist of fewer than 24,000 and 40,000 inhabitants, respectively. The character of the territory is defined by the Ministry of the Environment (1998) as “winding and varied, with the alternation of sandy and gravel beaches, cliffs, river mouths, areas rich in indigenous vegetation and cultivated lands (mainly olives), dunes and forest trees”. It includes unspoilt natural areas of very high value because of their rarity. Those areas were considered worthy of protection by the regional landscape plan (Piano Regionale Paesistico, L. 431/85) that established the protection of the following natural elements: four groups of cliffs (Torremucchia-Punta Lunga, Acquabella, Punta del Turchino e del Guardiano, foce del Sinello), a pine forest (Vallevò), a wood (Don Venanzio), an ilex wood (Torino di Sangro), a delta (the Sangro river), a river mouth (Osento) and a dune bar (Vasto marina). The whole area is covered with rare species of flora and fauna and has important cultural heritage and archaeological sites. Worthy of mention are the typical traditional fishing platforms of the area, named *trabocchi*, the preservation and restoration of which has been funded by the region since the mid-1990s (L.R. 93/1994). This area has been evaluated by the Ministry of the Environment as being worthy of protection for its environmental, landscape and cultural value (Figure 2.5).

Figure 2.5. The Costa Teatina National Park. A “trabocco”, fishing hut entirely built with wood and arranged on platforms; traditionally used for fishing, today a tourist attraction (Authors’ own picture).



The first idea of instituting a park in this location dates back to the year 1997, but only in 2001 did a national law (L. 93/2001), promulgated to deal with several environmental themes, institute the Costa Teatina National Park (art. 8). The park was created with an initial endowment fund of 1 billion liras (around € 500,000). This initial fund was increased to 4 billion liras (around € 2 million) soon after the law was issued. The law stated that, within a limit of 180 days, the Minister of the Environment had to provide a temporary delimitation of the spatial boundary of the park. Several years passed without this delimitation having been provided.

Given this vacuum, in the year 2007 the Abruzzo Region, where the park is located, issued a special law (L.R. 5/2007) to protect the Costa Teatina National Park territory. The region legally instituted a “System of Protected Areas of the Costa Teatina”, including six natural reserves (Ripari di Giobbe, Punta dell’Acquabella, Grotta delle Farfalle, Lecceta Torino di Sangro, Punta Aderci and Marina di Vasto) which are spatially separated but are functionally connected. In the same period the region was authorized by the Ministry of Environment to define the boundaries of the park. The regional government representatives tried to obtain an agreement with the local institutional players for completing this task but their attempt failed and the boundaries were not defined.

In the meanwhile the railway company (Ferrovie dello Stato) had dismantled the railway track running very close to the coast, opening up a large tract that was at risk of property speculation. This strip of land was therefore immediately included in the environmental protected areas where human activity was prohibited unless specifically authorized by the region itself.

The need to implement the boundaries of the park became even greater when, in the year 2008, one of the park municipalities, Ortona, was chosen as the best location along the Adriatic coast for the so-called Centro-Oli, an oil refinery. The citizens organized themselves to oppose this decision and used the park argument as a lever. Some citizens' groups even reached the point of proposing a marine park (including the sea as well).

At the end of 2010, through a national law (D.L. 225/2010) a new deadline was set for the delimitation of the physical boundaries of the park: 30 September 2011. If this new deadline would have not been observed, the Prime Minister would have the power to appoint an *ad hoc* commissioner to pursue the goal of the spatial delimitation of the park. September 2011 passed and the commissioner was not appointed. On February 15, 2012, the Senate of the Italian Republic decided to postpone to December, 31st, 2012, the appointment of the commissioner.

This conflict started in the period 1997–2001 when the discussion about the creation of a park was taking place at a local level. At that time the conflict was mainly political: right-wing parties were against its institution because they were (and still are) opposed to model of the park development (or non-development). Left-wing parties were, in the public discourse at least, in favour of it. However, opposing views concerning the legal status of the park existed within the left wing also: should it be a national or a regional responsibility? The debate was between those who perceived that a national park would imply better protection and those who perceived this as a loss of power at the level of the local administration.

Groups of the citizens supporting and opposing the idea were formed. The opponents' argument was that the park would totally block the economic growth of the area. The economic sectors most involved in the protest were fishing and construction while, in that preliminary phase, farmers and tourist entrepreneurs did not react to the proposal. The protest was not very intense because everybody was convinced that it was very unlikely that the proposal would be realized.

The park, thus, was instituted under a left-wing government at national, regional and local levels. The right-wing parties that got into power in the following years continued in their opposition, to the point that the Abruzzo Region appealed to the Court to cancel the law that had instituted the park, using the argument that the law had been issued at national level and without the consensus of the region. This appeal was rejected since an agreement was necessary

to delimit its spatial boundaries and it was not required for the institution of national (not a regional) park. The institution of the park was, thus, done through a top-down approach because a bottom-up approach would have brought to a rejection of the proposal.

The conflict now in process concerns the definition of the spatial boundaries of the park. Should a restrictive or a wide definition prevail? Should it be small in size or large? There are three main causes of the conflict: political, institutional and economic.

1. Political: traditionally, left-wing and right-wing parties in that region have different orientations and interpretations of development models. The right-wing parties are more oriented to unrestricted free market policies and thus to them the park represents a constraint. Left-wing parties are more inclined to welcome public intervention in the market sphere and are thus in favour of a model that includes the possibility of protected areas. Nonetheless, depending on the level of government, orientations are different even among left-wing party members. These are outlined below.
2. Institutional: local representatives of left-wing parties, theoretically in favour of the protected areas, have, in practice, as ambiguous an attitude as that of the representatives of right-wing parties. Their public discourse is in favour of the protected area but their action does not follow coherently from this stance. Their position is compressed between the ideal world they have in their minds and the need to control the territory which they have been elected to represent, and to keep the power they will lose when the park is fully implemented.
3. Economic: different economic sectors and players perceive the park in different ways. Some see it as an opportunity for the development of high quality in agriculture, tourism and human wellbeing; some as a block to the process of growth.

3.3.2 Parties involved in the conflict

It is possible to distinguish the following players intervening in the present phase of conflict:

1. *Institutional players at regional, provincial and local level*: each institutional level has the goal of controlling as much territory as possible. They have non-convergent visions of the development model and specific tools for intervening in spatial planning and management. Behind their public discourses, where they cannot be seen to be explicitly opposed to the park, as this would not currently be very popular, they act in order to agree to the smallest park area possible in order to maintain their control on the largest

possible portion of the territory. The mayors, above all, who are directly elected by the citizens, see the territory as their only source of power and revenue. The larger the park is, the less of it they control.

2. *Economic players:* (i) The fishery associations have finally understood that a coastal park will not affect their fishing, and have thus excluded themselves from the arena. (ii) The farmers' associations are officially opposed to the park and are trying to limit its extension. Their concern lies in their belief that the park will limit their activity. They are afraid of converting their products into high quality products and afraid that the future development of their land will be stopped and that they will have to introduce indigenous vegetation. They perceive the park as a total restraint of their activity, not as an opportunity to move into a more contemporary and profitable way of production. They believe that high quality agriculture will result in high prices that cannot be sustained by the market. (iii) Builders' associations are the strongest opponents of the park. In their view, the park will totally impede new construction and this will severely damage their economic activity. Local builders are not specialized in restoration and urban regeneration, instead they are oriented to low-cost, low-quality, buildings. (iv) Tourism entrepreneurs are very much in favour of the park because they are already oriented towards ecotourism, including wine-and-food tourism. Those forms of tourism require and benefit from the presence of protected areas. They are, nonetheless, in favour of a narrow delimitation of the park's boundaries since they are more interested in the brand linked to the park than in the content itself.

In general, local entrepreneurs of all economic sectors are not ready yet to meet the challenges that the presence of a protected area raises. Their position is very conservative and they are opposed to all possible changes.

3. *Trade unions and entrepreneurs' associations take the position of their associates;* they are, generally speaking, in favour of a very narrow delimitation of the park and in favour of the preservation of sites and goods already protected.
4. *Environmental, cultural, associations and NGOs:* at the present time they are in favour of the protected area and in favour of it being large in size. At the beginning of the process (late 1990s) they were more inclined to favour nature reserves than the park.

Except for the institutional players, all the other local actors are putting in action transparent strategies, declaring their goals and making clear the alliances. So far they have been organizing public meetings and petitions and there have been neither violence nor demonstrations.

Table 2.7. Summary of the parties involved in the Costa Teatina National Park.

Parties	Interests	Goals	Positions	Capacities	Relationships	Salience
Local, provincial, regional authorities	Spatial planning, territorial management and development	Preserving the authority/control power they would lose after the creation of the Park	They develop actions to keep the control on their territory	Political power that can influence the National government's decisions	Strong interactions with all the other stakeholders to keep their political power	Very important political power
National government	General government/governance of the area	Preserving the environment and the biodiversity	It issues and implements laws for the good government/governance of the territory, trying to limit the conflicts with the local authorities	Legal authority to impose decisions even against the wish of the local community	Weak interactions with the local community due to the distance (institutional, political, spatial) from the area	Very important institutional and legal power
Farmers' associations	Development of their economic activity and profit	Preserving the agriculture land and increase its value	They organize public and non-public events to resist against the Park	Possibility of orienting their votes against the national government	Strong interactions with the builders' and industrial entrepreneurs' associations	Very important electoral power
Builders' associations	Development of their economic activity and profit	Protecting their right to build	They organize public and non-public events to resist against the Park	Possibility of orienting their votes against the national government	Strong interactions with the farmers' and industrial entrepreneurs' associations	Very important electoral power
Tourist sector entrepreneurs	Development of their economic activity and profit	Increasing the tourist flows in the area, using the Park's brand	They participate to public and non-public events trying to keep the existence of the Park but limiting its size	Possibility of mediating the conflict since they have interest in the Park and in its small size	Strong interactions with all the other economic players	Important electoral power
Trade unions	Employees' protection	Preserving jobs	They do not organize any formal/evident protest and they support the idea of limiting the size of the Park	Possibility of mediating the conflict through their strong rootedness in the area	Weak interactions with the other stakeholders but strong rootedness in the area	Important electoral power
Industrial Entrepreneurs' associations	Enterprises' development	Guaranteeing profitable businesses in the area	They support the public and non-public events to protest against the Park	Possibility of orienting their votes against the national government	Strong interactions with the farmers' and builders' associations	Very important electoral power
Environmental, cultural associations and NGOs	Protection of the general interests, (present and future) of the local community	Preserving the natural environment, the cultural heritage, the quality of life	They organize public events to support the existence of the Park and its wide size	Possibility of convincing the local community through networking activities	Strong but conflicting interactions with all the other stakeholders	Weak electoral power

Source: authors' own elaboration

Table 2.8. *Coalitions among stakeholders formed in the Costa Teatina National Park.*

Parties	Interests	Goals	Positions	Capacities	Relationships	Salience
Institutional bodies: region, province, municipalities	Territorial management and development	To preserve the authority/control power they would lose after the creation of the Park	They develop actions to keep the control on their territory	Political power that can influence the National government's decisions	Strong interactions with all the other stakeholders to keep their political power	Very important political power
Interest groups: farmers', builders', industrial entrepreneurs' associations	Development of their economic activities	To preserve the profitability of their economic activities	They organize public and non-public events to resist against the Park	Possibility of orienting their votes against the local and national government	Conflicting interactions with the Pressure groups and bargaining interactions with the local institutions	Very important electoral power
Pressure groups: environmental, cultural associations and NGOs	Protection of the general interests, (present and future) of the local community	To preserve the natural environment, the cultural heritage, the quality of life	They organize public events to support the existence of the Park and its wide size	Possibility of convincing the local community through networking activities	Strong but conflicting interactions with the Interest groups	Weak electoral power
Source: authors' own elaboration						

3.3.3 Classification of the conflict

The conflict lying behind the Costa Teatina National Park can be classified according to the different interpretative schemes arising from the literature, as follows: 1. *Hybrid conflict* (Cadoret, 2009), presenting aspects of both a chronic conflict and an anticipation conflict. It started in the late 1990s and is still going on; it is resurgent, the episodes are never severe, a rapid and easy solution is not foreseen and the current problem concerns the nature of the park itself and what it will be in the future, not only its spatial delimitation. 2. *Regarding authority over resources* (Chandrasekharan, 1996), since the presence of the park will relocate the institutional power from the local level to the national one. 3. *Enduring conflict* (Rupesinghe, 1995): it has lasted for more than ten years. 4. *Micro-macro* (Warner, 2000): it concerns a conflict between power at both the local and the national scale. 5. *Concerning jurisdiction* (Charles, 1992), the existence of the park and its size will determine the power of jurisdiction on the area. 6. *Social and environmental conflict* (Bruckmeier, 2002), the content of the conflict concerns the natural

environment, the use of natural resources, land use and territorial protection; opposed parties are the national level and the local communities. 7. *Manifest conflict* (Bruckmeier, 2005): the players involved either clearly declare their critical position or take actions that clearly show their ideas. 8. *Conflict belongs to the category of debates* (Rapoport, 1970), since it arises from different views of sustainable development and different values. 9. *Concerning priorities and needs* (Schmidtz, 2002), conflicting priorities are environmental protection and economic development.

3.3.4 Ranking of the criticality, urgency and duration of the conflict

The contrast about the Costa Teatina National Park dates back to the late Nineties. The conflict's solution is critical for the future development of the area. Its presence, indeed, will strongly affect the spatial planning and the local government of its territory. The conflict should have been solved by the end of September, 2001 but, because of very high disagreements at the local level, the deadline has been moved to December, 2012. There are already strong evidences that the conflict will continue after the boundaries' definition and will concern the internal governance.

At the moment several attempts have been made to delimit the spatial boundaries of the park. The Abruzzo Region and Chieti Province are trying to reach an agreement through the involvement of local institutional and economic players. Some municipalities and citizens' associations have presented their own proposals, which differ enormously from each other.

Many public meetings have been organized at the local level by the different players, at which it is clear that there is a major lack of information. Local players who are opposed to the park and who aim at a very narrow spatial delimitation of it, are releasing misinformation to promulgate a negative public opinion about it.

The local community does not seem to be ready for sustainable development and the only solution to the conflict seems to be in a new top-down intervention, with the legal imposition of the boundaries being done at national level. The park seems also to be the only solution for an ICZM and for a viable governance of the coastal areas that is totally lacking at the moment.

Table 2.9. Ranking of the criticality, urgency and duration of the conflict in the Costa Teatina National Park.

Criticality	Urgency	Duration
High criticality	High urgency	Chronic, long term conflict
Source: authors' own elaboration		

4. Conclusions

The three case studies deal with air pollution, water management chain and maintenance of biodiversity.

The conflict in Ostia has lasted for more than a century, ever since it was decided to develop a reclamation area; the conflict in Civitavecchia has lasted for a few decades ever since it was decided to build a new power plant there. At the beginning the two initiatives were viewed in a positive light for making a positive impact on the economic structure and social advancement of the two localities. For these reasons the conflicts grew slowly at the beginning but become more marked when their negative impact on the citizens' health and wellbeing became evident. The two conflicts will remain chronic since it is not easy, or even possible, to remove the causes which led to them. Since it is not realistic to close a power plant or to demolish a settlement a major reduction of the conflicts could be achieved through the management of the causes of pollution and clearing house proposition.

The Costa Teatina conflict has lasted for more than ten years ever since the law for the institution of the park was issued. The specific conflict concerning the size of the park and the definition of its boundaries had to be solved by the end of September 2011, in terms of the law issued in 2010 but that has not been the case. The outcome of the conflict will be crucial for the future development of the area since the existence of the park will change the development model of the territory as well as its mode of governance. A small park will entail few planning changes whereas a large one will stamp a very strong development path on the whole area and its surroundings.

In the latter case a possible contribution to the solution of the conflict could be the development of a major information and training activity.

All the conflicts under consideration are critical for the development of the area and at this point are gaining momentum over time. The three case studies, in one way or another, are

all looking for new development through more qualitative forms of tourism and as we know, tourists are becoming more and more interested in sustainable development. The initiatives to solve the conflicts are urgent in all these cases but arise from different motivations. In Civitavecchia and Ostia the urgency is due to citizens' health and wellbeing, while in the case of Costa Teatina there is a deadline for finding an agreement at the local level. The conflicts are all chronic, since it is not easy to solve them in a short time, but new events and incidents, both at the local or the international level, could add elements of acuteness to them.

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ABSTRACT: Three cases of environmental conflicts occurring in Italian coastal areas are analysed in the present chapter: Civitavecchia, Costa Teatina National Park and Ostia. Civitavecchia and Ostia are included in the Rome Metropolitan Area, while the Costa Teatina National Park is in the Chieti-Pescara urban area. In Civitavecchia the major conflict is environmental: about air quality and pollution due to the presence of two power stations close to the city centre and the mooring of cruise ships. The second conflict is about the use and management of water and the processing of waste water and drainage systems in Ostia, besides coastal erosion. The third conflict is linked to the spatial definition of the boundaries of the Costa Teatina National Park. The current conflict concerns the definition of the spatial boundaries of the park even if bias against the existence of the Park itself does exist. All the three conflicts concern the contrast between economic development and environmental protection. The first and the second also include competition for the use of resources at a time characterized by extensive human mobility. The third case study specifically concerns conflicts occurring over the protection of the natural environment and biodiversity. It will be shown that those conflicts are chronic, critical for the development of the concerned areas, and their solutions are urgently needed.

KEYWORDS: Global changes, coastal areas, environmental conflicts, Civitavecchia, Costa Teatina, Ostia.

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CHAPTER 3.

Environmental Conflicts in Coastal Urban Areas: The Belgian Case-Studies of Ostend Airport, Schipdonk Canal and Zeebrugge Harbour

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1. Introduction

Being among one of the most densely populated countries in the world, the value of open and green space in Belgium has become paramount. With the intensifying urbanization trends, there is a societal awareness manifest at different fronts in the society of seeing open space as a fast disappearing and depleting resource that is consumed by different uses based on competing interests. Since the 1980's, this so-called 'green awareness' is growing in Flanders region. A range of measures and responses - legal, regulatory, institutional, policy and civil society related - have progressively emerged concerning the protection and preservation of habitats, landscapes, environmentally unique areas, distinctive historical heritage and the like. However, growth based economic development guided by insufficiently coordinated policies from different sectors continues and conflicts between local residents, environmental NGO's, green parties, economic developers, enterprises and the different government agencies rise when open spaces are claimed for economic purposes and projects. The three conflict cases presented in this chapter characterize such environmental conflicts.

The first conflict case analyzed in this chapter concerns the privatization of the Ostend airport, which is located on the south-western edge of the coastal city of Ostend, Belgium. The coastal infrastructure [port, beaches and related recreational areas] of Ostend city attracts people from all over Belgium, and its airport plays an important role in the local employment related to commercial and industrial activities. Established as a landing strip during the 1940s, the Ostend airport has grown to become the second largest airport in Belgium. The Flemish government wants to develop and expand the potential of the airport further through 'privatization' as part of the Flemish network of regional airports to spread passenger and freight traffic strategically (Flemish Government, 2009; SERV, 2006). Already over the last two decades, there has been a progressive increase in the expansion of economic activities around the airport, which has provided a base for commercial enterprises, providing employment opportunities (not only) for local residents. Its privatization is anticipated to result in more (air-) traffic due to increase in intensity of use and possible expansion of the airport and related economic activities infrastructure. Local residents anticipate that the quality of life might be threatened by associated noise pollution, possible change in land-use for economic purposes generating further traffic nuisance. Since 1992, the local residents have organized themselves as a workgroup [WILOO] opposing further expansion/intensification of the airport. In 2001, REPLO has been founded as a counteraction of the foundation of WILOO, which supports the

airport expansion and further intensification of economic activities around it. The Flemish government's search for a private investor for the economic exploitation of the airport since 2008 (REPLO, 2011) has triggered the conflict afresh between the local resident's interests and the economic interests of entrepreneurs and the Flemish government.

Widening of the 'Schipdonk' canal is the second case analyzed in this chapter. Constructed back in the mid 19th century, the canal is situated in the provinces of West and East Flanders provinces in the northwest of Belgium, which connects the Port of Zeebrugge with those of Ghent, Bruges and Ostend. As a major infrastructure work, the canal played a crucial economic role that began to decline after the Second World War, however its value as landscape and cultural heritage has increased progressively. Ideas and plans to widen the Schipdonk canal exist since the 1960's, but have not been implemented as such. However, due to the recent economic growth of Zeebrugge harbour, the Schipdonk canal is seen as offering a high potential to support the underdeveloped inland-transport from the harbour, and as an alternative to road based transport. According to the port authority and the Flemish government, the canal has reached its capacity limits and needs to be widened and deepened to avoid traffic congestion and boost economic activities in the area. As a water-based transport infrastructure, the new canal project is presented as a sustainable solution for addressing the mobility growth and increasing industrial/economic activities, and also as a way to link Zeebrugge harbour with the "Seine-Schelde-West (SSW)" network connecting the Schelde mouth and northern France. However, its impact on the picturesque historical landscape and water management in the area has generated a massive resistance from across the civil society and environmental groups. Despite the lack of a societal support for the project, the Flemish Government announced that in 2011 a final decision would be made for or against the widening of the Schipdonk canal. At this stage, the conflict is beginning to deepen among the proponents of the project [mainly Flemish government and economic actors] and the local residents, environmental and other civil society groups.

The third case analyzed in this chapter is about the Strategic harbour Infrastructure Project [SHIP] aimed at the inland expansion of the Zeebrugge port located in the Brugge study area. The project announced in 2004 by the Flemish Government to boost economic development will cover an area of 700ha, which includes the construction of new docks, roads and a new rail-road bundle. Implementation of the project has generated several land-use change conflicts, the most important one being the destruction of 362ha of nature / partly

protected area and open space. Since 2005, a commission has been established [institutionalization of the conflict] under the aegis of the 'Vlaamse Landmaatschappij' [Flemish Land Agency - VLM] to re-establish the lost nature, which has so far purchased 240 ha of agricultural land for this purpose and the remaining is still to be arranged. Other impacts include the expected direct and indirect increase in employment in industrial and commercial activities leading to land-use changes; increased traffic to and from the area with anticipated rise in pollution and nuisance levels threatening to reduce the quality of life and environment of the local residents, and increasing the stress over natural resources and coastal open space.

All the three cases are characterized mainly by economic development interests vs. environmental protection and also include aspects of human mobility. The conflicts are mainly triggered by the initiation of these infrastructural projects that are being imagined to unfold greater economic prosperity in the otherwise economically depressed coastal region of West Flanders province. The infrastructural logic of improved connectivity and efficiency for reducing the cost of doing business [increased economic development] is a short term interest that is in conflict with the long term benefits of the coastal nature and resources, landscape heritage and anticipated damage to the sustainability of natural eco-system and its services. Seen from the perspective of environmental sustainability, global climate change and accompanied sea level rise, all the three projects - and specifically the harbour expansion - will make the coastal area more vulnerable to natural hazards, trigger more competition and intensive use of natural resources, generate increased flows [human mobility, traffic, investment, land and real estate values, etc.], and jobs and population growth. Their accumulative negative effects on the quality and quantity of the 'open space' [nature and agriculture] and pressure on 'urbanized area' are inevitable, which is generating and transforming a series of conflicts. Underpinning the detailed analyses of the three cases presented in this chapter is the main argument that an in-depth understanding of the nature of these conflicts - the way they are constructed and evolved, their thematic and typological classification, their current trends and possible future impacts - is not only a prerequisite for their resolution but also for imagining alternative and more sustainable futures in the coastal urban environment.

2. Methodology

Complex issues and societal dynamics are involved in the construction of conflicts. A methodological structure developed within the framework of SECOA research project that is appropriate for analysing such conflicts is employed that consists of four parts: (i) defining and identifying, (ii) analysing (iii) classifying [thematically and typologically] and (iv) ranking the conflicts. The implementation of this structure for analysis is facilitated by a generic set of questions: What are the conflicts about? (anticipated economic, social and environmental effects); Which parties are involved in the conflict? (Who are they, what are their aims?); How do the conflicts evolve through time (what has been done, what were the results, what will be done?); Which alternatives exist? (What are the effects of the different alternatives?); How do the different parties interact? (Are there coalitions being formed? Do the opponent parties have contact with each other? How is information spread through all parties? Who plays a passive and who plays an active role? Which instruments and strategies are being used, by the different parties, to defend their point of view? Who “wins” the conflict in the end?); What are the common patterns (and differences) in each conflict? The intention behind this methodological structure and questions is to develop a scientific, objective and comparable understanding of the emergence and evolution of conflicts.

For identification of the conflicts, semi-structured interviews with SECOA end-users / stakeholder including different governmental institutions and NGO's involved in nature preservation and/or economic development at the Belgian coast and inhabitants of Zeebrugge and Ostend have been conducted. Through analyzing the answers, the most frequently mentioned cases are what allowed us to single out the three cases presented here, which allows covering in a varying degree of relevance, the following three themes:

- Economic development (ED) *versus* environmental protection (EP) (all three cases);
- Preservation of natural sites and biodiversity (PNSB) (Zeebrugge harbour expansion).
- Contrasts for the use of resources between residents and new comers for processes of human mobility (HMR) (privatization of Ostend airport).

For defining and analyzing the conflicts, further data and information was collected through interviews with stakeholders and focused reviews of relevant literature, media coverage, official reports from governments and NGOs, and web-based resources. Within the geographical area of each case, the available resources and their uses have been traced through the previous research stage in the SECOA project [deliverable 4.1] and on maps of protected

nature areas (biodiversity, habitats, nature valuation maps), zoning maps, topographic maps, aerial photographs and by means of terrain observations. For each case, at least 5 experts have been invited to fill in an online-questionnaire with specific questions about the conflict. The analysis of the parties involved follows the stakeholder analysis approach as suggested by SECOA WP-4 guidelines (2010). For this purpose, people and actors are chosen that are representative of a diversity of views: opponents and proponents of the project; parties with environmental, economic and social motivations. The analysis of the parties involved (their visions and networks, see table 3.1) has been performed, based on the results from the online-questionnaires (see below, ranking).

Table 3.1. *Analysis framework for understanding the coalitions and networks between parties involved in a conflict.*

Coalitions / Networks formed					
Between different scales [local, regional, national, etc.]; inter / intra NGOs & non-profit; NGO & other levels of government, trans-local, etc.					
Parties	Interests	Goals	Positions	Capacities	Relationships
	Their combined motivations (in relation to the causes and other parties in the conflict)	Shared strategies to pursue their interests	how they place themselves in the conflicts, especially in any intervention?	their potential that can affect the context of the conflict (both positively and negatively). This can be resources, access, social networks, alliance, etc.	the interactions of the stakeholders within coalition and their perception of the interactions

For typological classification of the conflicts, Cadoret (2009), Chandrasekharan (1996), Rupesinghe (1995) and Warner (2000) have been followed. Cadoret's classification is used for typifying the conflict's *manifestation over time* as "Chronic", "Anticipation", "Hushed" [or "Deferred"], and "Hybrid". Chandrasekharan's classification is used for typifying the underlying cause, which includes: Infringements over access, Change in resource quality and availability, Authority over resource, Conflicts that are Value based, Conflicts associated with information processing & availability, and Legal / policy reasons. Rupesinghe's classification is used to look at different stages of the conflict: Formation, Manifestation, Endurance, Management, and Transformation. Finally, Warner's typologies are employed to ascertain the conflict's scales: Intra micro-micro conflicts, Inter micro-micro conflicts, and Micro-macro conflicts.

For ranking the conflicts, Delphi method (Geist, 2010; Gupta & Clarke, 1996; Linstone & Turoff, 2002; Prusty *et al*, 2010) was employed. For this purpose, the online-questionnaire -

where each criterion was subdivided into indicators to allow assessment and rating - was developed through three rounds of the Delphi process. All items from the questionnaire were rated on a Likert-type scale with 5 or 7 points, allowing for ranking and comparison of all answers. Finally, the analyses and typological classification of conflicts together with the results from the questionnaires are used to rank the cases according to three criteria: criticality, urgency, and duration. The “criticality” of the conflict describes to which extent the conflict is critical to long-term development of the region/area and to which extent the conflict is an important event to local people. The “urgency” shows to which extent the conflict needs to be resolved immediately or if there is a deadline involved. The “duration” points out whether the conflict is a short-term (acute) or a long-term (chronic) event.

3. Analysis of the conflict cases

3.1 Privatization of the regional airport Ostend

3.1.1 Nature of the conflict

Ostend is a coastal seaside city, attracting people from whole Belgium for its recreational potentials. It houses one of the regional airports, which plays an important role for the local employment. The airport was established during the Second World War by the occupying Germans. Later, the Belgian government upgraded it to an international airport. In 1968, a new airport building complex was inaugurated. Since then, the airport Ostend became the second largest airport in Belgium. In 1976, the runway was lengthened to accommodate larger planes. In terms of air traffic, however, the number of passengers declined from 468,000 in 1964 to 53,000 in 1981, while freight transport climbed continuously to 50,448 ton in 1991 (number of passengers in 1991: 88,871). In 2010, 37,875 flights flew from/to the airport, carrying 213,638 passengers and 64,041 tons of freight (REPLO, 2011).

Within the network of airports in Flanders region, the airport also plays an important role at the national level, for both compartments: passenger and freight traffic. The Flemish government wants to develop the airport as part of the Flemish network of regional airports to spread passenger and freight traffic strategically (SERV, 2006; Flemish Government, 2009). The Flemish government, department of Mobility and Public Works, aims to transfer the commercial exploitation of the regional Flemish airports Antwerp, Kortrijk-Wevelgem and Ostend to private companies. The Flemish government will stay owner of the infrastructures, and intends to achieve a “balanced growth” (Vlaamse Luchthavencommissie, 2006, p.5):

economic growth of the regional airports, but with respect for the local residents (avoiding intolerable noise-levels).

Until 1992, the Federal Government of Belgium (Regie der Luchtweegen) was the responsible operator of the regional airport Ostend – a role that resides now with the Flemish government. They established a new area for airport related economic activities to the east of the airport. The runway was widened, taxiways have been added and new materials have been applied to reduce noise levels. This progressive increase in the expansion and use of the airport has provided a base for commercial and economic enterprises, providing employment opportunities (not only) for local residents.

Figure 3.1. Aerial view of Oostende Airport (VIL, 2007).



According to Flemish Government plan, the regional airport of Oostende will be privatized. This might result in more (air-) traffic due to increase in intensity of use and possible expansion of the airport. Local residents are afraid that the quality of life might be threatened by associated noise pollution, possible change in land-use for economic purposes generating further traffic nuisance.

On 1 June 1992, local residents, who did not agree with the policy makers that the airport Ostend should be expanded, or even exploited at all, organized themselves within the workgroup WILOO to lobby against the airport. In 2001, REPLO has been founded as a counteraction of the foundation of WILOO. This is a group of proponents of the regional airport Ostend. REPLO defends the economic interests of local companies (Het Nieuwsblad, 2001). Since 2008, the Flemish government is searching for a private investor for the economical exploitation of the airport (REPLO, 2011).

Table 3.2. Timeline of the conflict “Privatization of the airport Ostend”.

1940s	1992	1 June 1992	2001	Since 2008
Airport established	The Flemish Government becomes responsible for the exploitation of the airport	WILOO (a group of opponent local residents) has been founded	REPLO (a group of proponent representatives of enterprises and airport sympathizers) has been founded as a counterpart of WILOO	The Flemish Government is searching for a private investor for the economical exploitation of the airport

Thematically, this is a conflict between economic development vs. environmental protection. At the base of the conflict is the anticipation that the expansion of the airport will further cause land use changes to accommodate economic activities in the surrounding area. This might result in increased noise pollution and loss of open space that is used for recreation and crucial for maintaining environmental quality of the area. Air pollution might be caused not only by increased air traffic but also by secondary effects, like enhanced car and truck-traffic from and to the airport. Furthermore, human mobility might be affected if more jobs are created at the airport, e.g. traffic jams. More people might be attracted by increased employment opportunities, leading to increased pressure on the use of open space for housing.

According to the local, regional and Flemish government and local enterprises (some of which are organized within REPLO), the airport is of economic importance at all levels (Van de Voorde *et al*, 2006; Debisschop *et al*, 2007).

According to WILOO, the airport should not be expanded, privatized or even exploited at all. They perceive the airport as being misplaced, something which does not belong to Ostend, which does not fit within the context of a seaside resort town.

The conflict is about the use of space resource for living and seaside recreation vs. space for economic activities, and qualitative and quantitative as well. The conflict seems to be triggered by a lack of mechanisms to involve all parties in the process of decision-making for the privatization of the airport.

3.1.2 Parties involved in the conflict

In this conflict, the following main parties have been identified:

- Flemish government: Department for Mobility and Public Works.
- Airport authority (the airport is owned by the government, the airport-authority is part of the department of Mobility and Public works).

- REPLO (Regional platform airport Oostende): Established in 2001 in response to the foundation of WILOO. This is a group of proponents of the airport Oostende. The members are (local) residents and entrepreneurs who would like to see the airport growing and prospering to create jobs and economic opportunities.
- WILOO (Workgroup Impact Airport Oostende): An association of opponents of the airport Oostende, consisting of 300 local residents.
- Local residents.

Based on the stakeholder analysis approach, a description of the parties involved in the conflict is provided [table 3.3]. It includes their interests in the conflict and strategies in realizing their interests, their positions as to how they place themselves in the conflicts, especially in any intervention, their capacities to influence the direction of the conflict, and their relationships with other parties.

Table 3.3. Description of parties involved in the conflict "Privatization of the regional airport Ostend".

Parties	Interests	Strategies	Positions	Capacities	Relationships
Flemish government	Economy, environment and society	Official reports	They are proponents of the project. They take the initiatives to act, while the other parties mostly react.	Strong	Disagree and co-operate with the Airport authority. Agree and co-operate with REPLO. Disagree and limited communication with WILOO.
Airport authority	Economy	Dialogue and public media	They are proponents of the project. They follow the decisions of the Flemish government.	Weak	Disagree and co-operate with Flemish Government. Agree and co-operate with REPLO. Disagree and frequent communication with WILOO.
REPLO	Economy	Dialogue and public media	They are proponents of the project. They support the decisions of the government and the airport authorities.	Weak	Agree and co-operate with Flemish Government. Agree and co-operate with Airport authority. Disagree and no contact with WILOO.
WILOO	Society and nature	website, brochures, pamphlets, actions, demonstrations and judicial decisions	They are opponents of the project. They react on all actions and initiatives of the other parties.	Weak	Disagree and limited communication with Flemish Government. Disagree and frequent communication with Airport authority. Disagree and no contact with REPLO.

All the parties involved have different interests that they want to pursue. The national government sees the airport as an economic driver for the regional development. The airport of Ostend is part of the nationwide network of one international airport (Brussels) and five regional airports (Kortrijk-Wevelgem, Antwerp, Ostend, Liège and Charleroi), three of the latter are currently exploited by the Flemish government. REPLO, (local) enterprises, companies and sympathizing local residents see the economic potential of the airport as an opportunity to generate and support economic activities and employment. WILOO and sympathizing local residents perceive the airport as a foreign entity to Ostend that is a disturbing element, causing noise and traffic nuisance.

To defend their interests, the parties involved pursue different strategies. The proponents REPLO and the Airport authority regard dialogue and public media as important instruments to reach their goals. Whereas, the opponent WILOO uses their website, brochures, pamphlets, actions, demonstrations and judicial decisions as instruments to pursue their interests.

However, both the proponent REPLO and the opponent WILOO do not have many capacities that can strongly influence the course and outcomes of the conflict. All decisions seem to be made autonomously by the Flemish government. The parties involved interact and form various coalitions to strengthen their position and capacity. The proponents REPLO and the airport authority frequently communicate and co-operate with the Flemish government. The opponents rarely have contacts with the Flemish government, but they do have contacts with the local government at the municipality level. WILOO perceives the government as not cooperative.

While both organizations REPLO and WILOO do have close contact with the airport authority, communication between REPLO and WILOO is limited.

Strikingly, the airport authority does not expect the privatization to have a significant impact on the economic development of the airport. Here, they share their perception with WILOO, while REPLO believes in a strong impact of privatization in relation to economic power.

WILOO expects the privatization leading to degradation of the environment and to a decline of the quality of living in the vicinity of the airport, while REPLO and the airport authority don't expect negative effects. Table 3.4 below gives a description of the relationship between the parties involved in the conflict by classifying their coalitions into 3 types: Agree and cooperate, Disagree and communicate, and Disagree and limited communication.

Table 3.4. *Coalitions between parties in the conflict “Privatization of the regional airport Ostend”.*

COALITIONS	Flemish government	Airport authority	REPLO	WILOO
Agree and co-operate	REPLO	REPLO	Flemish Government Airport Authority	
Disagree and communicate	Airport Authority	Flemish Government WILOO		Airport Authority
Disagree and limited communication	WILOO		WILOO	Flemish Government REPLO

3.1.3 Typological classification

Following the classification in the “Methodology” section, this conflict is a **chronic** conflict, with recurrences of conflict episodes. WILOO reacts on every development and every change as far as the airport is concerned. They send letters to the government or try to enforce their demands by court.

It is a conflict not only about **quality and availability** of open space, but also a conflict about **authority**: The government, who is the owner of the airport now, is believed to listen to the concerns of the local residents (at least, the government is democratically elected) and should take all parties’ interests into account within their decision making process, while a private owner might be interested in economic motives only.

The conflict is in a stage of **endurance**: the discussions about the role, which the regional airport should play within the national / Flemish economic development plan, are still going on. Local residents, political parties and other institutions might still influence the further development of the airport.

It is a **micro-macro** conflict, where decisions about the overall economic development and especially about the development of regional airports in Belgium, affect the quality of life and welfare of the local residents in the vicinity of the airport.

3.1.4 Current trends of the conflict

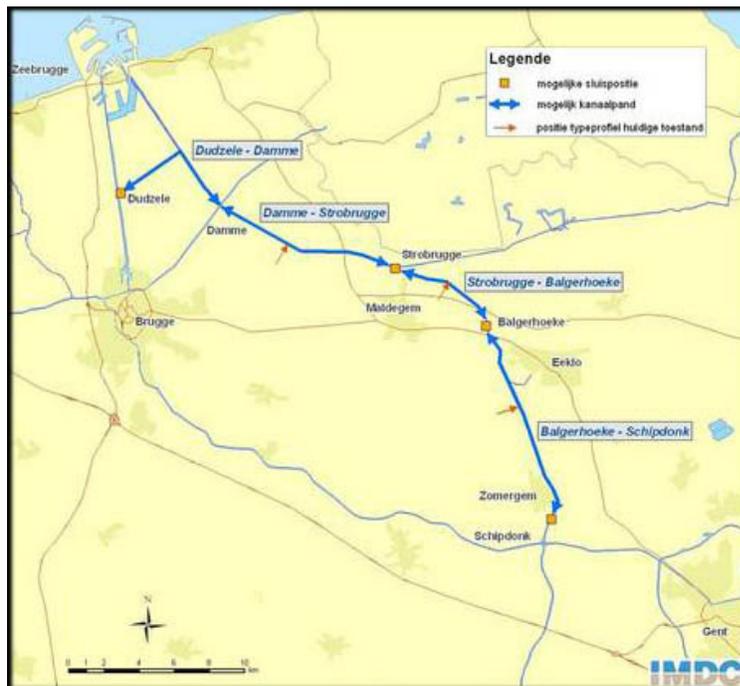
Negotiations with enterprises are on-going. At the moment, the Flemish government does not find a private investor who is willing to exploit the airport. There are no negotiations with the opponents of the privatization of the airport (WILOO). The government sticks with its plan to privatize the airport. There are no legal arguments against this plan. The only alternative would be that the government stays responsible for the economic exploitation of the airport. The results of the 2 different possible scenarios: privatization or no privatization are unpredictable.

3.2. Widening of the Schipdonk canal

3.2.1 Nature of the conflict

“Schipdonk” canal is situated in the provinces of West and East Flanders, in the north-west of Belgium, which had been trenched between 1846 and 1860 (Figure 3.2). It connects the Port of Zeebrugge at the Belgian coast with the ports of Ghent, Bruges and Ostend. Along with the Leopold Canal, it was one of the first major infrastructure works, since Belgium became independent in 1830. In the mid-19th century, the textile industry dominated the economy of the cities of Ghent and Courtrai and caused heavy pollution of the Lys River. To divert the polluted water from the centre of Ghent, Schipdonk Canal was constructed to transport the pollution directly to the Northern Sea. Another benefit from the canal involved protecting Ghent against flooding, which occurred periodically. The third significant benefit was the provision of a relatively direct water route from the industrially active Cortrai district to the North Sea. However, since the WWII, the Schipdonk canal didn’t play an important role economically.

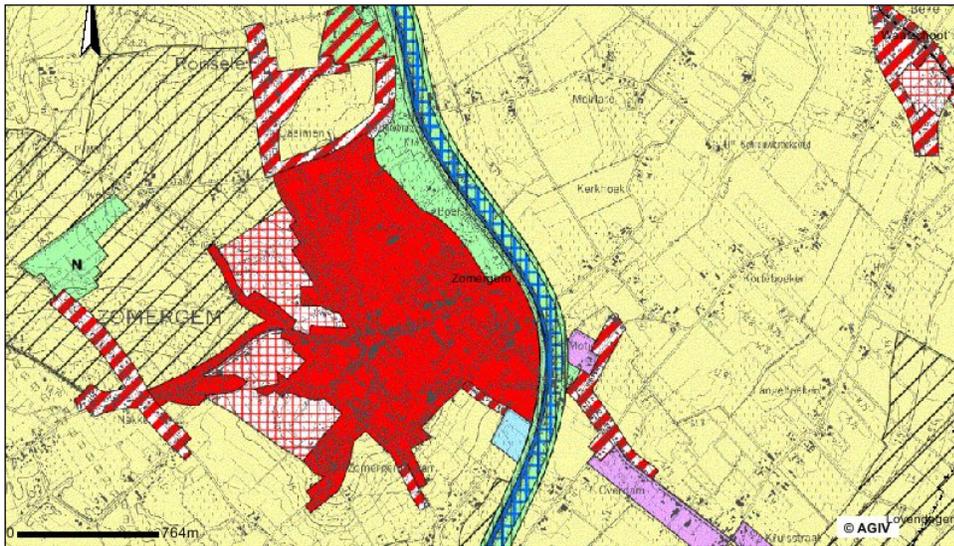
Figure 3.2. Situation of the Schipdonk canal within the network of waterways in the region (Group 3, 2011).



Plans to widen the Schipdonk canal exist since the 1960’s. The original idea was to use the canal as a link between the port of Zeebrugge and Kortrijk (and Roeselare) at the Leie. In the 1970’s the “Noorderkanaal” plan has been developed, to connect Zeebrugge with Zelzate (parallel with the N49). In this plan, a “reservatiestroom” (reservation strip) has been drawn for

the potential widening of the Schipdonk canal (see Figure 3.3). Because the discussion about the widening of the canal keeps on going for so long without any visible results, this plan is called “The ghost” by local residents.

Figure 3.3. Zoning plan Schipdonk canal nearby Zomergem; the blue raster indicates the “reservoestrook” (GEO-Vlaanderen, 2011).



On 28/ 03/ 2001 the so-called “MAIS” (Maatschappelijke impactstudie/Societal impact assessment) report has been published, which suggests the widening and deepening of the Schipdonk canal as an opportunity to “unlock” the port of Zeebrugge (Ministrie van de Vlaamse Gemeenschap, 2001). The harbour of Zeebrugge is continuously growing since WWII and especially since the 1970ies. The Schipdonk canal offers a high potential to support the underdeveloped inland-transport from the harbour, as an alternative to road transport by truck or railway or via maritime estuarine transport (via the river mouth of the river Scheldt to Antwerp), which are not sustainable and have reached their capacities. According to the port authority and the Flemish government, the canal Ostend-Bruges-Ghent has reached its capacity limits, leading to traffic chaos in the city centre of Bruges (where bridges have to be opened whenever a boat is passing by, leading to congestion of vehicles waiting for the bridges to be closed again). Therefore, the Schipdonk canal seems to offer a solution. But the canal’s capacity is limited i.e. not wide and deep enough for modern cargo ships. Also arose from the MAIS are following conclusions:

- there is a risk for salinization
- the impact of the project for shifting transport from the street (transport by trucks) to water (transport by ships) is predicted insufficient
- the costs for the project are too high to be economically efficient

However, its impact on the local landscape has generated a massive resistance from across the civil society groups, such as 't Groot Gedelf, Natuurpunt and the political party Groen!. They are concerned about the [anticipated] impacts that the project will have on the picturesque historical landscape and water management in the area. Furthermore, the project could attract industrial enterprises, which could have an impact on the quality of life of the local inhabitants. The landscape along the Schipdonk canal is quite unique in Europe (Allaert, 2008, p.80). With its ancient trees and surrounded by open farmland, it became a peaceful and attractive landscape element, used for recreational boating, hiking and biking activities on the quiet, traffic-calmed roads alongside the canal. The local residents living in the vicinity of the canal, appreciate the picturesque landscape and the quietness of the area.

Figure 3.4. Photographs of the Schipdonk canal at different locations between Zomergem and Damme, taken by the authors on 9 May 2011.



Due to protests from the left wing party “Agalev” (now “Groen!”), the “Boerenbond” (Farmer’s alliance) and due to a lack of societal support, the idea of the Noorderkanaal was abandoned in 2004 (Agalev Zomergem, 2001; Boerenbond, BBL, Natuurpunt, 2009). In 2006, a new plan has been proclaimed by the Flemish Government: “Seine-Schede-West (SSW)”. This is a potential network of waterways which would provide an inland connection between the Schelde mouth and northern France. The Schipdonk canal is now thought to be an important link to connect Zeebrugge with the SSW network. The main aim of this project is to change the modal split of hinterland traffic in favor to transport via waterways as a substitute of the unsustainable road transport.

The workgroup “’t Groot Gedelf” has been founded in 2007 by local residents. Their main argument against the SSW project (and therefore against the widening of the Schipdonk canal) is that on the trajectory to Northern France there are over 30 bridges which cannot be under-passed by container ships. Therefore, the project is considered to be not realistic.

In 2008 the “Maatschappelijke Kosten-Baten Analyse (MKBA)” was published, with a positive result for the plans to widen the Schipdonk canal. In 2009, the plan MER (report on environmental effects) was rejected. Despite the lack of a societal support for the project, the Flemish Government (department MOW) announced that in 2011 a final decision would be made for or against the widening of the Schipdonk canal.

On 3 April 2011 local action groups sent an open letter to the Flemish minister for mobility and public constructions, Hilde Crevits, asking her to stop all plans for the widening of the Schipdonk canal. The arguments against the canal are based on the consequences of a wider canal:

- loss of valuable landscapes
- loss of recreational space
- loss of quality of living
- loss of positive landscape perception
- risk of salinization
- risk of water level declination
- doubts about the economic efficiency of the project

According to the opponents of the project an alternative for this project would be a combination of the following transport options:

- a capacity improvement of the existing canal Ghent-Ostend,
- increased estuarine traffic via the Northern Sea and the river Scheldt between Zeebrugge and Antwerp, and
- a shift of the modal split for transportation of goods, from the harbour to the hinterland, from road- towards railroad transportation.

Table 3.5. *Timeline of the conflict “Widening of the Schipdonk canal”.*

1960's	1970-2000	2001	2004	2006	2007	2011
A reservation strip has been drawn in the zoning plan which foresees the widening of the Schipdonk canal	Different strategic plans have been made to widen the Schipdonk canal	“MAIS” (Maatschappelijke impactstudie/Sociaal impact assessment) report has been published, which suggests the widening and deepening of the Schipdonk canal as an opportunity to “unlock” the port of Zeebrugge	Due to protests from the left wing party “Agalev”, from the “Boerenbond” and due to a lack of societal support, the idea of widening the canal was abandoned in 2004	A new plan has been proclaimed by the Flemish Government: “Seine-Schede-West (SSW)”, which foresees in the widening of the Schipdonk canal as an essential element of SSW.	The opponent workgroup “t Groot Gedelf” has been founded in 2007 by local residents	The Flemish Government (department MOW) announced that within this year a final decision will be made for or against the widening of the Schipdonk canal.

Thematically, this is a conflict about **economic development vs. environmental protection**. By widening the canal, valuable landscapes (rows of ancient trees) will be destroyed, which might be irreplaceable. The quality of life for the local residents will be affected negatively. The perception of the surrounding area will be degraded by this project. Open space used for economic activities might be expanded at the cost of open space for nature and recreation. Air pollution and increased traffic intensities might occur if the widened canal attracts new enterprises. Farmers are especially worried about a declining groundwater level and salinization, caused by a wider canal and the intrusion of seawater.

In term of mobility, human mobility will change if more jobs are created along the canal, which might cause traffic jams. More people might be attracted to live in the area for the working opportunities. Cargo transport by road to/from Zeebrugge might be reduced in favor of (environmentally friendlier) cargo traffic by boat. The existing traffic of ships on the canal Ghent-Bruges causes traffic jams in Bruges, where bridges have to be opened, whenever ships are passing.

3.2.2 Parties involved in the conflict and their description

Politically, two camps have developed over the years: The green party is an opponent of the project. They want to keep the nature and landscape values intact. They perceive open space and tranquillity as a scarcity in the Flemish landscape, which has to be protected from economic development. The centre-right party CD&V perceives the canal as an essential element for the future development of the port of Zeebrugge. According to them, capacity enhancement of the port of Zeebrugge must be accompanied by an improvement of the hinterland transportation capacities, which can only be accomplished by a capacity improvement of the Schipdonk canal.

According to the opponents of this project, widening the canal would result in the loss of a unique landscape, because the canal is aligned by rows of ancient trees, which contribute in a significant way to the landscape perception of local residents and tourists, who use the canal for leisure boating and the traffic-calmed roads alongside the canal are being used for hiking and biking. Furthermore, deepening and widening of the canal will lead to salinization and ground water level decline, endangering the surrounding farmland.

Thus, in this conflict, the objectives of the Flemish government (at least its departments for inland shipping, the port-authority of Zeebrugge and the department for public works and mobility) are the opposite of the objectives of local residents and farmers: it's a conflict about 'yes' or 'no' (the canal will be widened or not).

Mechanisms to involve all parties in the process of forming a decision for or against the widening of the canal do exist under the form of the obligation for the government to announce all planned infrastructure projects in public. After the announcement, every Belgian citizen is entitled to formulate objections against the project. Furthermore, the government is obliged to set up a report on the predicted effects of the project on the environment. This report has to be developed by independent scientists.

Within these procedures, opponents of the project are required to invest lots of time in gathering information about the project and to formulate and post fully elaborated objections. Only few people are able to overcome this threshold and are willing to invest time and energy in the conflict.

Five key-players are involved in the conflict: Flemish government, department Mobility and Public Works; department Waterwegen & Zeekanaal; Natuurpunt; 't Groot Gedelf; Local residents. Table 3.6 gives a description of their interests, goals, positions, capacities and relations toward each other.

Table 3.6. Description of parties involved in the conflict “Widening of the Schipdonk canal”.

Parties	Interests	Goals	Positions	Capacities	Relationships
Flemish Government	Economy	They use dialogue, websites and printed media to defend their position.	Proponents of the project. They are proponents of the project. They take the initiatives to act.	Strong	They agree and co-operate with Waterwegen & Zeekanaal. They disagree and communicate with Natuurpunt. They Disagree and have limited contact with 't Groot Gedelf and with the local residents.
Waterwegen & Zeekanaal	Economy	They use dialogue, websites and printed media to defend their position.	Proponents of the project. They try to avoid discussions with opponents and rely on legal documents to defend their goals.	Strong	They agree and co-operate with the Flemish Government. They disagree and have limited contact with all opponents: Natuurpunt, 't Groot Gedelf and local residents.
Natuurpunt	Nature and social	They use dialogue, websites and printed media to defend their position.	Opponents of the project. They react on each official document, which supports the project. They try to create societal and political support.	Weak	They disagree and have limited contact with Waterwegen & Zeekanaal. They disagree in most points and they communicate with the Flemish Government. They agree and communicate with 't Groot Gedelf. They agree and co-operate with the local residents.
't Groot Gedelf	Social and nature	They use dialogue, websites and printed media to defend their position. They also consider public media as being important instruments to defend their position.	Opponents of the project. They react on each official document, which supports the project. They try to create societal and political support.	Intermediary	They disagree and have limited contact with the Flemish Government and with Waterwegen & Zeekanaal. They agree and communicate with Natuurpunt. They agree and co-operate with the local residents.
Local residents and farmers	Social and nature	They use dialogue, websites and printed media to defend their position.	Opponents of the project. They play a passive role. They take part in demonstrations and other actions.	Weak	They disagree and have limited contact with Waterwegen & Zeekanaal. They agree and co-operate with 't Groot Gedelf and with Natuurpunt.

According to the questionnaire, the department Waterwegen & Zeekanaal is the strongest proponent of the project. They defend the economic importance of the widening of the Schipdonk canal and they estimate the scale of the negative impact on landscapes and quality of life as low.

The Flemish government takes a more independent position. The questionnaire's results show that they are ambivalent towards the decision whether the canal should be widened or not. In their view, the negative impact on environment and landscape is important, but they also believe in a strong positive economical impact of the project.

Natuurpunt WVL, 't Groot Gedelf, local residents and farmers are strong opponents of the project. They don't believe in a strong positive economical impact of the project but they fear a very strong negative impact on the environment, landscapes and quality of life.

All parties involved in this conflict claim that they consider dialogue as a very important tool to defend their positions. They consider printed information and websites as important tools to explain their position and motivation in this conflict and to draw the attention of a wider public. The opponents of the project ('t Groot Gedelf and Natuurpunt) considered public media, such as radio- and TV- interviews and newspaper articles as important tools to defend their positions, while the government and Waterwegen & Zeekanaal were more sceptical about the importance of these media to defend their position.

The proponents of the project try to support their position by means of official reports, such as the MAIS, MBKA and MER. They consider these reports as being objective and sound. The opponents mainly react on each official documents by searching for mistakes and inconsistencies in these reports to weaken the argumentation of the proponents. The opponents try to create societal support, as well as from political parties as from local residents and farmers, to prevent the plan from being executed by using their political and societal power to influence the democratic decision making progress towards their position.

All proponents consider their capacities as "strong", while most opponents consider their capacities as "weak" or "very weak" ('t Groot Gedelf considers it's capacities as "intermediate").

The opponents search for partners in their network among local residents, farmers, political parties, environmental NGO's and environmental governmental departments. The proponents rely on a network of representatives from enterprises, economical motivated governmental departments and politicians who share their opinion.

The opponents perceive the proponents as not cooperative in any discussion, while the Flemish Government considers its own attitude as open, cooperative and democratic.

The local residents perceive the whole decision making process as a top-down system. According to the interviews with local residents, they unanimously consider their position as powerless and over-ruled. Their attitude is merely passive, although they embrace each opportunity to raise their voice by means of signing petitions or participate in demonstrations. Table 3.7 describes the coalitions between parties in the conflict “Widening of the Schipdonk canal”.

Table 3.7. *The coalitions between parties in the conflict “Widening of the Schipdonk canal”.*

COALITIONS	Flemish government	Waterwegen & Zeekanaal	Natuurpunt	't Groot Gedelf	Local residents and farmers
Agree and co-operate	Waterwegen & Zeekanaal	Flemish Government	't Groot Gedelf Local residents and farmers	Natuurpunt Local residents and farmers	Natuurpunt 't Groot Gedelf
Disagree and communicate	Natuurpunt		Flemish Government		
Disagree and limited communication	't Groot Gedelf Local residents and farmers	Natuurpunt 't Groot Gedelf Local residents and farmers	Waterwegen & Zeekanaal	Flemish Government Waterwegen & Zeekanaal	Flemish Government Waterwegen & Zeekanaal

3.2.3 Typological classification

This is a **chronic** conflict, with recurrences of conflict episodes. The discussion about the widening of the Schipdonk canal goes on since the 1960's. Until now, each attempt to put this project into reality has been successfully counteracted by opposition of local residents.

It is a conflict about **quality and availability** of open space. The conflict is in a stage of **formation**: No binding decisions have been made yet. It is a **micro-macro** conflict: the enhancement of the capacity of the canal will affect the quality of life and welfare of the local residents in the vicinity of the canal.

3.2.4 Current trends of the conflict

The current minister of the Flemish government for public works and mobility announced that a final decision would be taken during 2011. The action group “'t Groot Gedelf” keeps on protesting against the widening of the canal. Nothing has been done yet to solve this conflict. The conflict is ongoing. The alternative: estuarine marine transport in combination with

railway transport will be discussed and studied, following the mandatory, institutionalized and formal procedure for environmental impact analysis.

If the canal will be widened, the environmental and social impact will be huge, while the economic impact is difficult to be predicted. No reliable measurements exist for the impact of the widened canal on the future modal transport mix from the harbour of Zeebrugge to the hinterland. If the canal stays as it is, the economic impact will be limited, because alternatives for inland transport from the harbour of Zeebrugge exist and they are economically feasible.

3.3 Expansion of the inland harbour of Zeebrugge

3.3.1 Nature of the conflict

In the late 1960's, Zeebrugge's role as an important port for Belgium started to take off.

From 1964 onwards, ferry services for passengers and freight from Zeebrugge to Dover and Felixstowe were organized. The new harbour of Zeebrugge was officially re-opened on 20 July 1985, adapted to receive modern oil tankers, container ships and roll on/roll off cargo. In 1999, the Flemish government published its global strategic plan for the further development of the harbour of Zeebrugge.

Globalization and economic growth results in the rise of importance of harbours within the overall national economic activities in Belgium. The harbour of Zeebrugge is one of the four sea-harbours of Belgium (Antwerp, Ghent, Oostende, Zeebrugge). Between 1985 and 2000, transport of goods in the harbour of Zeebrugge has risen from 14 million tons to 35,5 million tons. 50% of its transport activities are based on container traffic. In 2008, 10% of all jobs in the 4 Belgian marine harbours are situated in Zeebrugge, and 16% of goods throughput (Nationale Bank van België, 2010). The harbour grew by 8% between 2003 and 2008 in term of monetary added value.

Plans to expand the harbour exist since the 1960s, and have been integrated in the Flemish zoning plan. Therefore, some areas were not used for human activities and have been developed naturally into biologically valuable habitats. This nature area has partially been protected by national and European laws. In 2001, the green political party "Groen!" asked not to develop the harbour of Zeebrugge any further, because valuable nature areas were situated within the harbour development area.

Despite this request, in 2004 the strategic harbour infrastructure project (SHIP) has been announced by the Flemish government. This plan foresees further development of the inland harbour to improve the short-sea capacity. Therefore, to the south of the existing deep-sea

harbour of Zeebrugge, a lock (the “Visartsluis”) will be removed to create a limited tidal harbour between the Visartsluis and the “Carcokesite” (see map). Furthermore, the docks “Prins Filipsdok” and “Oud-Ferrydok” will be filled and used for shortsea activities. New dykes and quays will be constructed to prevent the surrounding of the new tidal harbour from being flooded. At the southern far end of the tidal harbour, a new lock will be created to connect the tidal basin with the existing dock “Verbindingsdok” and the canal “Boudewijnkanaal”. The canal and the dock will be deepened and widened. To improve hinterland access, a new railroad bundle will be constructed nearby the village Zwankendamme (Naert, 2007).

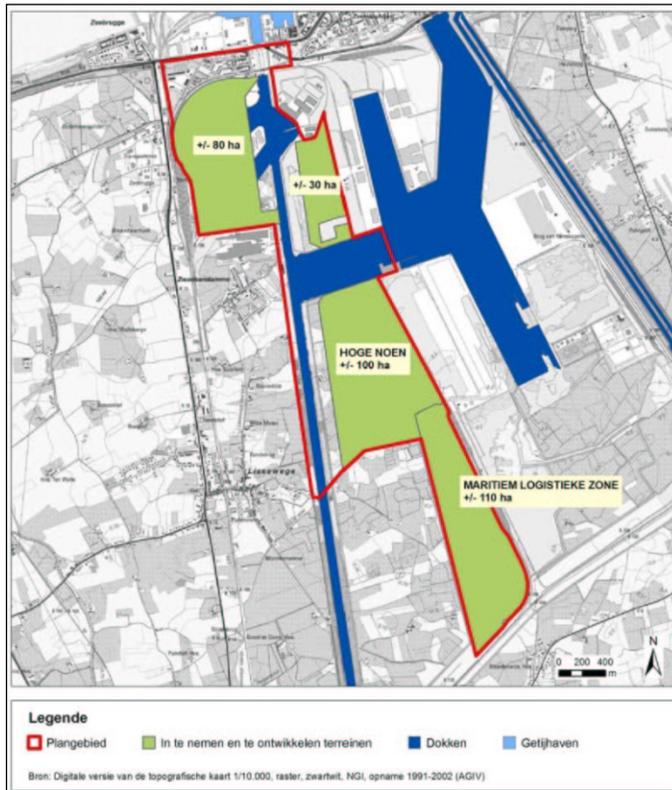
Due to these works, an area of 362ha of valuable open space and partly protected nature will be destroyed. The protected area consists partly of European Birds directive: the so-called “Poldercomplex” (Europa, 2011) and partly of ecological protected areas, based on the Flemish decree for Nature conservation from 1997.

Figure 3.5. Aerial photograph of the development area (<http://www.ministerhildecrevits.be/>).



In April 2005, an agreement has been signed between the Flemish government, the port authority and the “Vlaamse Landmaatschappij” (VLM) (Flemish Land Agency). The VLM is responsible for the nature compensations. On 21 June 2005 the “management commission for nature compensations for the inland harbour of Zeebrugge” has been established. The commission has to search for areas, where 362 ha nature can be re-established. In detail, the following values have to be re-established: 65 ha swamp, 144 ha grassland with silt elements, 144 ha polder grassland and 9 ha brackish pools.

Figure 3.6. Project area inland port of Zeebrugge (Technum, 2008, p.18).



Until now, 240ha of open space (presently used for agriculture) have been purchased by the VLM to be re-established as nature area. But while the works in the harbour are continuing, 189ha are still not established as nature-area (VLM, 2010; VDAB, 2010). To ease this deficit, a conversion from 'Polder grassland' to 'silt grassland' has been performed, resulting in a smaller area which has to be re-established. Furthermore, new areas will be purchased by the government from local farmers at a higher pace (Flemish government, 2010).

This conflict results from concurrent use of the space resource for nature, housing and harbour activities. Housing is not threatened by a lack of quantity of space but by perception of the landscape and quality of living, due to predicted rise of noise levels in the vicinity of the planned railway track bundle at the village of Zwankendamme. According to the local residents, the Flemish government does not listen to their argumentation. The local residents think that an alternative location is feasible.

The use of space for nature is in direct conflict with the use of space for harbour activities. While harbour activities cannot take place elsewhere, nature seems to be re-locatable,

according to the laws of the Flemish government. Therefore, protest from the green party does not have any consequences and nature activists are powerless.

This conflict is triggered by the powerful position of the port authority and of department of public works and mobility: The proponents perceive their plans to expand the harbour as being legally faultless, because the zoning plan foresees the project area as being developed for harbour activities. The opponents have no legal power to object against this project, especially not against the destruction of natural sites. The government believes that the nature area is fully replaceable at another location. Therefore, they perceive objections against the expansion of the harbour as unfounded.

Thematically, this is a conflict about **economic development vs. environmental protection** and about **preservation of natural sites and biodiversity**. The harbour will be expanded into a nature conservation area (Bird protection at European level: RAMSAR) and into natural valuable green areas. The natural values are thought to be replaceable elsewhere, by nature compensation works, but apparently, available and suitable spaces are limited at the densely inhabited Belgian coast.

Human mobility might be affected if more jobs are created in the harbour, which might cause traffic jams. More people might be attracted to live in the area by enhanced working opportunities. Cargo transport by road to/from Zeebrugge might be reduced in favour to (environmentally friendlier) cargo traffic by boat and railway. On the other hand, the extended capacity of the harbour might lead to more road traffic, even if the modal split for inland transport of goods from the harbour should shift from road to railway and/or waterway.

Table 3.8. *Timeline of the conflict “Expansion of the inland harbour of Zeebrugge”.*

1960s	20 July 1985	1999	2001	2005	2011
The port starts to play an international role	The new harbour of Bruges/Zeebrugge is officially opened	The Flemish government publishes it’s global strategic plan for the further development of the harbour of Zeebrugge	The green political party “Groen!” asks not to develop the harbour of Zeebrugge any further	The VLM becomes responsible for nature compensations to re-establish destroyed nature areas	189ha of nature area are still not established

3.3.2 Parties involved in the conflict and their description

In the analysis of the parties involved [table 3.9], the focus is on three key-players: Mobility and Public Works [including port development authority], Leefmilieu, Natuur en Cultuur (VLM) and Leefbare Polderdorpen vzw.

Table 3.9. *Parties involved in the conflict “Expansion of the inland harbour of Zeebrugge”.*

Parties	Interests	Goals	Positions	Capacities	Relationships
Mobility and Public Works	Economy	They stick to the legal administrative course, which is delineated by the national laws for projects like this one.	Pro	Strong	They search for compromises with VLM. They disagree and have limited contact with Leefbare Polderdorpen.
Leefmilieu, Natuur en Cultuur (VLM)	Nature	As a governmental department, they follow the governmental decisions.	Ambivalent	Weak	They agree and co-operate with the Flemish Government.
Leefbare Polderdorpen vzw	Social	They search for visibility of their goals. They try to spread information about the project in combination with their criticism about it. They use all channels for their information campaigns: actions, like demonstrations, pamphlets, posters, petitions, information meetings etc.	Ambivalent	Intermediary	They disagree and have limited contact with the Flemish Government. They agree and have limited contact with VLM.

The Flemish government, department for Mobility and Public works and the port authority are the initiators of the project. The Flemish Government claims an intermediary position among all parties. The government established the strategic plan for the development of the harbour of Zeebrugge, in which they proclaim that space for living will be protected to a maximum extent, while natural space will be kept and strengthened and space for economical activities will be used in an efficient way. To put this intention into reality, the different departments of the Federal government (housing, nature conservation and public works) will have to co-operate to find optimal solutions, with a maximum profit for all 3 departments.

The VLM is responsible for the nature compensations and needs to compensate the area of valuable and protected nature, which will be destroyed in favor of economic activities.

The action committee “Leefbare Polderdorpen vzw” (Livable Polder Villages society) protests against the location of the planned railway track bundle nearby the village of Zwankendamme. According to this group of local residents, the noise-level will rise intolerable in the vicinity of the railway tracks, which will be located as close as 300m from the village.

The NGO “Leefbare Polderdorpen vzw (LP)” wants to keep the quality for housing in the area intact, and is particularly focused on the future change of quality of living, in terms of landscape perception, mobility and noise levels. The open green spaces, which will be occupied by harbour activities, will change the perception of the area for the local residents. LP especially criticizes the plans for the new railway yard at Zwankendamme, which will cause noise pollution in the area. They focus on local residents, living in the direct vicinity of the project area, and search for alternatives with less negative impacts on the local residents, such as alternative locations for the planned railway track bundle (“Pelikan” instead of Zwankendamme). They agree that the expansion of the inland harbour of Zeebrugge is economically important.

The NGO “Natuurreservaten vzw” criticizes the insufficient nature compensations, as well qualitative as quantitative.

All parties claim dialogue as the most important instrument to solve this conflict. But the local residents, represented by LP, feel as if the government does not take their ideas and desires into account.

Because the government and port authority are legally supported by national laws (the development of the inland port was foreseen in zoning plans since over 40 years (Groen vzw, 2001), the capacities for the opponents of the SHIP-project are very limited.

The number of local residents, directly affected by the project, is limited. There is no political party in the (local) government, defending the wishes of the local residents.

Within the Flemish government, there are internal conflicts between the three departments of housing, nature conservation and economy. These conflicts are being tackled by strong relationships and permanent contacts, ongoing discussion and easy availability of information among the different departments.

Table 3.10. Coalitions between parties in the conflict “Expansion of the inland harbour of Zeebrugge”.

COALITIONS	Mobility and Public Works	VLM	Leefbare Polderdorpen
Agree and co-operate			
Disagree and communicate	VLM	Mobility and Public works	
Disagree and limited communication			Mobility and Public works

4. Ranking of the conflicts

The intention behind ranking of the three conflicts is to understand which conflict requires the most attention by the government, and compare them according to the predicted scale and urgency of the impact of the different conflicts. The ranking also reveals which conflicts require immediate action to solve the conflict, and thus valuable for policy makers to detect priorities for their actions.

Two ways of ranking were used. “Absolute” is the rank per conflict. If a certain type dominates, it is ranked with xxx, if a type is applicable to a limited extent only: xx, if a type does not apply: x. Then under “Ranking”, the conflicts are compared: for each type of conflict, the conflict which corresponds most with a certain type is marked with: xxx, the second most corresponding conflict is marked with: xx, the least corresponding is marked by: x. The column “Total” contains the counted sum of all marks (“x”) for each conflict.

Table 3.11. Ranking of the 3 conflicts, by type.

Case	ED vs. EP		PNSB		HMR		Total	
	Absolute	Ranking	Absolute	Ranking	Absolute	Ranking	Absolute	Ranking
Airport Ostend	xx	x	x	x	xxx	xxx	6	5
Schipdonk canal	xxx	xxx	x	xx	x	x	5	6
Port Zeebrugge	xxx	Xx	xx	xxx	xx	xx	7	7

In table 3.12, the 3 conflicts are compared and ranked based on the 3 criteria: criticality, urgency and duration. The column “Absolute” shows the rank for each conflict: if the conflict is critical, it is ranked with xxx, if it is critical to a limited extent: xx, not critical: x. The column “Ranking” ranks the conflicts in comparison with each other: the most critical conflict: xxx, the second critical conflict: xx, the least critical conflict: x – analogue for the other 2 criteria urgency and duration. The column “Total” contains the counted sum of all marks (“x”) for each conflict.

Table 3.12. Ranking of the 3 conflicts on 3 criteria: criticality, urgency and duration.

Case	Criticality		Urgency		Duration		Total	
	Absolute	Ranking	Absolute	Ranking	Absolute	Ranking	Absolute	Ranking
Airport Ostend	xxx	xx	x	xx	xxx	xx	7	6
Schipdonk canal	xx	x	x	x	xxx	xxx	6	5
Port Zeebrugge	xxx	xxx	x	xxx	xxx	x	7	7

The ranking shows that the conflict “Privatization of the Ostend airport” is **not critical**, because the role of the airport within the overall economic output of all Belgian airports is relatively limited.

The conflict “Widening of the Schipdonk canal” is **quite critical** for the regional development, although to a lesser extent than the scale enhancement of the harbour of Zeebrugge, where secondary effects of the project will be more severe than for the Schipdonk canal. On the other hand, to realise the SHIP project, the widening of the Schipdonk canal might be an important element to make the SHIP project economically efficient.

The conflict “Expansion of the inland harbour of Zeebrugge” is an important event at the national scale, economically. The conflict is **critical** for the regional development. For the long-term development of the harbour of Zeebrugge, this project is crucial, since the future harbour capacity depends on this project (or its alternatives). Solutions for the short-sea activities have to be found. Environmentally, the conflict is limited to the local level. If the nature compensations can be put into practice, the overall effect of the project won't be negative. The impact on landscapes, perception and quality of living will be limited to the direct surrounding of the inland harbour, if existing infrastructures (highways, waterways, railways) are sufficient to handle the growth in transport volume from and to the harbour. If the existing infrastructure is not sufficient, secondary effects of the projects might affect a much wider area (see: Schipdonk-canal conflict).

In term of urgency, there is **no urgency** to solve the conflict “Privatization of the regional airport Ostend”, because no immediate potential damages or dangers could be detected. As for the “Widening of the Schipdonk canal”, the **urgency** to solve this conflict is **limited**, because alternatives for this project exist, which should be discussed and compared first. The conflict “Expansion of the inland harbour of Zeebrugge” has to be resolved immediately. The works in the harbour have started already, while nature compensations cannot fully be established. The problem has to be solved **urgently**: the destroyed nature has to be re-established immediately, otherwise bird populations might be threatened.

In term of duration, “Privatization of the regional airport Ostend” is a **chronic** conflict, which goes on especially since the 1980's when air-traffic began to play an important role in the economic development of the country. The capacity of the airport and the amount of flights has been enhanced ever since. The plans for privatization are only the most recent step in the ongoing economic development of this regional airport. According to WILOO, the discussion

about privatization of the airport Ostend started in 1994, when private investors invested 3 billion Belgian Francs (7,4 Mio. €) (De Kustkrant, 1993). According to the airport authority, plans for privatization exist since 2003.

The “Widening of the Schipdonk canal” is a **chronic** conflict, which goes on since nearly 50 years. Meanwhile, the “Expansion of the inland harbour of Zeebrugge” is also a **chronic** conflict, which goes on since 1985. Since then, the harbour has been expanded continuously.

Table 3.13 consolidates the results of table 3.11 and table 3.12. The results from ranking by type and by trend are translated into a range of values between 1-3: the case with the lowest ranking gets value “1”, the highest rank is translated into “3”. The column “total” contains the sum of the rankings from the two tables for each case. The case with the highest total ranking value (port of Zeebrugge) requires the most attention from policy makers or other institutions who could provide mediating mechanisms to solve the conflict.

Table 3.13. Final ranking.

Case	Type	Trend	Total
	Ranking	Ranking	Ranking
Airport Ostend	1	2	3
Schipdonk canal	2	1	3
Port Zeebrugge	3	3	6

5. Conclusions

Although all of the three environmental conflict cases show thematic similarities (economic development vs. nature, and human mobility), the nature of the three cases is quite different:

The privatization of the airport Ostend is a managerial, structural decision to be taken, with indirect impacts on the environment and human mobility. The possible future impacts are difficult to predict.

The widening of the Schipdonk canal directly affects historical landscapes and landscape perception. The environmental consequences can be calculated and are quite predictable in an objective way. The economic impact is difficult to be predicted in an objective way, because future traffic figures and future modal split for hinterland transportation are unpredictable. Therefore, the opponents and environmentalists do have clear and reliable

arguments against the project, while the proponents cannot promise any positive economic effect of the project.

The expansion of the inland harbour of Zeebrugge is the most advanced of the three conflict cases: it is in the stage of execution. The environmental consequences of the project can be measured in terms of destroyed area of protected nature and in terms of predictable noise-levels in the vicinity of the planned railway track bundle. The economic effects can be measured in terms of capacity for transportation of goods, but the future usage of this capacity is unpredictable.

There are nonetheless common issues, recurring in all three cases: the local residents feel a lack of communication with the Flemish government - this seems to be a chronic situation in Flanders, as it has been recognized by scientists before (for example Claus, 2003, p.72). The local residents perceive decisions being taken by the government as authoritarian, while the government perceives their behaviour and decision making procedures as open and democratic. They feel not heard by the government and decisions seem to be carried out (sooner or later), independent from the (local) public opinion.

Another common pattern, recurring in all three cases, is the way the proponents and opponents try to influence the conflict: the proponents stick to the legal procedure of formal announcements of plans, mandatory environmental and societal impact reports, rather than discussions with all parties involved. The opponents react on the published plans and reports, rather than pro-act and anticipate to plans. Their reactions express themselves in a variety of actions, ranging from lobbying, trying to raise their voice in the parliament (either personal or via political parties, if parties can be found who share the opinions of the opponents of the projects), publishing and spreading written information by means of flyers, brochures or websites and organizing demonstrations.

The sum of all rankings reveals the harbour of Zeebrugge as the project with the most important environmental impact of all three cases. On the other hand, the conflict is most intense around the Schipdonk canal. The reason therefore is that the Schipdonk canal conflict is clearly visible for many local residents. The consequences of the widening of the canal are easy to be predicted, no complex information has to be gathered to be able to estimate the scale of the consequences.

The conflict around the port of Zeebrugge is the least intense conflict, because the numbers of affected local residents and recreational users of the area are limited. Furthermore, the effects of the destruction of protected nature are difficult to be estimated. The required

compensation of the destroyed nature area institutionalizes the conflict: the Flemish Government is at once economically as well as environmentally motivated user. As far as the destroyed protected nature areas are concerned, this conflict will be solved internally, within the Flemish Government.

The conflict around the privatization of the airport Ostend is also less intense than the conflict around the Schipdonk canal, because the effects are difficult to be predicted.

The results from the online questionnaire show that even parties from the same coalition “camp” have very different expectations about the consequences of the different projects. Their opinions differ about the scale, importance and impact of the different projects. This might be an indicator for an unbalanced supply of information:

- Do all parties have access to comprehensive information about the planned projects in detail?
- Is the information objective and reliable?
- Did all parties work themselves through all relevant documents, containing information about the projects?
- Which are the bottlenecks?
- Which future scenario’s are predictable and realistic?

Only if all parties lead the discussion based on the same objective information, compromises or alternative solutions can be developed. The different alternatives for each project have to be analyzed in an objective and comparable way, based on the same parameters for future scenarios. (For example: Schipdonk canal vs. railroad, estuarine transport, using the existing waterway canal Ostend-Bruges-Ghent or combinations of these transport ways).

The interactions and relations between the different “camps” (social, environment and economy) are poorly developed. The formal mediating structures, providing space for different parties to talk to each other and interact are complex and not transparent for private local residents. The procedures do exist, allowing for local residents and other not-economically motivated users to bring in their personal perception and desires into the planning and decision making process. But these procedures require an active attitude and active search for information about “What is going on? What are the plans about? and How can I bring in my personal needs and concerns?”. This attitude and capacity is widely missing within the “camp” of the non-economically motivated users.

An overall conclusion is that the more visible and predictable the impact of a plan is, the more intense the environmental conflict is. The scale of the environmental impact is not necessarily related with the scale of the conflict: destroying protected nature reserves in a remote area seems to be less noticed and leads to lesser conflicts than the plan to cut down rows of trees, which dominate the landscape, are clearly visible and are an important part of landscape perception for many local residents.

All three cases are related to infrastructure and mobility and with choices for the modal split for the transport of goods (transport by road, railway and/or waterway). The privatization of the airport Ostend, the expansion of the port of Zeebrugge and the widening of the Schipdonk canal do have important impacts on the future modal split, and in this way, all cases are related to each other. But decisions about the infrastructure related modal split are made case-wise and not within the framework of an overarching mobility plan. The existing mobility plan (Flemish Government, 2009) does not contain a vision and clear objectives for the future desirable modal split, leaving the decision making process for all three cases unguided and not concerted.

Embedded in all the three projects is the infrastructural logic of improved connectivity and efficiency for reducing the cost of doing business [increased economic development], which is a short to medium term interest. From the detailed analysis of the three cases, it is discernable that this interest is in conflict with the long-term environmental benefits: benefits of the coastal nature and resources, landscape heritage and anticipated damage to the sustainability of natural eco-system and its services. The conflicts generated by these projects are aggravated by the lack of participatory approach and, specifically, the perceived lack of communication between the Flemish government and local residents. Policy, planning, design, governance and related decision-making about these infrastructural projects need to be framed within an overarching mobility plan that has a participatory approach at its core and duly takes into account the long-term environmental benefits in order to unfold a more sustainable form of development in the coastal urban environment.

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ABSTRACT: With the growing awareness of environmental sustainability issues worldwide, there has been a proliferation of responses and measures in the Flanders region of Belgium since late 1980s. While the environmental measures are proliferating, the pervasive growth based economic development pressures have not gone away, leading to the unfolding of a variety of conflicts and their further intensification. Typically the conflicts between, on the one side local residents, environmental NGO's, green parties and on the other side economic developers, enterprises and the government rise when open spaces are claimed for economic purposes and projects. Based on an inventory of a larger number of such conflicts in the Belgian coastal area, this chapter presents an in-depth analyses of three specifically selected conflict cases – privatization of Ostend airport, widening of Schipdonk canal, and inland expansion of the Zee-Brugge harbour. All the three cases are characterized by economic development interests vs. environmental protection. The conflicts are mainly triggered by the initiation of these infrastructural projects that are being imagined to unfold greater economic prosperity in the otherwise economically depressed coastal region of West Flanders province. The infrastructural logic of improved connectivity and efficiency for reducing the cost of doing business [increased economic development] is a short term interest that is in conflict with the long term environmental benefits of the natural resources and eco-system services of coastal space. Decisions about these infrastructural projects are made project-wise and not within the framework of an overarching mobility plan that has a participatory approach at its core and

duly takes into account the long-term environmental benefits, leaving the decision making process for all three cases unguided and not concerted. The conflicts are aggravated by the lack of participatory approach in these projects and, specifically, the perceived lack of communication between the Flemish government and local residents. Underpinning the detailed analyses of these three conflict cases presented in this chapter is the main argument that an in-depth understanding of the nature of these conflicts - the way they are constructed and evolved, their thematic and typological classification, their current trends and possible future impacts – is not only a prerequisite for their resolution but also for imagining alternative and more sustainable futures in the coastal urban environment.

KEYWORDS: global changes, coastal areas, environmental conflicts, Ostend Airport, Schipdonk Canal, Zeebrugge Harbour

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CHAPTER 4.

**Environmental Conflicts in Portuguese Coastal
Urban Areas: an Assessment**

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1. Introduction

Conflicts arise when there are two interdependent parties who perceive incompatible goals and therefore compete. At least one of the parties is perceived to assert its interests at the expense of another party's interests. Environmental conflicts arising from natural resource management have two general characteristics: resources, and actors that want to make use of them. Usually resource uses are excludable, meaning that one use of a resource will exclude another use, so natural resource management deals with conflicting interests of various stakeholders. This difference in resource use purpose makes it possible to categorize conflict nature according to themes:

- Economic development (industrial development, tourist industry, harbour restructuring, marina construction) vs. Environmental protection (creation of protected areas);
- Preservation of natural sites and biodiversity;
- Contrasts for the use of resources between residents and new comers for processes of human mobility.

The chapter hereafter aims at presenting an in-depth analysis on conflicts of uses, based on the previous mentioned categories, at coastal urban areas in Portugal from the three case study areas defined:

- I. Lisbon Metropolitan Area;
- II. Eastern Algarve;
- III. Funchal urban area (Madeira Island).

Such in-depth analysis is, therefore, focused on smaller geographical coastal contexts – site analysis - which will facilitate the perception, diagnosis and assessment of the resources and users involved in a specific conflict (or set of conflicts), and how they intertwine with each other (systemic approach). Table 4.1 synthesizes the geographical framework of the site analysis and relates each case study to the key conflicts and their classification according to the categories of conflict nature. This will be further discussed in the analysis of the conflict cases.

Table 4.1. *Synthesis of case study type of conflicts.*

Case study	Site	Geographical framework	Key conflict	Classification of the conflict
Lisbon Metropolitan Area	Trafaria – Costa da Caparica	Tagus estuary mouth and coastline	Tourism and environmental protection	economic development vs. environmental protection
Eastern Algarve	Ria Formosa/ Barrier islands	Ria Formosa Natural Park	Preservation of natural resources	preservation of natural sites and biodiversity
Funchal urban area	Funchal bay	City of Funchal coastal front	Economic/urban development, environmental protection and use for both residents and tourists	economic development vs. environmental protection

To proceed to the analysis on conflicts of uses, the first step is to identify their nature. For the Portuguese case studies, based on the previous knowledge of the site analysis conflicts and on interviews to stakeholders/actors involved, it was possible to categorize three types of conflict nature (previously mentioned). The set of stakeholders/actors involved in the identification of conflicts was a key step of the methodology adopted. The final objective of the chapter is to classify conflicts within well known typologies. The ranking proposed by Charles (1992) and Bennet *et al.* (2001) was adopted. It mainly associates the nature of the conflict as referring to environmental and resources availability, jurisdiction and management conflicts, stakeholder's interests and positions.

2. Methodology

The identification of the conflict and the nature of the conflict in each case study area have undergone a process of several interactions with different stakeholders/actors. It has involved national end users (regional and local actors) of the SECOA project (**Project n°: 244251 FP7-ENV.2009.2.1.5.1**) through semi-structured interviews; other relevant non-end users were also sounded in order to obtain a wider spectrum and double-check of opinions, not only on the relevance of the conflict itself but also about the parties involved in such conflict.

By conducting semi-structured interviews to a set of stakeholders/actors involved in the identified conflict, data was gathered in order to help: a) identify available resources; b) identification of the primary and other users and uses; c) identification of purpose of the resources use; d) the determination of stakeholder salience.

There are many definitions of conflicts typologies, mainly associated with the nature of the conflict, referring to environmental and resources availability, jurisdiction and management conflicts, stakeholders interests and positions. Also the scale of the conflict is extremely important to address the typology of the conflict. If the conflict is positioned in a smaller scale where the parties involved are local communities and local institutional stakeholders, the approach to assess it can be taken considering more public participation, consultation and governance measures. More regional and global conflicts need certain combination of assessment measures, probably a combination of actor, stakeholder and resource based conflict approach. Cadoret (2009) introduces an interesting notion of hybrid conflicts, which result from the combination of chronic, anticipation and hushed conflicts plus a time scale.

Most of the conflicts addressed in the Portuguese case studies coastal areas may result from these combinations oriented in a smaller/medium scale conflict, positioned in local/regional spheres, with the involvement of actors and stakeholders in a conflict for the use of a resource, the resource conflict states in its scarcity or injury (e.g. pollution, destruction), and consequences for habitat and general environment.

3. Analysis of the conflict cases

3.1 Trafaria and Costa de Caparica

3.1.1 Nature of the conflict: thematic classification

Trafaria and Costa de Caparica are two coastal parishes of the Almada municipality, which are located in the River Tagus' south bank. This area comprises a fossil cliff, which creates a slope between the urban occupation and the coastal uses. The fossil cliff is very damaged and eroded in the edge, allowing rock fall and landslides to occur representing thus a serious danger to residents and tourists. The conflicts in this area comprise of touristic uses (e.g. beach activities and water leisure), urban pressure that is related with seasonal housing growth, as well as an environmental conflict emerged from the touristic consumption of resources such as water and land.

Costa de Caparica plays an important role as a residential and leisure area of the Lisbon region and it has 11,708 inhabitants (INE, 2001). Despite a more significant seasonal occupation during the summer and on weekends, population density increased by 69% between 1991 and

2001. Trafaria parish had in 2001 around 5946 inhabitants, but conversely to Costa de Caparica its population density decreased by 12% between 1991 and 2001. The employment structure reveals a high representation of the primary sector, whose activities are mainly developed by fishermen. Industry employs also more than a quarter of active population. Services employ 73% of Costa de Caparica's population, while the first and the second sector have less representativeness in the whole employment structure. When analyzing active population by economic activity, it is important to highlight the remarkable proportion of people who work in accommodation and food and beverage services (higher than the municipality or even the metropolitan area average). Other economic feature of Trafaria is the storage silos with a 200,000 tons capacity, which is considered the most sophisticated bulk terminals in Europe. The international transshipment is the most important activity here due to its location; this triggers a significant economic dynamic around Trafaria.

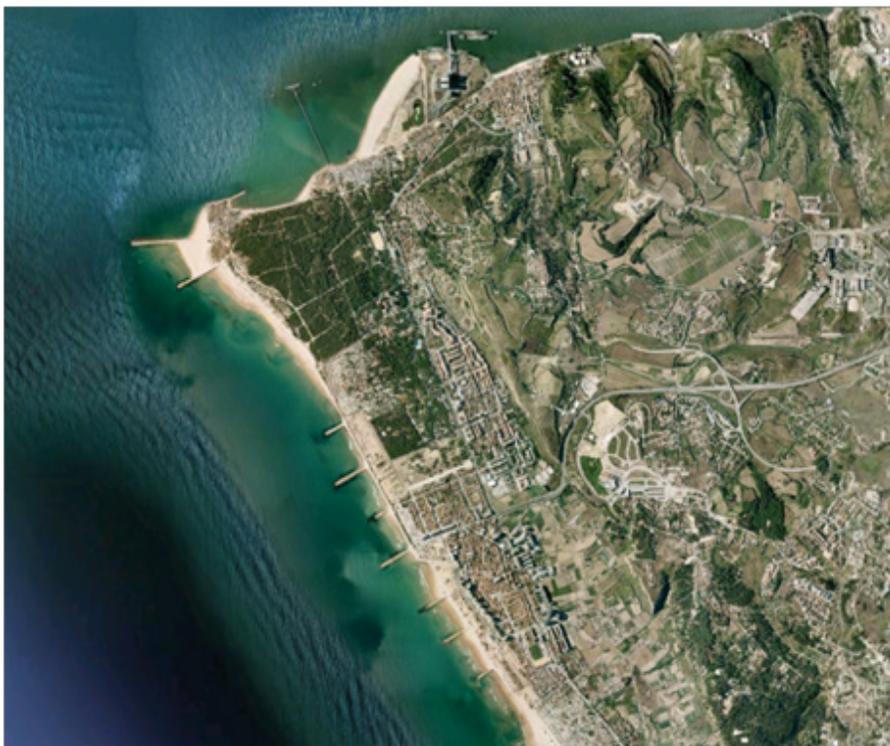
The Tagus River and also the ocean provided the primary resources for human occupation. Until the 20th century, fishing companies and fishermen contributed to settle both urban occupations, carrying out traditional activities. By 1950 there were shoreline retreats between Cova do Vapor and Costa de Caparica, which led to the extinction of the pine forest and the disappearance of several hectares of beach area. The construction of the bridge over the Tagus River (1966) changed the relationships between the south shore and the capital, allowing for fast increasing flows of population, employment and transports. The political context of these specific conflicts affected the whole country, and is related with the end of the colonial empire in Africa, in 1974, from where the main part of the population returned: Almada municipality gained 51% of population, while Lisbon is slowly losing population since 1981. The lack of housing policies allowed urban sprawl, as well as the proliferation of shanties and other rudimentary housing types. Moreover, Costa de Caparica became popular as a holiday and/or weekend destination, because of its proximity to Lisbon and its long sandy beaches.

Critical events that triggered conflicts arise from the lack of housing and urban planning that led to poor housing conditions in Trafaria and to urban sprawl with no care for geomorphologic conditions or land uses. Additionally, illegal residence dwellings and seasonal dwellings, located mainly in Costa de Caparica, were constructed with no urban planning. Sea retreat cycles from one side, and Tagus estuary mouth silting from the other side, forced the

long shore drift to change, and has been causing significant environmental and touristic impacts. With regards to the environmental, coastal protection became assured by a chain of groins, which were built to provide accumulation of sand in the north side, while creating the reverse effect in the south. The removal of sand in some beaches due to storming events created the need to fill them up them again with sand, so that conditions for an intense touristic use in the summer months could be provided.

Both local and central government bodies are trying to provide the best solutions for the resolution of the issues in the area; however, they not always share the same point of view, triggering conflicts over conflicts, because they usually represent opposite groups of interest: environmental protection vs. the economic profitability linked to touristic activities and urban growth.

Figure 4.1. Costa de Caparica and Trafaria (Source: Google Earth, 2011).



3.1.2 Parties involved: legitimization of the conflict

Stakeholders involved in the conflicts encompass two groups: i) institutional stakeholders (e.g. local and central public organisms) and; ii) non-institutional stakeholders (e.g. residents, fishermen and commercial associations). Their position towards several issues provokes conflicts, notably due to the nature of those issues: environmental conservation vs. touristic use. There are five main institutional stakeholders, three of them representing the central government: APL (Lisbon Port-Authority); ICNB (Institute for Nature and Biodiversity Conservation) and Sociedade Costapolis (public agency for local planning with mixed funding, responsible for implementing the Polis Programme) (Programa Polis, 2000). The other two place themselves at the local scale, representing the municipality of Almada (CMA) and the local council for the parishes of Trafaria (JFT) and Costa de Caparica (JFCC).

Regarding interests and motivations, the *Lisbon Port-Authority* is the most important stakeholder, because it has jurisdiction upon part of the territory where the conflicts occur. Their motivation in relation to the causes and other parties in the conflict is to maintain or expand (in some scenarios) the logistic activity, namely the storage silos capacity and a hinterland for containers. The goals focus on the improvement and reinforcement of the access to Trafaria in order to provide a better product outflow. In terms of position this is a top-down approach, meaning that the port's interests are put in first place regarding their jurisdiction on that territory. They are capable of highly influencing the conflict, because they assume a leading position towards planning and land management of that territory, having the opportunity to mediate the environmental conflict. Relationships and salience are linked together in the Port-Authority's case. They interact with the other stakeholders, but the decisions are made based on a top-down organisation; therefore, their salience is one of the most visible in the Lisbon's metropolitan area waterfront.

ICNB, is a public institution whose main interests and goals are focused on nature and biodiversity conservation (Ministry Council Resolution n. 83/2007) Regarding the cliff's environmental conflict, their position is based on planning and assessment and therefore, they adopt a top-down approach. They represent the public institution that is responsible for designating protected areas and producing their management plans; thus, ICNB's is able to affect the context of the conflict (capacities). In terms of relationships, this institution establishes interactions by mediating the interests of sectorial State bodies, local authorities - such as municipalities' councils - and local development associations. Salience can be measured on a national scale.

Sociedade Costapolis operates specifically in Costa de Caparica parish. Interests and goals are related since Polis Programme was created by law in the year 2000 by the Portuguese government (Ministry Council Resolution n. 26/2000). The goals are to improve the quality of life by restructuring and rehabilitating public equipment's, accessibilities, urban and environmental quality. Their position is to turn Costa de Caparica into a competitive place in the national urban system, getting back the strength of its touristic and leisure characteristics. Therefore, waterfront and beach requalification were interventions needed to mitigate the conflict. *Sociedade Costapolis* capacity, it is tightly related to what other planning tools had proposed for the territory; thus, once conflicts are identified by those plans, *Sociedade Costapolis* can affect the context of the conflict (relationships). They have salience by organizing public participation meetings with the residents, local associations, municipality representatives, as well as presenting and discussing the intervention steps with the stakeholders.

CMA, *JFT* and *JFCC* are local scale public institutions responsible for integrating all planning instructions and guidelines into a management municipality plan. On a lower managing level, the territory can be divided into urbanization plans and detailed plans, which provide guidelines for specific areas that needs intervention. Waterfront's economic exploitation potential and environmental distinctiveness that provides a valuable resource for both residents and tourists are their interests and goals. The municipality of Almada (*CMA*) is a main actor, which has the greatest capacity to affect the context of the conflict, due to knowledge of the territory problems and population's needs. As for the touristic use issue, they aim to improve bathing areas, accessibilities and the public space around urban beaches. Through a detailed plan of Costa da Trafaria/PP São João da Caparica, they want to implement *Sintra-Sado Coastal Plan's* guidelines (Ministry Council Resolution n. 144/2003), notably: the rehabilitation and improvement of coastal and riverside areas; the protection of natural and landscape resources; to build a structure to support fishery near the beach; to restructure public equipments and the construction of a golf area in the Mata das Francesas, between Trafaria and Costa de Caparica. Local scale position is linked to decision-making and implementation of the measures. They place themselves in the conflict by trying to combine top-down instructions to bottom-up real needs of the population (salience). To achieve some of these objectives and to assure population's protection towards cliff landslide, it is needed to relocate residents that live in shanty or illegal housing. *JFT* and *JFCC* play an important role in the mediation of this conflict (relationships).

At this point non-institutional stakeholders have a more active position. They are organized in three main groups: residents associations; commercial associations; fishermen associations and they can also be divided by conflicts and by location.

Regarding interests and goals of these stakeholders it's possible to highlight:

- I. ***Residents' association of São João da Caparica (Costa de Caparica) and Cova do Vapor (Trafaria)***: this stakeholder is committed to assure residents access to waterfront (Figure 4.2), since they believe this right was removed from them (interests, goals and position). It represents a very active stakeholder in public discussions, by trying to negotiate a better urban and environmental quality with institutional stakeholders (e.g. municipality). Saliency can be considered at the local scale. Thus, Costapolis developed a coastal repairing plan that integrates Cova do Vapor's beaches and their population (Figure 4.3). In this intervention plan, the aim is to build and repair the artificial coastal structures for avoiding erosion, and thus to stabilize sand movements that cyclically affect residents and tourists. Therefore, the municipality has designed a strategic plan for this area, which leads to interventions mainly towards leisure and tourism use. In this case, residents' interests and goals are to keep their houses, while access and other touristic equipments are being built. On the other hand, residents want a redefinition of the coastal and riverside outline in terms of defence structures.

Figure 4.2. *S. João da Caparica district and beach (Source: Google Earth, 2011).*

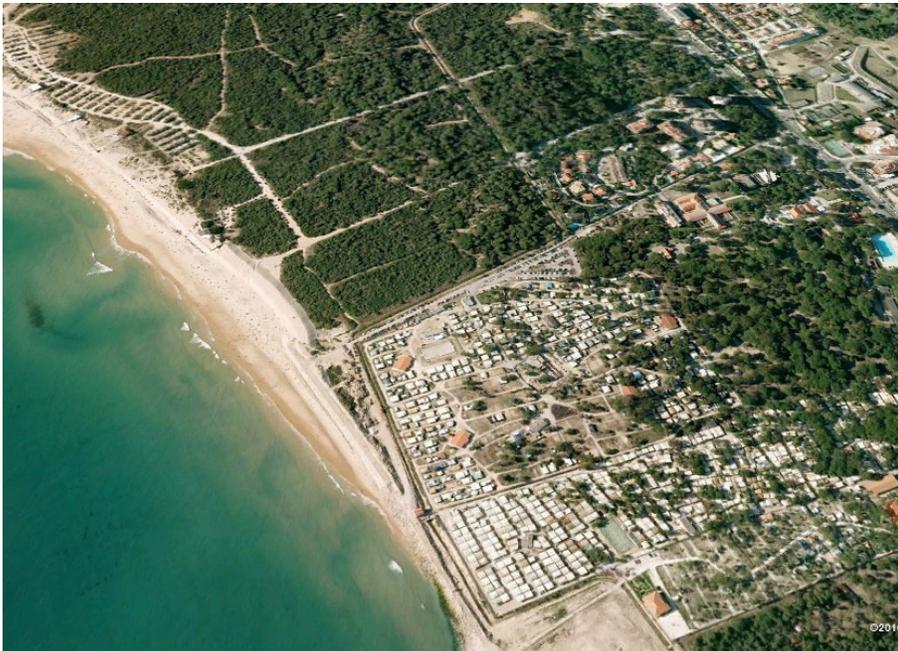


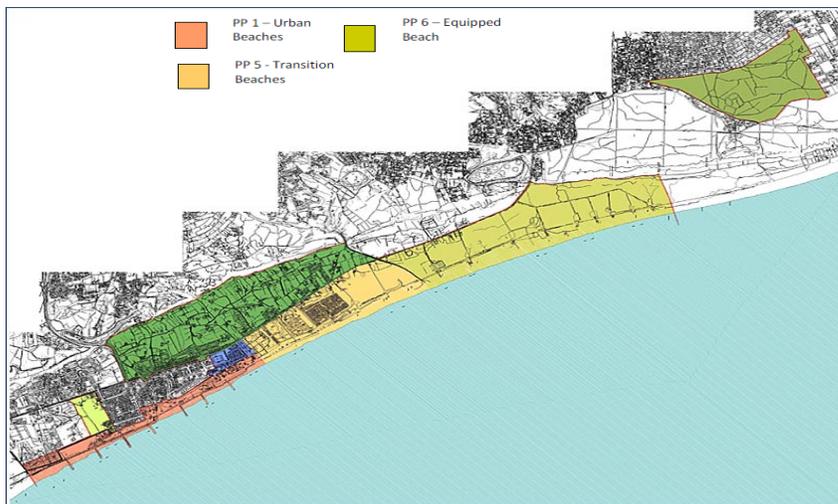
Figure 4.3. Cova do Vapor district (Source: Satellite images, 2005).



- II. ***Residents association of the district of 2º Torrão and Fishermen Association (Trafaria):*** their main concern regards demolition and re-lodging, associated with two environmental conflicts. On one hand they face the cliffs instability and the possibility of rock fall or landslide; on the other hand sea penetration and storm surge causes several damages in wooden shanty housing with impacts in human settlements. Their illegal situation, plus the risk of destruction allowed the municipality to develop a detailed plan in order to solve land occupation conflicts, namely: illegal housing in the maritime public domain area; river front degradation. The Fishermen Association intends to convert port activities integrating them with fishery and the fluvial transportation terminal. Residents association's interests and goals are to keep their housing conditions and their location (interests and goals); they do not want to leave the district of 2º Torrão (position) and they also are afraid of being re-located outside the parish of Trafaria. Their capacity and relationships are linked, because they may have the capacity of affecting the conflicts context in two opposite forms: staying in the district and stay in a risk area, and contribute to reinforce the environmental constrain. If they interact with other local stakeholders, they may change their negotiation position with the municipality (salience).

III. **Costa de Caparica commercial association:** their interests in the conflict are related with the touristic use. The strategy used to pursue their interest is to make pressure among institutional stakeholders, like the municipality council and the Sociedade Costapolis in order to assure their restaurants and commercial licences are maintained (goals, position, capacities and relationships). With the requalification of urban beaches and contiguous public spaces (Figure 4.4) the waterfront suffered a significant reorganization in terms of commercial establishments' disposal along the urban coastline; the constructions design was also standardized. Access and parking spaces suffered a great change in order to assure tourists' accessibility and, consequently, to increase their flow. Saliency is considered at a local scale; however, the commercial association has an influence area of approximately 13 km of coast.

Figure 4.4. Polis Programme' beach intervention area (Source: www.costapolis.pt, 2011).



3.1.3. Typological classification

Considering the nature of the conflicts and the parties involved their position, goals and relationships, they were classified in the following typologies accordingly with the definition of conflict assessment:

- Cadoret (2009) - **Anticipation conflicts** / Strong fears of change, strong contesting.
- Chandrasekharan (1996) - **Conflict over access**, notably by resident associations.
- Rupesinghe (1995) - **Conflict formation**, as it is still a dispute.
- Warner (2000) - **Inter micro-micro conflicts**.

3.1.4 Current trends of the conflict

Table 4.2 shows a summary of the interests, goals, position, capacities, relationships and salience of coalitions formed by residents and users, showing also the current trend of the conflict.

Table 4.2. *Coalitions/Networks.*

Coalitions	Interests	Goals	Position	Capacities	Relationships	Salience
Costapolis	To improve the quality of life by restructuring and rehabilitating public equipment's, accessibilities, urban and environment quality	To improve urban environmental quality	Broker	It is tightly related to what other planning instruments had proposed for the territory	They develop a set of strategic partnerships, (e.g. the State and the Municipalities)	They organise meetings with the residents, local associations and the municipality. Local scale
Residents association of São João da Caparica (Costa de Caparica)	They want that residents' access to the waterfront	Access to the waterfront	Victims	Very active stakeholder in public discussions	They try to negotiate a better urban and environmental quality with institutional stakeholders (e.g. municipality)	Local scale
Residents association of Cova do Vapor (Trafaria)	To keep their houses	To keep their houses, while access and other touristic equipment's are being built	Victims	They can affect the context of the conflict if they accept the re-lodging proposal	Relationships are established with the municipality and with Costapolis	Local scale
Residents association of the district of 2º Torrão and Fishermen Association (Trafaria)	To keep their houses	To keep their housing conditions and their location	Victims They do not want to leave the district of 2º Torrão	They may have the capacity of affecting the conflicts' context by staying in a risk area	If they interact with other local stakeholders, they may change their negotiation position with the municipality	Local scale
Costa de Caparica commercial association	Touristic use	To assure their restaurants and commercial licences are maintained	Victims	Some influence	They make pressure among institutional stakeholders (e.g. municipality, Costapolis)	Local scale

3.2 Barrier Islands / Ria Formosa / Eastern Algarve

3.2.1 Nature of the conflict: thematic classification

The Algarve is the most popular touristic “sun and sea” holiday destination and is responsible for 36% of overnights in accommodation facilities in all of mainland Portugal. The main pressures on the environment, and especially on Ria Formosa Natural Park, are driven by the touristic activities that are mainly located on the coastline. The critical issues emerged with tourism are linked with the seasonality of the “sun and sea” tourism, urban pressure triggered by the need to provide accommodation facilities, accessibilities and recreational activities, which are often located in risk areas of coastal erosion. This section attempts to explore some of the conflicts in Ria Formosa, notably the Barrier Islands belonging to Faro and Olhão municipalities (Ceia, 2009).

Ria Formosa is a natural barrier from the ocean located a few kilometres off shore. It encompasses a dozen of thin and flat sandy islands, producing thus a wide salt lagoon with salt marshes between mainland and this natural barrier (Figure 4.5). Legally protected since 1978, Ria Formosa became a Nature Park in 1987 (Decree-law 373/87). It is also included in Natura 2000 list of sites, and is a Ramsar Site (wetlands of international importance) since 1980.

Ria Formosa is a very dynamic system, highly vulnerable and reacts rapidly to sea level rise. Therefore, the ever changing nature of this system is not suited for permanent and intense human occupation. However, Ria Formosa is subject to a number of economic/social interests and uses (e.g. mass tourism, fishing, navigation, major infrastructures), which may collide with the aim of protecting this Nature Park.

Figure 4.5. Main urban settlements in the Ria Formosa study area.



The main interest groups in the Ria Formosa are: (1) Ria Formosa Natural Park, (2) the Regional Development and Coordinating Commission of the Algarve (CCDRAlgarve), (3) Tourism Promoters, (4) trade and industry associations (including port), (5) fishermen (6) regional and local bodies, (7) associations of environmental protection and (8) the local population, including residents and non residents.

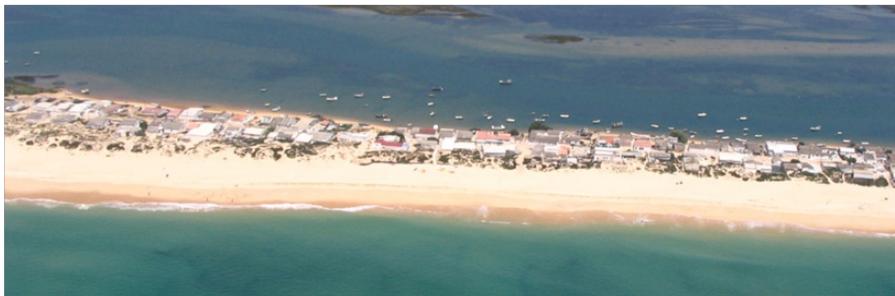
The main conflicts in Ria Formosa are located in urban areas. The main urban settlements have coastal erosion problems. The remaining settlements (e.g. Praia de Faro, Farol) are problematic and have a high risk of flooding and erosion (Figure 4.6).

Figure 4.6. Destruction of constructions by storming events (Olhão).



In Praia de Faro the urban settlement is located in a sandy strip of less 100m wide between the ocean and the lagoon (Figure 7). Coastal erosion of the barrier islands is a serious problem, which was increased by the intensification of occupation since 1960's, mainly for touristic purposes. Indeed, up to the 1950's there were small settlements of fishermen, which had little impact on the natural system. However, with the construction of a bridge linking mainland to Praia de Faro, there was an intensification of the occupation in the Island, which almost led to the complete destruction of the dunes that aid stopping flooding in storming events.

Figure 4.7. Illegal construction at Praia de Faro (Source: CCDR-Algarve).



More than 2000 illegal constructions (including second homes and seasonal dwellings) are located on the most vulnerable parts of the barrier islands. Some of these constructions have been destroyed by storming events or enforcement action by the Environmental Agency. Additionally to the urban occupation, there are other two main causes for the increase of erosion on the barrier islands: a) destruction of dune vegetation, and consequently destruction of the dunes, due to walking; and b) construction of Faro-Olhão Inlet (between 1929-1955). The Faro-Olhão inlet was enlarged with the aim of aiding navigation in the channel linking Faro port and the localities of Faro and Olhão; however, this has triggered significant erosion on Culatra Island with a noteworthy change in the hydrodynamic behaviour of the lagoon.

Since 1996 the Ria Formosa Natural Park has undertaken interventions (e.g. beach nourishment, the placement of fences in order to reconstruct dunes, planting of *Ammophila arenaria* and construction of raised footpaths) attempting to improve the functioning of the natural system and reduce the vulnerability to flooding and at the same time, maintain the dynamics of natural processes. There have been also in the last decade some programmes to carrying out the demolition of infrastructures threatened by coastal erosion. In Ria Formosa, this type of intervention has encountered great difficulties in implementation, particularly with regards the demolition of houses illegally built on the Maritime Public Domain. A description of the parties involved on this conflict, notably their interests and goals are detailed hereafter.

3.2.2 Parties involved: legitimation of the conflict

The parties involved in the conflict of Praia de Faro's demolitions are mainly those from governmental (e.g. Environmental Agency, Regional Development and Coordinating Commission of the Algarve, Natural Park of Ria Formosa) and non-governmental bodies such as the residents and seasonal users.

The motivations from governmental bodies, notably the Environmental Agency, are to assure that the measures stated on spatial plans for this area (e.g. Coastline Management Plans), which are based on scientific knowledge, are executed (interests, goals, position). Therefore, it is mandatory the demolition of more than 500 constructions in Praia de Faro. The approach used to make the decision by the Environmental Agency, was mainly top-down (capacities). However, site projects that will be executed by POLIS Ria Formosa, which is an umbrella agency encompassing a partnership between the State and the municipalities, can be discussed

with other stakeholders such as NGOs, Enterprises and Local Associations (relationships, salience). The actions to be undertaken by POLIS Ria Formosa are showed in Figure 8, and encompass dune nourishment, stabilization of inlets and demolition of illegal houses.

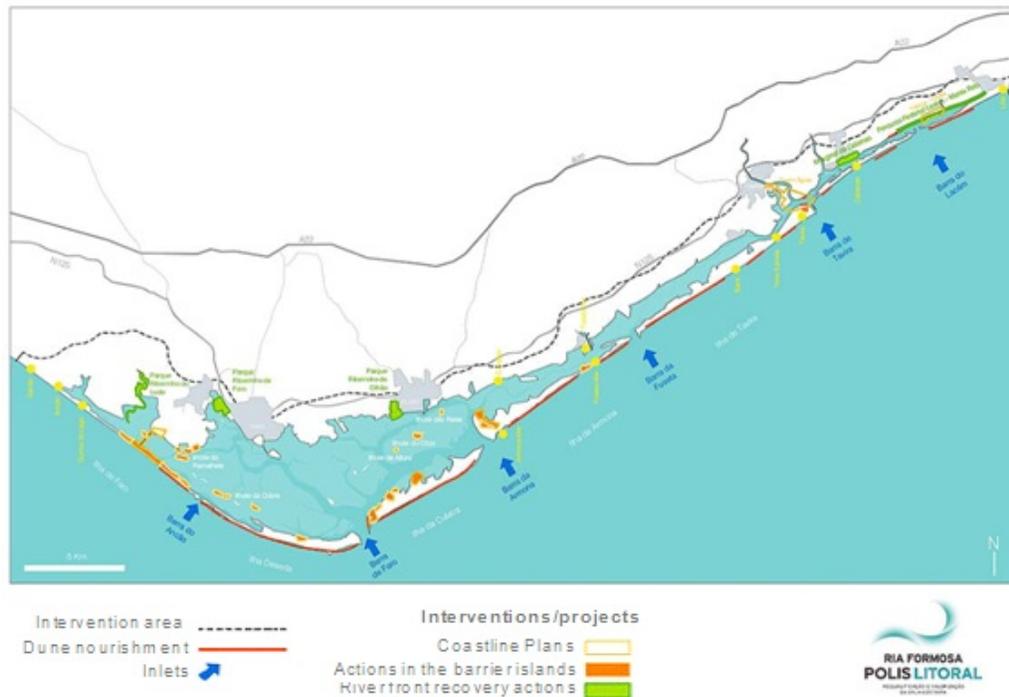
The residents and users of the Praia de Faro, as well as fishermen that live in the urban settlement are against the demolition of their homes, some constructed illegally (interests, goals and positions). Their argument is that the State is doing very little to protect their homes from storming events; they wished that governmental agencies did more actions to nourish the dunes. They find it unfair that other constructions on the barrier islands, although legal, are not going to be demolished.

They also state that the State has a duality of criteria when dealing with larger touristic enterprises, by allowing them to construct on other risk areas, and with them – the “poor people” – have decided for the demolition of their houses. For example, the Association of Residents of Culatra Island agrees with the requalification of the urban settlement but is against the demolition actions (relationships).

They also disagree that the houses of those fishermen that live elsewhere out of the island, who are no longer in the fishing activity, are classified by the Natural Park of Ria Formosa as second home; they state that they still have professional interests on the island. Therefore, they want those houses to have the classification of “fishermen settlements”. Some residents seem also to be willing to relocate, under certain rules, to less vulnerable areas of the barrier islands.

Additionally, the residents do not perceive themselves as part of the nature conservation problem. This fact is contributing for damaging wildlife (fauna and flora) in the islands. They also wished to be heard more by governmental institutions with regards to this issue, and therefore to be able to have contributed to a different outcome than the demolition of their houses (salience).

Figure 4.8. Interventions: POLIS Ria Formosa.



3.2.3 Typological classification

Considering the nature of the conflicts and the parties involved their position, goals and relationships, they were classified in the following typologies accordingly with the definition of conflict assessment:

- Cadoret (2009) - **Anticipation conflicts** / Strong fears of change, strong contesting.
- Chandrasekharan (1996) - **Conflicts regarding authority over resource.**
- Rupesinghe (1995) - **Conflict formation**, as it is still a dispute.
- Warner (2000) - **micro-macro conflicts.**

3.2.4 Current trends of the conflict

Table 4.3 shows a summary of the interests, goals, position, capacities, relationships and salience of coalitions formed by residents and users of Praia de Faro, which represent the current trends of the conflict.

Table 4.3. *Coalitions/Networks.*

Coalitions	Interests	Goals	Position	Capacities	Relationships	Saliency
Residents and users of the Praia de Faro	They are against the demolition of their homes, some of them constructed illegally	To keep their homes	Victims; they do not perceive themselves as part of the conflict	Some influence	They make pressure among institutional stakeholders	Local scale
Environmental Agency	To protect fauna and flora of the Ria Formosa Natural Park	Assure the implementation of the Coastline Management Plans	Broker	Top-down	They develop a set of strategic partnerships, (Polis Ria Formosa)	Local scale
Ria Formosa Natural Park	To improve Ria Formosa Natural Park biodiversity	Remove urban residents from the Barrier Islands	Broker	Top-down	Partnerships with local municipalities, stakeholders, enterprises and local associations	Local scale

3.3 Funchal Bay / Funchal Urban Area

3.3.4 Nature of the conflict: thematic classification

The city of Funchal coastline front is a complex mix of issues arising from economic and urban development, environmental protection and use for both residents and tourists.

Since its settlement, the city of Funchal has grown near to the coast, developing a close connection to the sea; as the city grew the urbanization stretched towards the mountains, never losing its connection to the ocean and the surrounding landscape.

Throughout the years, there's been a growing occupation by hotels, which resulted in the privatization of ocean access and altering of the landscape, so that in some cases the population lost its direct access to the sea and witnessed significant landscape changes in just a few years.

Figure 4.9. Funchal Bay in 1880 and in 2009.



Funchal - 1880

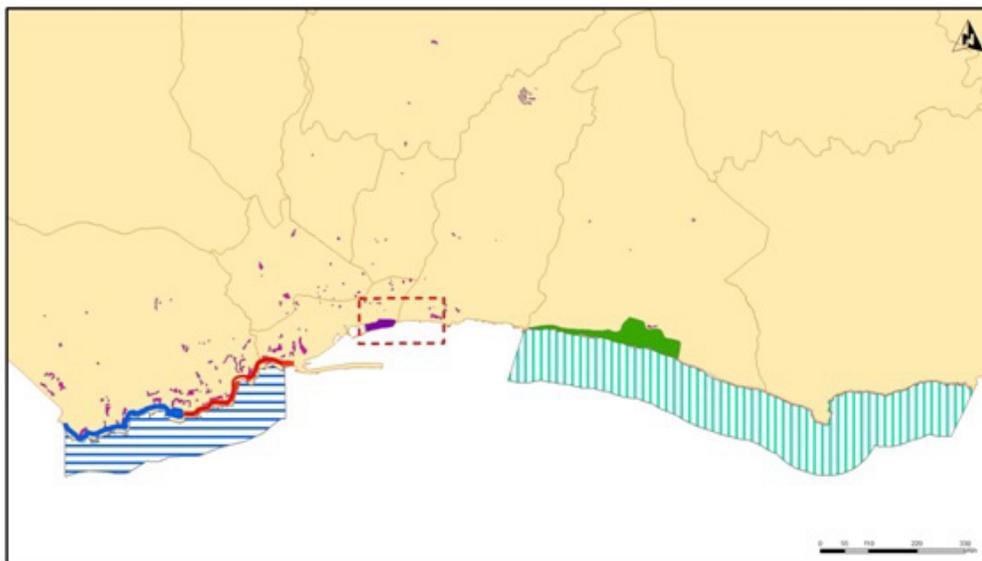


Funchal - 2009

The absence of coastal planning, led to the current situation, where both local and regional government are trying to deliver the best solutions for the resolution of the problems in the area. However, they don't share the same point of view, triggering conflicts, between environmental protection and economic growth.

The city of Funchal coastline (Figure 4.10) integrates two major unities: coastline between the Port and Ponta da Cruz; coastline between the Port and Ponta do Garajau.

Figure 4.10. Funchal Bay.



- Legend**
- Limited Ocean Access
 - Promenade (Lido - Poças do Gomes)
 - Inert Deposit
 - Project Area (Inert Deposit)
 - Special Area of Conservation - Pináculo
 - Hotels
 - Marine Eco-Park of Funchal
 - Partial Natural Reserve of Garajau
 - Parishes

3.3.5 Parties involved: legitimization of the conflict

Stakeholders involved in the conflicts encompass: i) institutional stakeholders and; ii) non-institutional stakeholders (e.g. residents).

Their position towards several issues sets off conflicts, notably due to the nature of those issues: environmental protection and economic growth.

The most sensitive area between the port and Barreirinha beach has undergone some changes over time; it's a low area where three major streams converge. But this sector is also the most artificial area, where large buildings arise, such as the pier and the marina. The city's urban growth developed along the beaches of shingle, which exist due to the materials brought by rivers, plus the dynamics of tides and streams.

The regional government is responsible for implementing the coastal planning and the project for the new port. The motivations from governmental bodies start with the argument that the new port would bring more tourists to Funchal bay and the small traders would have a boost on the sales.

Moreover, the regional government and some sectors of the public support the construction of a new port, which narrows the cone of dejection of two streams (Ribeira de Santa Luzia and Ribeira de João Gomes).

For a long time, the city of Funchal and in particular, Funchal Bay has been facing natural hazards. Sediment materials carried by the streams were a motive for discussion in the flash flood of 1803, and still remains a problem. Nevertheless, the major conflict arises with the deposit of inert from the flash flood on 20th February 2010 (between the Marina and the Ribeira de Santa Luzia) and which has been increasing with the following flash floods of October 20th, November 25th, December 20th 2010 and January 20th 2011. The landfill has an area of 3.35 ha.

Figure 4.11. *Funchal Bay.*



Funchal Bay 15-12-2009

Funchal Bay 30-04-2010

The city council doesn't share the same point of view as the government; for the local authorities it's important to preserve the landscape and the connection of the residents with the ocean. The construction of a leisure area for the population and tourist is under evaluation.

Residents have organized themselves in a civic group which believes that the materials of the landfill should be used in the rocky valleys prevention. They argue that particularly in the Santa Luzia valley, which has a great potential for adventure tourism, the sediment materials should gain a new value through a new use. These ideas are shared by the Funchal City Council and the ONG Quercus.

Considering the conflict between environmental protection and tourist use, the coastline between the Port and Ponta da Cruz needs to reconcile recreation with conservation of coastal and marine ecosystems in the western part of Funchal, where it has the highest concentration of hotels in Madeira. For such reconciliation, the City Council proposed the creation of the Marine Eco-Park of Funchal, with the status of Protected Landscape. Although the Regional Legislative Assembly hasn't yet adopted the law for such implementation, it should constitute an important unit for the sustained development of the coastal segment with greater urban pressure on the municipality and, as such, it's appropriated to highlight this attempt of creating a protected landscape.

The Marine Eco-Park contributes to the preservation of marine life and to preserve a few areas that haven't been humanized. The area between the Lido and Pontinha is privatized, raising a clear conflict between the need of the population to contact with the sea and space privatization by hotels.

The marine promenade is a public facility of enormous social and ecological impact. It provides recreation to residents and tourists in the immediate coastal shore between Lido and Ponta da Cruz. Lido was the first area to create this bond with the population, but in the 20th of February 2010 storm, the swimming pool was destroyed by southeast waves and storm surge, breaking this link with the populations; more than a year has gone by and it remains destroyed.

In the coastline between the Port and Ponta do Garajau, there's a Partial Natural Reserve of Garajau that was created in 1986 by the Regional Legislative Decree n^o 23/86/M of 4 October. This new area of Madeira Natural Park was the first exclusively marine reserve in Portugal.

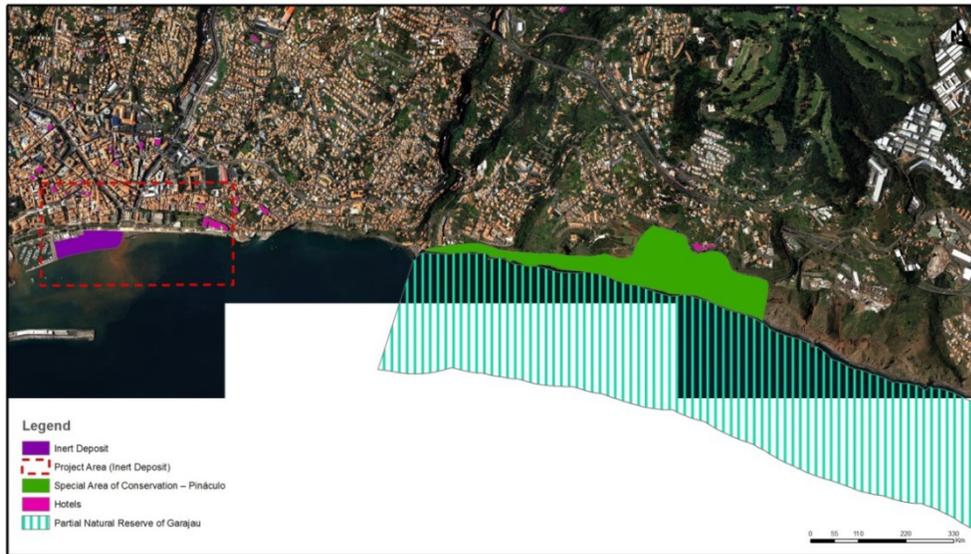
Its primary objective was the protection of a pristine area of the coastline of Madeira that worked as a nursery ground, contributing to restocking wildlife of adjacent coastal areas thus preventing the desertification of the seabed of the coast of Madeira Island.

The reserve, not only for its geographical location, but mainly for its biological richness and crystal clear and clean waters, has a great ability for being used on recreational, educational and scientific purposes and act as a fundamental structure for the conservation of biodiversity in marine areas.

In recent years, particularly after 2010 there's been an increase in threats, due to landfills in Porto Novo and the port near Avenida do Mar in Funchal, which originated a coverage of the seabed with mud and other inert harming marine life and consequently affects the opportunity to facilitate the associated tourism activities, such as diving.

Also the absence of measures stated on spatial plans for this area (e.g. Coastline Plans), which are based on scientific knowledge, make it difficult to legally change this situation.

Figure 4.12. *Partial Natural Reserve of Garajau.*



It is also worth mention a Special Area of Conservation – Pináculo (Natura 2000), a small area for the preservation of flora, mainly the *Andryala crithmipholia* and the *Musschia aurea*. This cliff facing the Partial Natural Reserve of Garajau, is encountering a series of landslides and landfills along its area. This accumulation of land stems is due to the material carried by streams and also the deposits along the coast and/or on top of the cliffs.

In the sector between the port and Forte de São Tiago, there's a low area with an easy accessibility. From Barreirinha beach to Garajau there's a rugged coastline with conditional access, pebbles beaches appear next to Ponta Garajau which belongs to the municipality of Santa Cruz.

3.3.6 Typological classification

Considering the nature of the conflicts and the parties involved their position, goals and relationships, they were classified in the following typologies accordingly with the definition of conflict assessment:

- Cadoret (2009) - Anticipation conflict
- Chandrasekharan (1996) - Change in resource quality and availability
- Rupesinghe (1995) - Conflict formation, as it is still a dispute
- Warner (2000) - micro-macro conflicts

3.3.7 Current trends of the conflict

Table 4.4 represents the combination of the conflicts identification and the interests, goals, position, capacities and relationships attached to each party involved in the conflict. This represents' also the current trend of the conflict:

Table 4.4. Coalitions/Networks.

Coalitions	Interests	Goals	Position	Capacities	Relationships	Saliencie
Regional Government	New port which would change the landscape and the dynamics of the city	Increase the docking area	Broker	Custody on the Coast	Regional Government and commercial sector	Regional and local scale
City council	Preservation of the landscape and it's usage by the residents and tourist in a sustainable way	Preserve the connection of the city to the sea and the creation of a leisure area	Broker	Non-binding opinion	City Council and population against the new port and Quercus	Local scale
Residents and users of Funchal Bay	Some groups are against the new port's construction	Preserve the connection of the city to the sea and the creation of a leisure area	Victims	Contestation to the approval of the project	Some groups support and others reject the new port project. The city council and Quercus are against	Local scale
ONG: Quercus	Against the government's project of the new port construction – it would change the original landscape of the bay	Preserve the connection of the city to the sea and the creation of a leisure area	Victims	Affect the context of the conflict by not accepting the project	ONG, city council and the population against the project	Local scale

4. Ranking of the conflicts

The following tables (Table 4.5. Trafaria and Costa de Caparica; Table 4.6. Barriers Islands / Ria Formosa / Eastern Algarve and Table 4.7. Funchal Bay / Funchal Urban Area) show a summary of conflict typologies and their ranking.

Considering the ranking of the conflict it is a long-term conflict because it is an on-going conflict, recurrent and cyclical. Therefore it should be immediately solved in order to reduce the negative effects towards residents of Costa de Caparica and Trafaria and towards the natural resources and the environment (Table 4.5).

Table 4.5. *Conflict typologies and ranking: Trafaria and Costa de Caparica.*

Conflict case	Theme			Typology				Ranking		
	ED vs. EP	PNSB	HMR	Cadoret	Chandrasek	Rupesinghe	Warner	Critically	Urgency	Duration
P.1. Lisbon Metropolitan Area. Trafaria - Costa da Caparica	■			Anticipation conflicts / Strong fears of change, strong contesting	Conflict over access, notably by resident associations	Conflict formation, as it is still a dispute	Inter micro-micro conflicts	critical	immediately	long term

Table 4.6 regarding to Barriers Islands / Ria Formosa / Eastern Algarve, it can be noticed that the duration of the conflict is both chronic and acute. Besides it seems a contradiction, these two scales can occur special if the preservation of natural sites and biodiversity is being affected by an inappropriate use of those. The duration is classified as chronic because this is long-term conflict but simultaneously is acute because a single event of a coastal storm in 2009 caused a rapid accretion of the consequences to natural heritage. The conflicts are classified as very critical and they must be immediately assessed (Table 4.6).

Table 4.6. *Conflict typologies and ranking: Barriers Islands / Ria Formosa / Eastern Algarve.*

Conflict case	Theme			Typology				Ranking		
	ED vs. EP	PNSB	HMR	Cadoret	Chandrasek.	Rupesinghe	Warner	Critically	Urgency	Duration
P.2. Eastern Algarve/Ria Formosa/Barrier Islands		▪		Anticipation conflicts / Strong fears of change, strong contesting	Conflicts regarding authority over resource	Conflict formation, as it is still a dispute	Micro-macro conflicts	very critical	Immediately	Chronic / acute

Funchal Bay / Funchal Urban Area had suffered and acute natural event, which combined with the previously existing conflict of economic and urban development towards environmental protection, caused a very critical situation to the long term development of the city and the adjacent municipalities. Despite there is not a deadline involved because the urban growth and the economic development represent mainly by tourism activities cannot be placed elsewhere, this conflict lacks urgency in its way to achieve agreements and provide better uses in the natural area (Table 4.7).

Table 4.7. *Conflict typologies and ranking: Funchal Bay / Funchal Urban Area.*

Conflict case	Theme			Typology				Ranking		
	ED vs. EP	PNSB	HMR	Cadoret	Chandrasek	Rupesinghe	Bruckmeier	Critically	Urgency	Duration
P.3. Funchal Urban Area/Funchal Bay	▪			Anticipation Conflict	Change in resource quality and availability	Conflict formation	Micro-Macro conflicts	very critical	great	acute

5. Conclusions

As aforementioned, the conflict in Trafaria - Costa da Caparica reveals a clash between economic development and environmental protection, notably with regards to projects planned to enhance tourism and minimize effects of coastal erosion vs. residents and users of the area. Hence, most conflicts are linked to resident's access to their homes, relocation, and fears of the change planned for that area.

The Eastern Algarve case is a classical preservation of natural sites and biodiversity conflict, where strong contestation is voiced by the residents and users of the Barrier Islands. Here, residents believe they have the right to keep their homes even if some of them were built illegally and are now endangered by natural hazards; therefore, they contest the authority of the Environmental Agency to proceed with the planned demolitions in the area.

The Funchal Bay is another example of social and economic interests versus environmental preservation. In this particular case the conflict initiates by the contest of residents and users and also non-governmental organizations for environmental protection. The economic and urban development represents the major threat towards the environmental protection.

These conflict identification and also the parties involved, how they engage, which are their goals, position and capacity of response it is a major improvement in creating a single framework to assess, monitor and provide response capacities to the local decision makers and also to the residents and users towards coastal conflicts. Building a unique framework of analysis in this context of finding solutions for environmental contrasts in coastal areas is a useful tool not only for mitigating future conflicts, but also as a policy tool that allow local governments to response acutely to classified typologies of coastal issues. However, some limitations may arise especially concerning the spatial and temporal scales of the conflict. Some other features of conflicts should be included, such as the extend of the conflict, for it depends on the proportion of area or people affected or the protected area, fauna and flora devastated or disturbed; the intensity in terms how bad it affects the everyday life of the residents, or just a weekend use of tourists, or even the intensity of land use changed. The time-line plays an important role on the identification of the origin of the process – what caused the conflict may derive from a specific event or a combination of previous conflicts that started to stand a

conflict with each other. Nevertheless, the reconstruction of the conflicts time-line represents a starting point to avoid the conflict or to gather a package of solutions.

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ABSTRACT: Coastal zones have a wide variety of assets (e.g. physical, biological, landscapes) providing opportunities for wealth creation and quality of life enhancement. However, in Portugal, over a 10-year period (1990-2000) a substantial increase in artificial surfaces in coastal areas 10km from the coastline was registered (Freire et al., 2009). Many factors contribute to this increase, such as population growth, urbanization, tourism, trade and capital flow, changes in lifestyle and attitude, among others. Thus, coastal managers have to respond to several issues, such as demand for housing that results in land pressure, balance between economic growth and environmental protection, and the social balance between locals and migrants. Therefore, environmental conflicts in the uses in coastal urban areas should be identified and assessed. This chapter aims at presenting an in-depth analysis on conflicts of uses in coastal urban areas in Portugal, based on a sample of conflict cases selected from the three case study areas defined within the framework of SECOA – Solutions for Environmental Contrasts in Coastal Areas – a research project under FP7-ENV.: Lisbon Metropolitan Area, Eastern Algarve and Funchal urban area (Madeira Island). The goal is to identify the nature of the conflict and the parties involved through semi-structured interviews so that a typology of conflicts can be presented for each case study. This analysis shows that Lisbon Metropolitan Area and Funchal urban area conflicts are mainly economic development versus environmental protection. Although from different specific nature both case studies demand intervention. The Eastern Algarve case study conflicts reside on the preservation of natural sites and biodiversity in a very critical state and in need of immediate intervention. These conflict identification it is a

major improvement in creating a single framework to assess, monitor and provide knowledge and capacities to the local decision makers, residents and users towards coastal conflicts.

KEYWORDS: global changes, coastal areas, environmental conflicts, Trafaria, Costa de Caparica, Barrier Islands, Ria Formosa, Eastern Algarve, Funchal

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CHAPTER 5.

**UK Case Studies: Conflicts in the Portsmouth and
Thames Gateway Coastal Regions**

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1. Introduction

This chapter reports on the four local case studies selected in the UK for initial exploration of coastal environmental conflicts. The UK team sought local case studies which seemed representative of potential conflicts within the UK as a whole. Further selection was based on three main criteria, as follows:

First the need to address common themes identified by the SECOA project: economic development (industrial development, tourist industry, harbour restructuring, marina construction) vs. environmental protection (creation of protected areas); conservation of natural sites and biodiversity; contrasts in the use of resources between residents and new comers arising from human mobility. All three themes have wide application across the UK case study areas of Portsmouth and Thames Gateway.

Second the need to reflect the institutional and structural differences between the two UK case study areas. Portsmouth is a very tightly constrained coastal urban area, where land is in extremely short supply, and there are intense conflicts over the alternative uses of often relatively small sites. Spatial governance is dominated by one local authority, although it seeks to work in partnership with neighbouring authorities and agencies. In this instance we focussed on two conflicts relating to recreational and planned regeneration uses of two local sites, where the value and use is conditioned by their vulnerability to rising sea levels, flood risk and inundation. In Thames Gateway, we focussed on issues of access and vulnerability of protected estuarine ecosystems, relating to a proposed new river crossing across the lower Thames estuary, and social, economic and political conflicts arising from migration and commuting and competition for scarce housing resources. Here spatial governance was (until 2009) co-ordinated in 3 sub regions of the Thames Gateway Development Corporation, creating a complex hierarchy of organisations involved in planning and decision making.

Third the need to reflect the temporal scales, duration and urgency of local conflicts. While all four local conflict case studies are informed by predicted long term changes in sea levels, these feature to varying degrees in how local conflicts have played out. The Lower Thames Crossing is still in the early stages and is emerging as a point of conflict, with a number of ideas being discussed about possible routes for the new bridge and/or tunnel, all of which have socio-economic distributional and environmental consequences. These are sources of changing conflicts. While a number of stakeholders have already started to take up positions in respect of these proto conflicts, these are likely to shift and become more concrete as the proposal takes form. In contrast, the two Portsmouth case studies have far greater urgency, and centre on short- to medium-term plans relating to, respectively, urban development versus

conservation and decontamination of a coastal site, and between different recreational and conservation groups in relation to the future of coastal defences.

These local conflicts are being played out at present, focussing on the strategic and detailed features of proposed developments. The Barking Riverside local conflict is in a relatively advanced state, in the sense that the conflicts over land reclamation (relatively modest as this was a highly contaminated site) and the overall decisions to develop this large scale housing area have already been taken – outline planning permission was granted in 2006. However, the detailed implementation of the project still has scope interpretation, with significantly different socio-economic consequences in terms of the types of housing and community facilities being provided. It therefore illustrates the continuing nature of conflicts – between different sections of the community (and potential new members of the community, that is in-migrants) and between the public sector planning bodies and the private sector which is charged with delivering the non-infrastructure elements of the development.

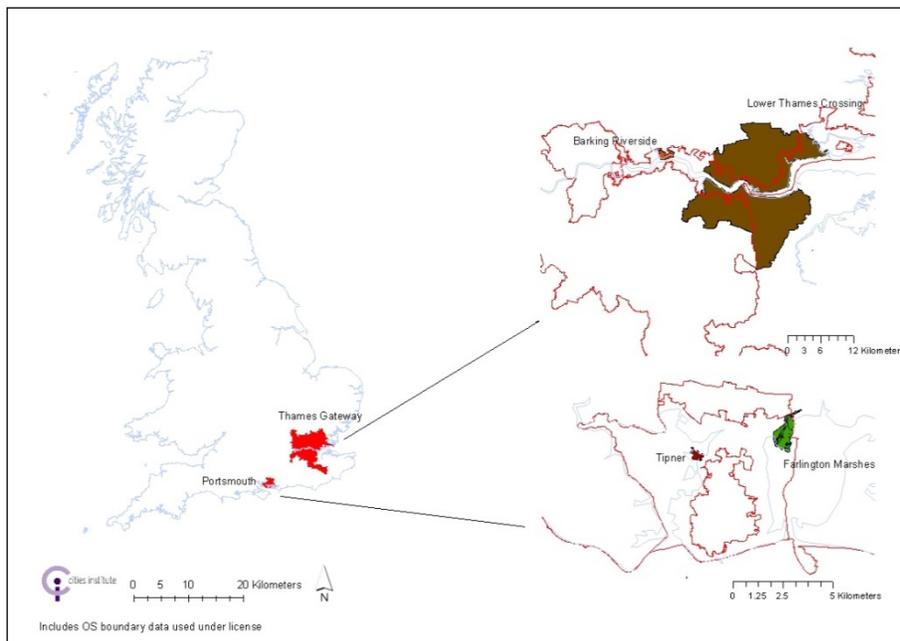
With these three criteria in mind, the UK local conflicts were identified in three main ways. First, through consultation with key informants in the two case studies, who identified what they considered to be some of the most important – both in terms of outcomes, and in terms of intensity – within Portsmouth and Thames Gateway. Secondly, through a review of public documents including recent policy and planning statements and evidence, and the summaries of the consultations already undertaken as a consequence of changing land use and resource management in local areas. This provided a broad overview and framing of key issues within local conflicts. Thirdly, through an iterative process amongst the research team, whereby initially a range of conflict types, and later a specific set of potential local conflict cases were reviewed, presented for discussion, and evaluated in terms of their relevance to the core concerns of SECOA. Table 5.1 summarise the local case study selection against SECOA themes and Figure 5.1 maps their locations within the Portsmouth and Thames Gateway study areas.

Table 5.1. Case studies and thematic classification.

Theme	Barking Riverside (TG)	Lower Thames Crossing (TG)	Farlington Marshes (P)	Tipner Regeneration (P)
Economic development versus environmental protection	√	√√		√√√
Preservation of natural sites and biodiversity		√√√	√√√	√
Human mobility and resources	√√√	√	√	

The four selected local case studies have a diverse range of features which provide insight into some of the conflicts currently being played out in coastal urban regions around the UK. In Barking, regeneration of brownfield land has been identified as a solution to local and regional housing need. However, the processes of planning, design and implementation are characterized by specific conflicts over urban resources between ‘incomers’ (migrants) and ‘locals’, different ethnic groups and social-economic classes. The Lower Thames Gateway proposal for a new bridge or tunnel crossing has seen a number of alternative routes being proposed, all of which involve loss of valued mudflats and saltmarsh habitats. Each scheme includes proposals for compensating loss through designation of newly created habitats within the immediate area. Conflicts are emerging between the proponents of each scheme, local communities and conservation groups. Within Farlington Marshes, conflict was identified during the process of Shoreline Management Planning between the long term protection of wildlife habitats and the immediate defence of urban infrastructure and recreational amenity space. A subsidiary land use conflict has emerged between different wildlife habitats. Finally, in Tipner conflict emerged during the process of planning application for major housing and mixed use development between the long term protection of wildlife habitats, decontamination or containment of polluted industrial land and urban development which is deemed central to the delivery of economic growth as contained in the local city plan. Subsidiary conflicts have emerged over the quality and type of housing, transport provision and impacts on the waste water management system.

Figure 5.1. *UK Conflict case studies.*



2. Methodology

The methodologies used in the UK reflect differences in the nature of local conflicts being studied, the stage or form of each conflict (*criticality, urgency, duration*) and the availability of relevant data.

The two local conflict case studies in Portsmouth (Farlington Marshes and Tipner) shared a common approach, reflecting their relationships to on going planning processes with short to medium term decision making frameworks. Three main research strategies were therefore implemented:

- Analysis of spatial planning documents – including applications for planning permission, shoreline management plans including the scientific evidence base, and related relevant policies;
- Discourse Network Analysis of consultation submissions;
- Stakeholder Survey.

This approach was grounded by the normative assumption that the institutional setting, as well as the discursive structure of concepts and ideas, influences strategic stakeholder behaviour in response to social, economic and environmental changes (Sabatier, 2007). This is useful in complex situations where stakeholders deal with competing policy aims and have yet to develop a shared understanding of what constitutes the problem and, therefore, solution. Following initial scoping through documentary analysis, discourse network analysis (DNA) was used to map stakeholder networks identifying key stakeholders, their principal concerns and positions in relation to planning proposals.

DNA combines qualitative discourse analysis with quantitative network analysis. To this end, Leifeld's (2011) discourse network analysis (DNA) approach was adapted to map the structure of the discourse that followed consultees' submissions to the planning process. DNA can be used to describe patterns and to measure structural properties (nodes, edges, centrality and connectedness) within networks through mapping key statements. Organisations or individuals with the greatest or least potential to facilitate cross-issue dialogue can therefore be identified.

Different approaches were adopted for the two local conflict case studies in Thames Gateway reflecting variations in the scale, type and temporality. The Lower Thames crossing is

at an early stage with a number of commissioned reports identifying competing proposals for its location. This has instigated considerable discussion, not least amongst the leading local, regional and national public agencies, economic associations and conservation bodies. To date all potential stakeholders are not fully represented in the emerging debate. This case study was therefore based on a review of the commissioned consultancy reports, the publicly stated positions of key regional/national agencies and nature conservation organisations, and informal discussions with key informants involved in the planning process.

In contrast, Barking Riverside is at an advanced stage. The broad strategic objectives for this urban development have already been agreed. Inevitably there is considerable scope for interpretation of how these objectives will be implemented. Local conflict is shaped by local conflicts over resources – especially access to housing and employment opportunities – between residents and migrant groups. Moreover this dichotomy breaks down when competing interests amongst resident and migrant groups, divided by class, ethnicity and other social cleavages are taken into account. Given the strong representation of these conflicts in the media, the methodology adopted was to interview key informants, review the policy literature and analyse media reports.

3. Analysis of UK conflict case studies

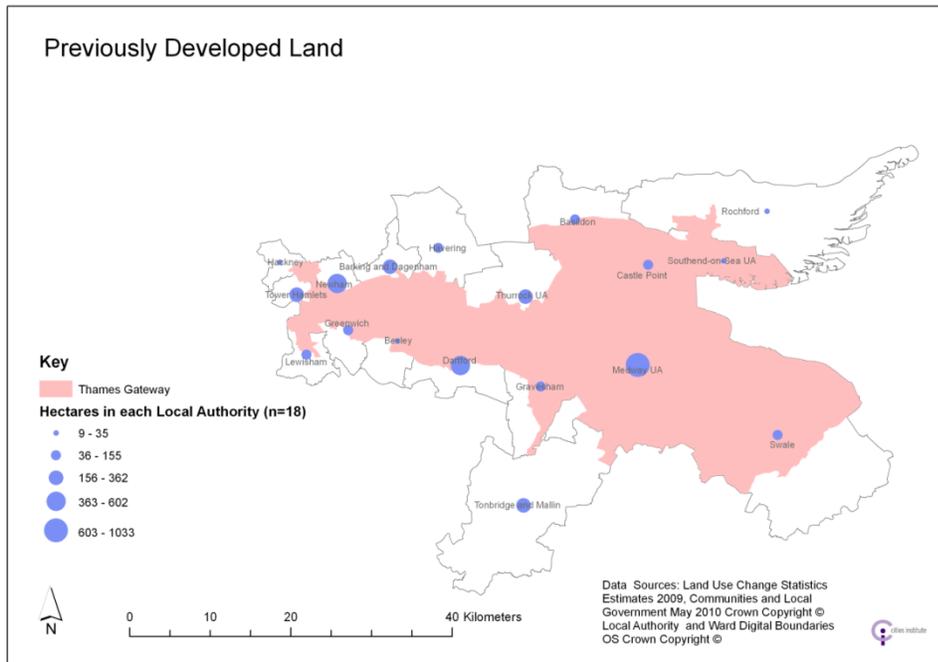
3.1 Barking riverside – housing and migration

3.1.1 Nature of Conflict: Thematic Classification

Regeneration of brownfield land has been identified as a solution to local and regional housing need. However, the process of planning, designing and implementing developments is characterized by politicised conflicts over urban resources encapsulating (and exaggerating) existing and emerging social divisions between ‘incomers’ (migrants) and ‘locals’, different ethnic groups and social-economic classes. In 1995, the *Thames Gateway Planning Framework* identified the Gateway as an area of both ‘need’ and ‘opportunity’. The decline of industry, strongly rooted in port activities, led to high levels of unemployment and deprivation and left extensive industrial sites available for redevelopment. The *Framework’s* vision was to bring these sites into productive use through an integrated programme of economic, social and environmental regeneration. More recently, the Mayor of London’s 2008 *London Plan* (Mayor of

London, 2008) states that its strategic priorities are delivery of "... development, regeneration and transport improvement..." (p.309).

Figure 5.2. *Previously Developed Land in Thames Gateway.*



UK planning policy requires at least 60 per cent of new housing to be built on previously developed land. The *Thames Gateway Delivery Plan* goes beyond this in committing to 80% (TGDC, 2007). Of the 3,150 hectares of brownfield land in the Thames Gateway (approximately 20% of all brownfield land the south east of England) 65% is considered suitable for housing development. This demonstrates the pressure on Thames Gateway as a focus for future urban growth (Figure 5.2). Furthermore there is pressing need to improve environmental quality and to protect remaining wildlife habitats within the area. Environmental degradation from prior unconstrained industrial activity and urban sprawl has degraded much of urban Thames Gateway. Land contamination is widespread.

Thames Gateway as a whole addresses SECOA's thematic priority of *human mobility and resource use* however it also touches upon *economic development and environmental protection*. These themes are addressed in more detail in the development and conflict at Barking Riverside.

3.1.2 Parties Involved: Legitimizing Conflict

Barking Riverside is a 179.3 hectare brownfield site – previously power stations and landfill - with a 2km river frontage located within the London Thames Gateway sub region. An estimated £200 million of publicly-funded remediation of the site has been undertaken including the raising of land to satisfy statutory flood risk requirements. Outline planning permission was granted in 2006 for a mixed- use development of up to 10,800 residential dwellings with provision for supporting infrastructure including retail facilities, healthcare, schools, community uses and open space (Figure 5.3). The development agency, Barking Riverside Ltd., has promised a high proportion of larger homes (3 or more bedrooms) in response to local need.

The London Borough of Barking and Dagenham (LBBD), states that a range of tenures and ‘affordable’ homes will be delivered. LBBD Core Strategy (LBBD, 2010) sets out the vision and spatial objectives for the local authority area to 2025, including sustainable new communities and homes for 60,000 new residents representing a one third increase in population. However the planned development at Barking Riverside is taking place against a backdrop of social problems with specific tensions expressed around migration, race and housing.

LBBD suffers high unemployment relative to the rest of London and the UK with available work tending to be both low skilled and poorly paid. Key indicators of deprivation, such as percentage of working age population claiming welfare benefits, are high (Table 5.2). A significantly higher proportion of residents claim benefits of all kinds compared with the rest of the UK. The Borough also has a slightly higher proportion of white people than the rest of London although it is more mixed than the rest of the UK (Table 5.2).

There is heavy reliance on local authority (state owned) housing stock compared to the rest of London and England as a whole, and significant pressure in terms of supply. LBBD Tenants’ and Leaseholders’ Annual Report for 2009-2010 confirms that 11,441 people are on the waiting list – around 6.5% of the population of the Borough (Table 5.2). The subject of social housing allocation in LBBD is a focal point for community anger. Prior to the 2006 local elections, the local Member of Parliament (also a Government Minister) was quoted in the press as saying that eight out of 10 white people in the constituency were threatening to vote for the extreme rightist British National Party (BNP). The BNP went on to claim 12 seats in the Local Council elections making it the second largest local party behind Labour. An enduring theme of

BNP discourse in LBBB has been that immigrants are ‘favoured’ over locals in the allocation of housing stock.

In stressing the importance of “Meeting the housing needs of existing and future residents in new balanced communities...with an appropriate amount of housing and mix of types and sizes of dwellings, including an increased provision of high quality family homes and affordable housing.” (LBBB, 2010, p.15) the LBBB Core Strategy implicitly seeks to mediate these competing pressures. These include not only the respective needs and wants of existing and new communities, but also strategic commercial imperatives of developers charged with building new homes and from whom contributions to social infrastructure – including schools, health centres, and cultural facilities – are sought.

Table 5.3 summarises the key participants in this conflict, their interests, goals, positions, capacities and relationships. This highlights the dominant roles played by both the local state and by public-private agencies in potential conflicts.

Figure 5.3. *The Barking Riverside framework plan.*

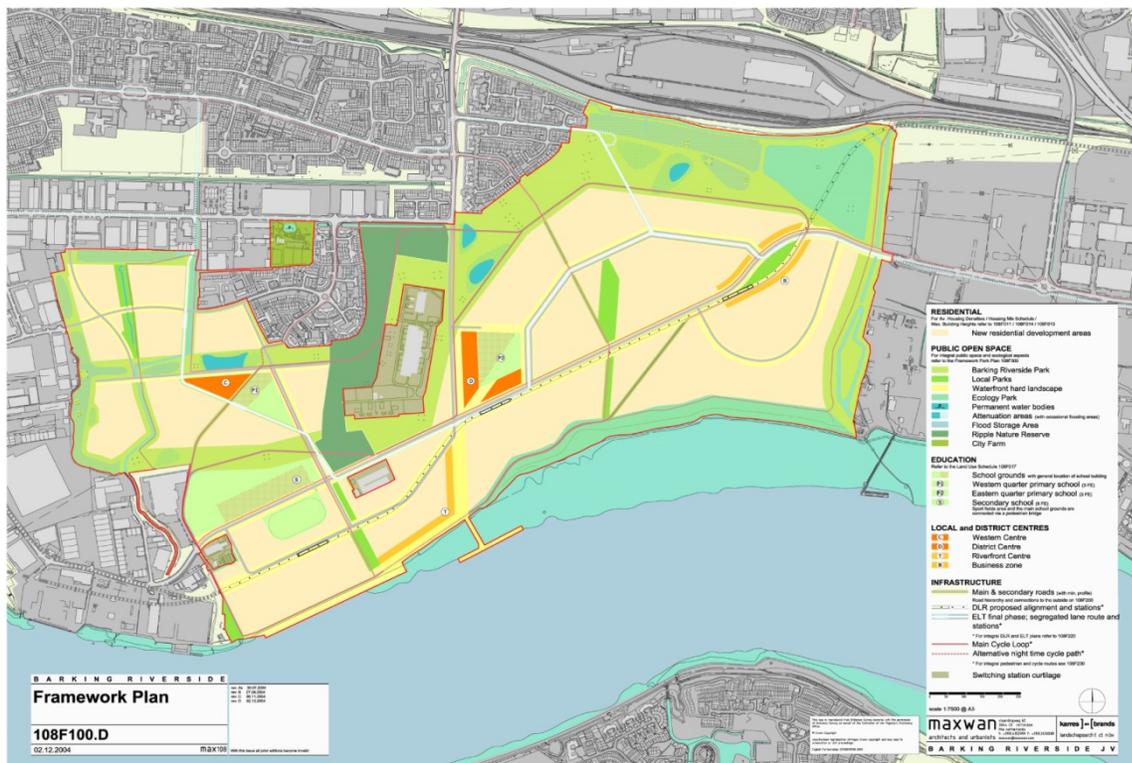


Table 5.2. *Economic and Housing Indicators.*

	Economic Activity		Economic Deprivation	Ethnicity					Rented Housing Stock			Housing Waiting List
	Economically active (% all people)	Unemployed (% all people)	All people of working age claiming a key benefit (August 09)	White	Mixed	Asian or Asian British	Black or Black British	Chinese or other Ethnic Group	L A housing stock as percentage of all dwellings	Registered social landlord housing stock as percentage of all dwellings (April 09)	Private housing stock as percentage of all dwellings (April 09)	Households on the LA register
Barking and Dagenham	71.50%	12.30%	22%	75.10%	2.70%	8.30%	11.90%	2.00%	27.00%	5.00%	68.00%	11,411
London	74.80%	8.90%	15%	69.00%	3.50%	13.30%	10.60%	3.50%	13.20%	10.90%	75.70%	
Great Britain	76.40%	7.70%	15%	88.20%	1.70%	5.70%	2.80%	1.50%	8.10%	9.70%	81.90%	
	Source: Office for National Statistics, Annual Population Survey. July 2009 – June 2010		Source: Office for National Statistics, August 2009	Source: Office for National Statistics, Neighbourhood Statistics, Resident population estimates by Ethnic Group, June 2007					Source: Department of Communities and Local Government, April 2009			

Table 5.3. *Participants in the Barking Riverside local conflict case study.*

Parties	Interests	Goals	Positions	Capacities	Relationships
LBBDC Council	Elected body	Core Strategy	Mediator and strategic development control authority since April 2011	Strategic planning guidelines; detailed planning approvals	Partnerships with other public bodies; planning consultation exercises, electoral accountability
Barking Riverside Limited	Joint Venture Company	Maximize returns on development site.	Public-private interests	Leverage with private sector developers	Strong relationships to public bodies and private sector. Official partners include LBBDC and LTGDC
London Thames Gateway Development Corporation (LTGDC)	Strategic development control authority (until April 2011)	Homes on brownfield sites and economic regeneration	Public sector agency	Strategic investments in infrastructure and reclamation.	Strong links to national, regional and local public authorities
Lord Mayor of London	Directly elected	Strategic development of London	Balancing local needs with the needs of London	2008 London Plan. Transport co-ordination.	Greater London Authority. Individual London authorities such as LBBDC. Electorate.
Local residents	Jobs and housing	Securing favourable mixes of jobs and houses	Variable	Electoral power. Consulted via planning process.	Strongest relationships to individual elected members of LBBDC.
Future potential residents	Improvements in jobs & housing	Largely passive	Unknown	Limited, but can contribute to wider media discourses	Non-existent
Private developers	Profit from housing development.	Return on land and housing	Delivery of required housing and employment targets	Main source of investment	Formally via Barking Riverside

3.1.3 Typological Classification

Drawing on Cadoret's (2009) scheme for classifying conflicts, Barking Riverside is a *chronic* conflict in terms of its *current* and *open* manifestation. However, it is also an *anticipated conflict* as social tension is predicted when the proposed housing development is completed.

Following Chandrasekharan's (1996) typology Barking Riverside would be classified in terms of two main types of conflicts. There is differential *access* to housing and jobs in an area of strong relative deprivation, and this is being reproduced by issues relating to changes in the *quality of resources* resulting from land reclamation. There are also *value* based conflicts which are rooted in class, ethnicity and localism. Ultimately the conflicts are centred on *policy* contained within the general outline planning permission and in the detailed planning applications for the Barking Riverside area.

According to Rupeshinge's (1995) model, this is a *medium to late* stage conflict where there has been long public debate and conflict, a period of mediation and decisions taken in terms of outline planning permission for the redevelopment of Barking Riverside. It is therefore an example of *mature* and *later stage* conflict.

Turning to Warner's (2000) typology Barking Riverside is a *micro-micro* conflict over wealth disparities and between newcomers and locals. It is about the distribution of housing and jobs between existing residents and potential incomers. It is being determined by the interaction between the outline permission, the detailed planning proposals put forward by private developers, and the influence exerted by different interest groups.

3.1.4 Current Trends in the Conflict

Andrew Atkins of London Thames Gateway Development Corporation (LTDG) describes how original attempts to balance competing interests are complicated by changes in market conditions, making the task of delivery extremely difficult. He explains:

"The original project deliverables – such as high specification homes, the proportion of affordable housing and community benefits – were levied against certain land values. However, the market has reversed and land values have fallen to the point that everything that has been planned to be delivered is either unviable or very close to being unviable" (Interview)

Within this context, a revised regeneration agenda for the area is set out by Peter Andrews (Director, TGDG) who is reported as saying *“The one thing that employers need here is a middle class living in East London; east London needs people who want to be here, not who have to be here”* (TGDC, 2009).

Of necessity, the perspectives, aspirations and concerns of the many future migrants are not a feature of consultation around the regeneration at Barking Riverside or LBBB more generally. The report Gateway People (Bennett & Morris, 2006) - though based on a small sample - suggests the importance of housing tenure and size mix in relation to potential new residents. It found that affordable housing was attractive to low-middle income households, with higher-income groups resistant to mixed-tenure housing. All groups were concerned about low-quality housing in dormitory developments with no sense of place, and expressed a wish for a strong sense of community. People from black and ethnic communities were particularly concerned about the availability of culturally specific goods and services.

LBBB Divisional Director of Regeneration and Economic Development, Jeremy Grint is confident that homes for sale will offer *“the best value in London”*; that they will be well served by community facilities such as schools, community centres and transport; and that the new community will be socially diverse and relatively self-sufficient. Nonetheless, concerns remain within Council about the social effects of new housing on such a scale. Ultimately, Jeremy Grint suggests,

“Balancing the needs of new and existing communities is about perception Barking Riverside is an extension of the Borough, but some in the indigenous population fears that it is a new community and that new homes will go to outsiders. In fact the social rented housing is likely to be occupied by local residents decanted from existing Council estates, but in the private sector it will be different. There are issues around which groups will come, and what their needs are”. (Interview).

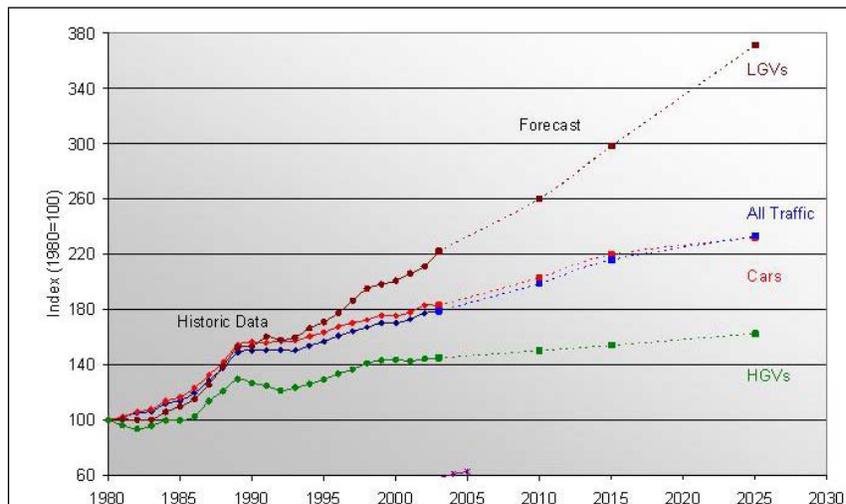
Barking Riverside addresses SECOA’s thematic priority of *human mobility and resource use* however it also touches upon *economic development and environmental protection*.

3.2 Lower Thames Crossing - proposals for a new tunnel or bridge across the Lower Thames Estuary

3.2.1 Nature of Conflict: Thematic Classification

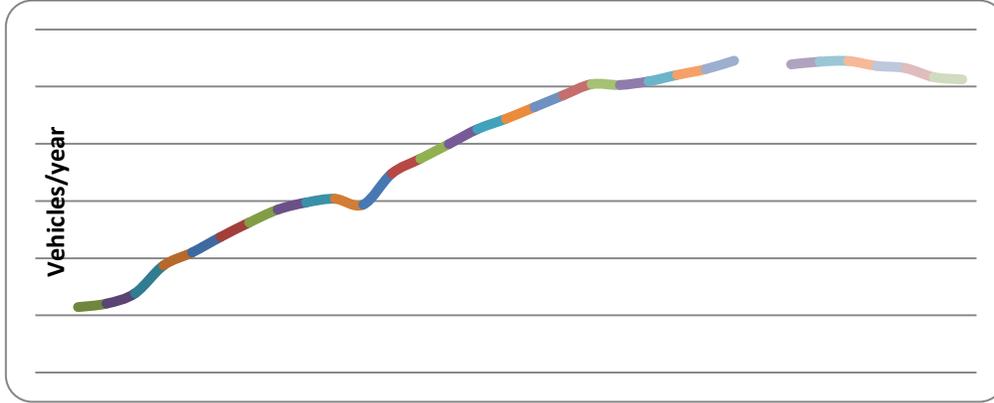
Across the UK road traffic has grown by 85% since 1980 (Department for Transport, 2010). Of this growth, car usage has increased by 87% while heavy goods vehicles increased in number by 46%. Vehicular traffic nationally has been projected to continue to grow although at a reduced rate (Figure 5.4). Nevertheless, any growth has the potential to increase congestion.

Figure 5.4. Forecast Traffic Growth (Source: Historic traffic data is from DfT (2006); forecasts NTM).



In the UK, north-south road connection is interrupted east of London by the Thames estuary. This is only one crossing, the combined road bridge (Queen Elizabeth II Bridge, southbound) and tunnel (northbound) linking Thurrock in Essex with Dartford in Kent. This carries the M25 orbital motorway that encircles London, and one rail tunnel that takes the high speed rail link connecting central London via Kent to Paris. The demand for a vehicle crossing is illustrated by the flow rates across the existing road bridge/tunnel over the period since the opening of the Dartford Crossing/Queen Elizabeth II Bridge (Figure 5.5). With a daily average number of vehicles crossing the Thames of 149,602 in 2006/07, the design daily maximum capacity for the crossing of 65,000 vehicles per day was being regularly breached soon after the M25 motorway was opened in 1986 (CPRE, undated).

Figure 5.5. Growth of road traffic across the river Thames at Dartford. Dartford Tunnel was the only means of crossing the river until 2001 when the QE2 Bridge opened. 1980-2003/04 annual data October-September. 2003/04-2009/10 annual data April-March (Source: UK Highways Agency).



Heavy goods vehicles (trucks) using the principal route from Dover through Kent to London averaged 9,000-14,999 per day in 2009 (Department for Transport, 2009a), with over 15,000 using the Queen Elizabeth II Bridge. Such heavy use frequently results in congestion and slow flows of northward and southward traffic across the Thames, with local settlements around Thurrock (Essex) (Thurrock Gazette, 29.01.2011) and Dartford (Kent) (Gravesham Borough Council, 2011) bearing the brunt of congestion on local non-trunk (non-major) routes.

In February 2008, the Department for Transport commissioned a study to examine potential short and longer-term options to address problems at the existing Dartford Crossing (Queen Elizabeth II Bridge). Subsequently, one proposal commissioned by Essex and Kent County Councils (Gifford/MVA Consultancy/Capita, 2008) considers three alternative routes for a new Lower Thames Crossing (LTC) (Figure 5.6).

Figure 5.6. Alternative routes for a new Lower Thames Crossing proposed by Gifford/MVA Consultancy/Capita. Source: TESTRAD (2010).



The lack of a Lower Thames crossing is a barrier to economic development and integration in Thames Gateway, as well as a contributory factor to the volumes of traffic and traffic congestion in the London metropolitan region. A number of proposals have suggested alternative routes for a new bridge or tunnel crossing. All involve loss of mudflats or saltmarsh. Compensation, by designation of newly created habitat in adjacent land, varies according to each scheme. Conflicts are possible between the proponents of each scheme, local communities and conservation groups. However (at the time of writing) the new crossing proposals have not been presented for consultation and were conceived in different financial and political climate. This is largely an anticipatory conflict.

This case study primarily addresses SECOA's thematic priority of *preservation of natural sites and biodiversity*. However it also addresses *economic development versus environmental protection*; and *Human mobility and resources*.

3.2.2. Parties Involved: Legitimation of Conflict

One route (Option C, Figure 5.6) is preferred by Kent County Council. This is the most easterly route. As a bridge transverse this route would impact on high value grazing marsh on the Kent (south) side of the estuary with loss and damage to prime wetlands protected under a range of UK and European legislation.

Figure 5.7. Thames estuary indicating proposed route for Metrotidal's tunnel linking Canvey Island (Essex, i.e. north shore) with Hoo Peninsular (Kent, i.e. south shore). Source: Metrotidal, 2008.



As a bridge or tunnel this option would additionally impinge on local settlements and reduce agricultural land. However, the proposal is objected to at a local level (Gravesham Borough Council, 2011), at regional level (Council for the Preservation of Rural England, CPRE, undated; Royal Society for the Protection of Birds, RSPB, 2011) and at national level (Council for the Preservation of Rural England, 2011). A further proposal has been developed by another consortium (Metrotidal), also commissioned by Essex and Kent County Councils, to provide a road tunnel link still further east (Figure 5.7), which would also incorporate a tidal hydroelectric scheme and flood protection on the Essex (north) shore (Metrotidal, 2008).

Objections to the proposed crossing are based on loss of agricultural land, green space/Green Belt and habitat and on potential disturbance to wildlife, disruption during construction and infringement of national and international law if any legally designated protected areas were to be altered or destroyed (Figure 5.8). Agricultural land influenced by bridge and /or tunnel construction and subsequent use is classified as Grade 1 (excellent) and Grade 2 (very good) although some land Graded 4 (poor) is also found in the area (Figure 5.9).

Coastal wildlife habitat types are constrained (Blunkell *et al*, 2010) including grazing marsh, saltmarsh and intertidal mudflats, with large areas designated as SSSIs, nature reserves, SACs, SPAs and a Ramsar site. These are recognised for their value to bird species and as invaluable as sources of biodiversity. If construction is contemplated on designated wildlife areas there are legal obligations to ensure that the national interest is based on 'overriding reasons of imperative public interest' (RSPB, 2011). These must surpass the conservation interest/value of the site and other areas have to be made available to mitigate for any losses and disturbance.

The Metrotidal (2008) proposal includes flood water storage areas and energy generation in addition to a Thames crossing. It involves loss of some mudflat/saltmarsh which would be compensated for in the designation of newly created habitat in adjacent land (Figure 5.10). Objectors to routes east of Gravesend include CPRE Protect Kent (CPRE Protect Kent, 2007), Member of Parliament for Gravesham (Higham Parish Council, 2010), the Royal Society for the Protection of Birds (RSPB, 2011) and Thurrock Council and Gravesham Borough Council (Gravesham Borough Council, 2011).

Much of the land over which the easterly Lower Thames Crossing routes are proposed is within the flood vulnerability zones identified for the Thames Gateway. The elevation of road surface at either end of a bridge would need to be sufficient to ensure no threat of flood until higher ground is reached, while tunnel entrances would need their own flood defences. Such additional construction would necessarily impinge further on the area of land required and add to the concerns likely to be expressed by objectors. However, such large projects usually take several years before they are realised.

Table 5.4, below, summarises the key participants in this local conflict case study, their interests, goals, positions, capacities and relationships.

Figure 5.8. CORINE Land Cover Map of Thames Gateway – Level 3 Symbology. Prepared by using CORINE landcover data, European Environment Agency, 2010.

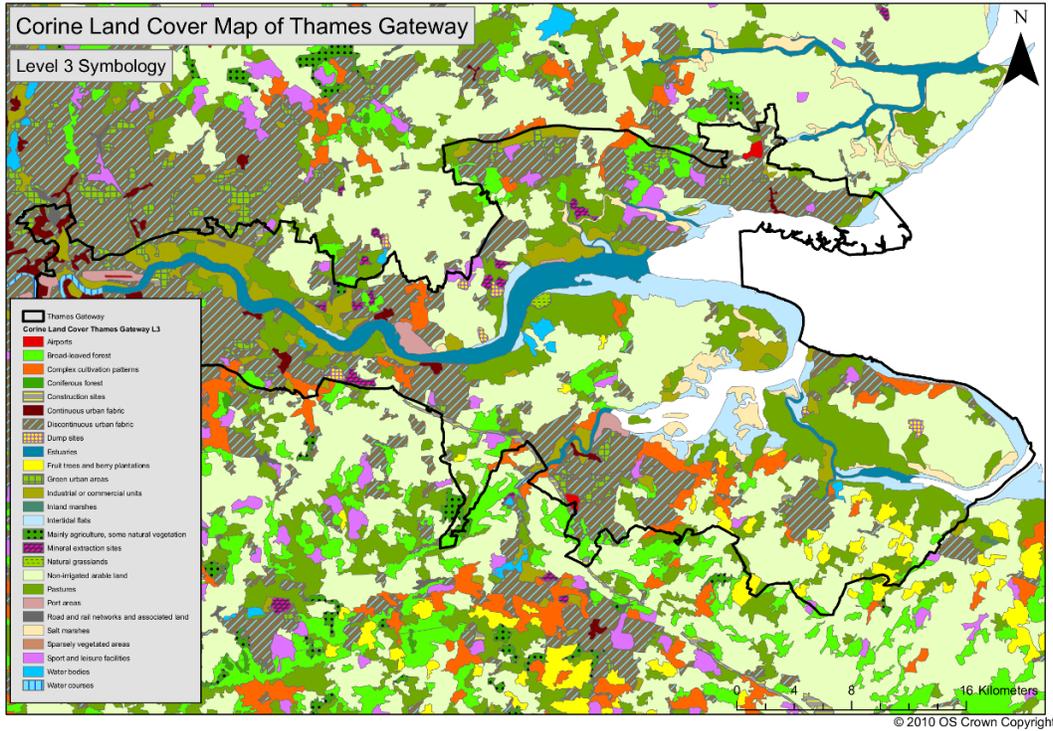


Figure 5.9. Agricultural land classification in the wider Thames Gateway region. Source: MAGIC crown Copyright.

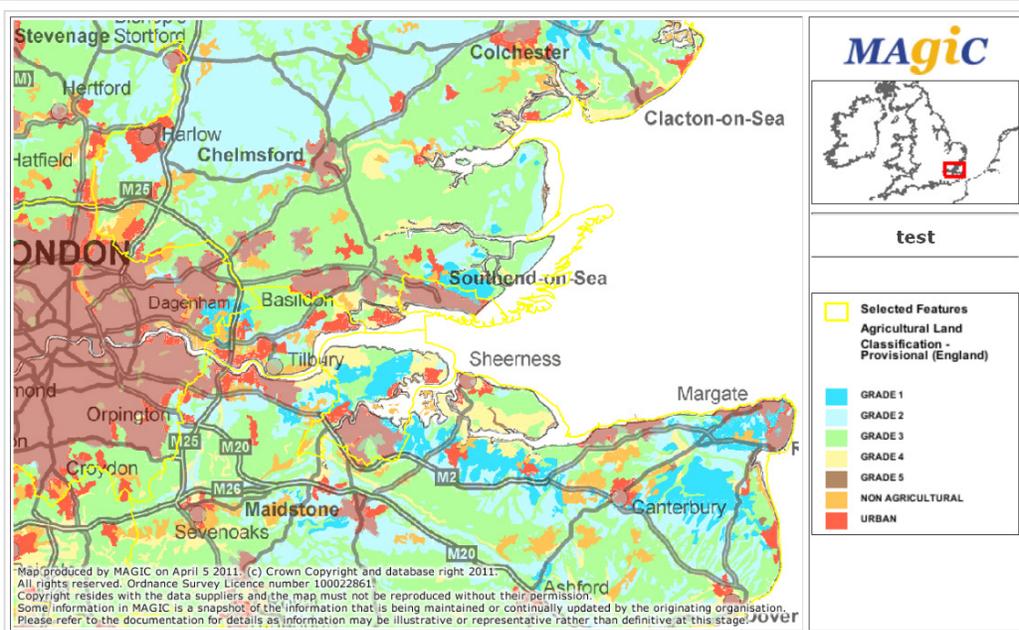


Figure 5.10. Intertidal habitat distribution along the lower Thames estuary. Source, Natural England Crown Copyright.

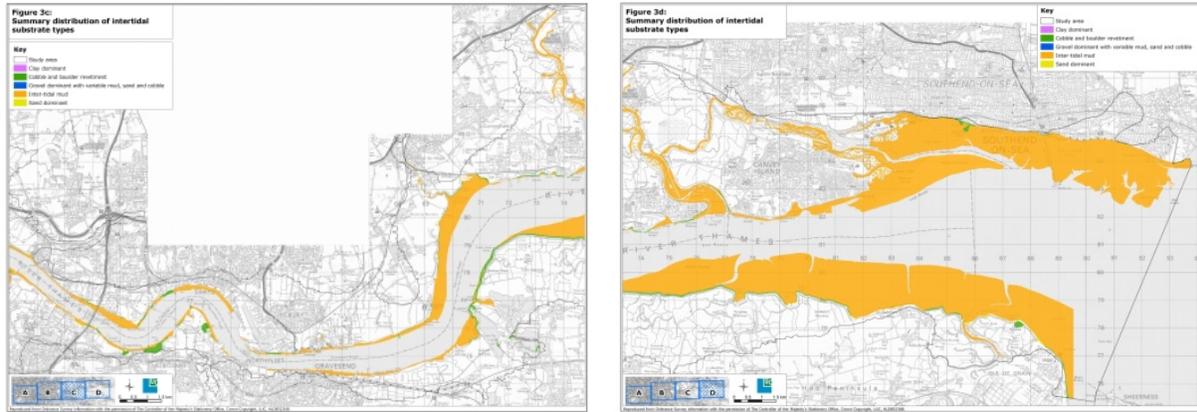


Table 5.4. Participants in the Local Thames River local conflict case study.

Parties	Interests	Goals	Positions	Capacities	Relationships
Department for Transport	Government responsibility for national transport policies	Reconcile economic growth with environmental/ social goals	Authority on transport-related issues	Holds final decision-making and budget powers	Informal /formal partnerships with other public bodies
Kent County Council (KCC) /Essex County Council (ECC)	Regional responsibility for policy development/ implementation	Reduce congestion via strategic transport policies	Committed to a new Lower Thames Crossing (LTC)	Budget holder and policy maker for Kent	Local government, private and public sectors
Lord Mayor of London	Directly elected and electorally accountable.	Strategic development of London	Needs of London as a whole	2008 London Plan.	Greater London Authority.
Gravesham Borough Council	Local responsibility for policy and implementation	Best benefits for electorate	Rejects proposals for a LTC east of Gravesham	Decisions can be over-ridden by national government	Local electorate, NGOs, neighbouring councils
Thurrock Council		Central role for encouraging enterprise and opportunity within Thames Gateway	No position declared	Decisions can be over-ridden by national government	
Higham Parish Council	Local (parish) responsibility for policy/implementation	Represent local electorate	Rejects the proposal for a LTC	Represents Higham Parish at Gravesham Borough Council	Local electorate and NGOs

Protect Kent (CPRE)	Conserve and maintain natural environments	Protect natural landscapes	Opposed to LTC	Widely respected NGO	Formal /informal links with public authorities/ NGOs
Royal Society for the Protection of Birds (RSPB)	Conserve birds in the UK	Resource bird conservation			
Kent Wildlife Trust	Conservation of wildlife in Kent	Resource conservation of habitats and species within Kent	No position		
MP for Gravesham constituency	Improving standards of living for Gravesham electorate	Represents electorate to parliament	Opposed to a LTC route east of Gravesham	Conservative MP within UK government	Constituency and government levels
Local residents	Quality of local environment	Maintain semi-rural aspect of parish/economic prosperity	Strong opposition to a LTC	Electoral power	Various.

3.2.3 Typological Classification

This is a classic *anticipated conflict* (Cadoret, 2009) centred on long running proposals for a major infrastructural project, but without detailed specification of site or scale, and as yet no definite funding.

The conflicts mainly focus on *access issues*, relating to intra-regional transport developments, and to the impact on legally protected conservation areas (Chandrasekharan, 1996).

The conflicts are still in a relatively early stage. Although they have largely been manifested, at least in the media and the publication of some general position papers, they are still crystallizing in the endurance stage (Rupeshinge, 1995).

These are *micro-macro* conflicts between the sponsors of the proposed new Lower Thames Crossing and different local communities (Warner, 2000).

3.2.4 Current Trends in the Conflict

The new crossing proposals are at the proposal stage and have not yet been presented for consultation. There was little activity or media exposure during 2010, until the publication by Kent County Council in December 2010 of 'Growth without Gridlock' (Kent County Council, 2010). In this document the Lower Thames Crossing was embedded within the transport

strategy for the county during the next 20-30 year. Following publication, a public meeting was held at the village of Higham (close to one of the proposed routes) in February 2011 where some 600 people heard the leader of Kent County Council and the chairman of CPRE Protect Kent present their opposing views (CPRE Protect Kent, 2011). Greater levels of commitment by national and/or local government would result in intensified opposition campaigns.

3.3 Farlington marshes: protecting wildlife *and* amenity value from flooding & erosion

3.3.1 Nature of the Conflict: Thematic Classification

Farlington Marshes is at high risk of flooding from storm events and erosion of protected saltmarsh habitat from sea level rise. A conflict has arisen, during the process of Shoreline Management Planning, between the long term protection of wildlife habitats and the immediate defence of urban land and recreational amenity space. A subsidiary conflict has emerged between different wildlife habitats.

Langstone Harbour (Figure 5.11) has the largest uninterrupted mudflats on the south coast of England which attract over 40,000 waders and 10,000 wildfowl each year. With adjoining saltmarshes, the Harbour area is a 'biological resource of unrivalled productivity' (LHMP, 1997). Over 20 species of bird visit during the winter representing 25% of the wintering bird population in Britain. The Harbour was designated a SSSI in 1958 (one of the first to be designated in the UK). In 1987 it was protected as wetland habitat under the Ramsar Convention and as a Special Protection Area (SPA) under the European Directive on the Conservation of Wild Birds. In 2000, approximately 48 hectares of saltmarsh remained. Although some accretion has been recorded within the Harbour, erosional trends are evident (Gardiner *et al*, 2007). Farlington Marshes local nature reserve is 125 hectares of reclaimed saltmarsh (dating back to 1773) located in the north-west corner of the Harbour and protected from tidal flooding by a low, 3.5km-long concrete seawall. These defences are composed mainly of revetment and require substantial repair and upgrading as they are nearing the end of their useful life.

Figure 5.11. *Langstone Harbour.*

Langstone Harbour and Farlington Marshes are under pressure from recreational use due to population increase. From 2000 to 2010 Portsmouth's population increased by 10,000. (Portsmouth City Council, 2011). Recreational use of accessible shoreline areas is likely to intensify over the next 20 years (Stillman *et al*, 2009). In addition there has been a 14% increase in the number of private motor vehicles on local roads. Two major road developments are located on the northern shore of Langstone Harbour, increasing access to the shoreline and intensifying the impact of road traffic.

Farlington Marshes is mostly below current mean high spring tides and would be flooded if defences were not present. It has high probability of tidal flooding and is in the UK Environment Agency Flood Zone Category 3 (highest). By 2115 (if defences are not present), the reserve and parts of the A27 arterial road will be at high risk of inundation. It is expected that, if no investment is made in upgrading existing defences, the level of protection offered by 2115 will be for events with water levels below the 1 in 20-year return period (<4.1 m OD). The level of 'danger to people' is such that in the event of a breach, people present in Farlington Marshes would be injured or drowned.

The focus of the conflict is proposals for realignment of coastal defences at Farlington Marshes. It involves stakeholders with competing interests in relation to natural area preservation, recreational amenity and flood protection of urban infrastructure. The realignment decision has to be taken within 10 years because of the current state of the coastal defences.

This case study addresses SECOA's thematic priority of *Preservation of natural sites and biodiversity* with some subsidiary relevance to *Human mobility and resources*.

3.3.2 Parties involved: Legitimation of the Conflict

The East Solent Shoreline Management Plan (2009) for Langstone Harbour identifies and proposes management interventions based on analysis of the current condition of shoreline, its coastal defences and current land use. The protected wildlife habitat on Farlington Marshes depends on the continued maintenance of coastal defences. Proposals to maintain and improve the sea wall are justified on the basis of *habitat value* and *recreational benefit* (there is a popular public footpath on top of the sea wall). However English Nature, a national agency, opposed this recommendation. This organisation advocates natural evolution of the coastline where possible and therefore support managed retreat. Likewise research by Gardiner *et al* (2007) questions continued coastal defence at this site, citing damage to the harbour ecosystem and likely long term erosion of island habitats if there is no increase in the intertidal zone. Portsmouth City Council and the East Solent Coastal Partnership point out the recreational and amenity benefits of maintaining the coastal defence. Recent maintenance work by the Environment Agency ensures that the present shoreline is not at immediate risk.

The Shoreline Management Planning process included stakeholders (organisations and individuals) pursuing their interests through a public consultation process. Most organisations with a stake in Langstone Harbour share the overall aim to protect the value of its international wildlife habitats and have an interest in cooperating with each other. Some do this through a Coastline Partnership. Each organisation conducts or contributes to plans and policy which aim to identify, clarify and manage problems and change (pressures on wildlife habitats, competing recreational uses, development) and future risks (flooding and erosion). However in the process of negotiating agreement, differences in stakeholders' interests are apparent.

Some organisations framed their consultation comments on the North Solent Shoreline Management Plan in terms of pre-existing thematic local policy objectives of their organisation – for example Historic Heritage, Utility Services, Transport or Recreation and used existing agreed plans as a mechanism for challenging the SMP's recommendations. Others focus on

citing pre-existing plans for adjacent local areas. Consultees also referred to the availability of financial resources to maintain long-term flood defence, citing differences in eligibility for central Government funding. Conflicts of interest represented in thematic policy objectives and in local area plan and resources have the potential to derail the SMP objectives to manage the shoreline as a whole. Langstone Harbour Board proposes maintenance of a coastal buffer zone in line with proposals outline in the Langstone Harbour Management plan to restrict development and ‘naturalise’ the shoreline as far as possible.

Table 5.5 summarises the key participants in this local conflict case study, their interests, goals, positions, capacities and relationships. This highlights the diversity of groups involved in this conflict.

Table 5.5. Participants in the Farlington Marshes local conflict case study.

Organisation	Interests	Goals	Positions	Capacities	Relationships
Langstone Harbour Board	Management of harbour use	Protection of harbour activities	Maximise benefit to harbour users	Budget holder and Management Authority	Formal relationships - local authorities, national agencies and voluntary groups
Natural England	Protection of landscape and natural heritage	Protect natural landscape and heritage of LH	Prevention of over development	National agency	Formal relationships - local authorities, agencies and partnerships
RSPB	Protection of Island Reserve Habitats	Retention of Island Reserve	Seeks protection of wild birds	Large NGO /influential members	
HWLT	Management of Farlington Marshes	Retention of Farlington Marshes Reserve	Protection of species and habitats	Regional NGO influential members	
Environment Agency	Statutory Advice/regulation	Effective planning for sea level rise	Statutory advice on sustainable development	Executive Non-departmental Public Body	
Chichester Harbour Conservancy	Protection of harbour wildlife and amenity	Minimise development /maximising access to harbour	Retention of amenity value	Harbour Authority	
Borough and District Councils, Portsmouth City Council	Enabling development /protecting amenity and wildlife	Balance development with environmental protection	Mediation between development /protection	Budget holder and policy maker	Local electorate, national and local agencies, local firms, neighbouring local authorities
Havant, Portsmouth & Gosport Coastal Partnership	Integration of shoreline management	Implementation of SMP	Implementation of coastal planning	Coast defence service	Formal links with national agencies, local authorities and Harbour Boards

3.3.3. Typological Classification

In terms of Cadoret (2009) this is a *chronic* conflict reflecting persistent conflicts between well defined interest groups with strongly divergent views.

It involves *access* conflicts (Chandrasekharan, 1996) relating to access by competing environmental groups to highly valued environmental areas. The conflicts also related to *changed resource quality*, resulting from the proposed realignment of coastal defences combined with predicted sea level rise. There are also elements of value base conflicts reflecting deep seated views about the balance between nature and society, as manifested in relation to the future defence and use of coastal areas

The conflict is passing from the stage of conflict *manifestation* to becoming an *endurance* conflict (Rupesinghe, 1995), as a consequence of decisions about the future of the coastal defences becoming increasingly pressing, at the same time as there is intensification of pressures on these coastal areas.

Farlington can be classified as an *inter micro-micro* conflict relating to proposed boundary shifts, that is to the alignment of coastal defences (Warner, 2000).

3.3.4 Current Trends of the Conflict

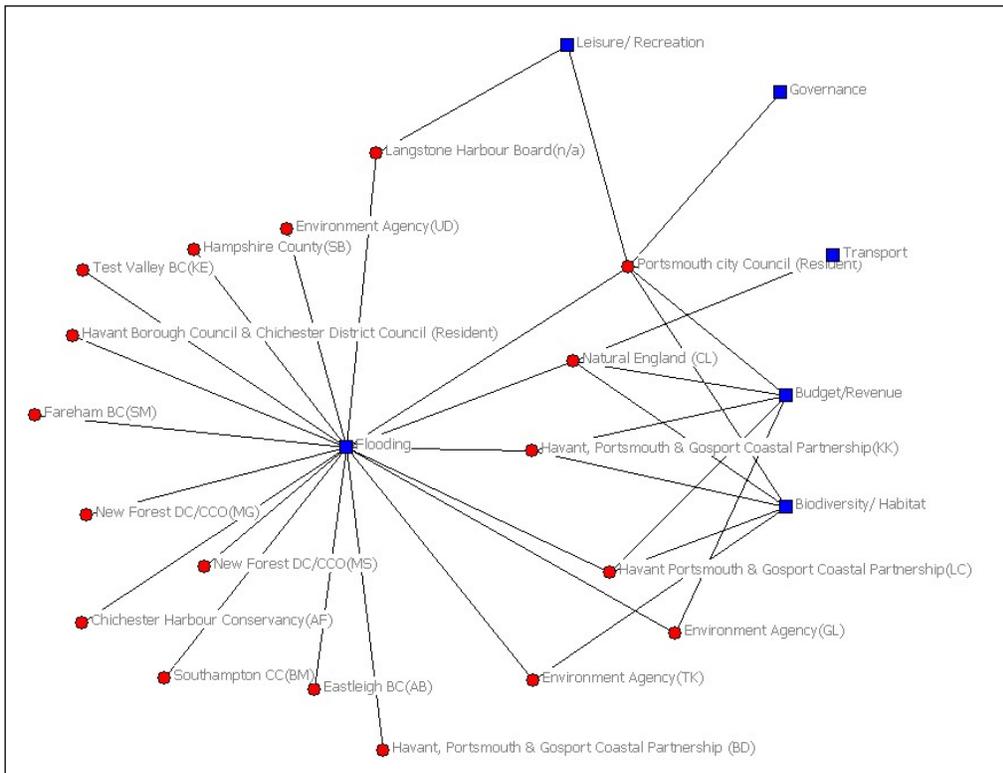
A discourse network analysis (DNA) was used to map the stakeholder network for Langstone Harbour. This approach allowed identification of key stakeholders, their principal concerns and positions in relation to the draft NSSMP. The network data suggests that Natural England (CL) is closest to all other organisations in the network. It has the highest centrality scores of all other organisations and should, therefore, have the best overview. Thus, Natural England should be in an excellent position to mediate between stakeholders (nodes) otherwise not connected. With this position comes the potential power of controlling/ mediating information flow or facilitating conflict resolutions. Those stakeholders with the lowest 'closeness' and 'betweenness' measures (i.e. Chichester Harbour Conservancy) can be expected to be in the least powerful position (Figure 5.12).

The recommendations for Farlington Marshes outlined in the East Solent SMP (2009) have been modified in the North Solent SMP from 'hold the line' to 'hold the line temporarily' (for 10 years). This is the result of objections made to the original recommendation on the grounds of *habitat loss*, *loss of recreational amenity* and *protection of urban land use*. There is a failure to agree the long term strategy of shoreline management in Farlington Marshes. The

NSSMP has deferred the decision, recommending further research and consultation to assess the wider strategic impact of habitat loss and assessment of economic and social impacts of change in defence alignment. However the NSSMP’s advice to the Regional Habitat Creation Plan is to consider the possible need for compensatory habitat.

Through a survey of stakeholders, the high value their organisations placed on the natural environment of Langstone Harbour was confirmed though for some it was no more valuable than the other localities within the Solent and no more important than the cultural heritage of the historic harbours in the vicinity. The greatest risk to the Harbour was uniformly identified as sea level rise resulting in damage to the environment generally and loss of habitat in particular.

Figure 5.12. *Bipartite Langstone Harbour network. Visualised using NetDraw © 2002-9 Analytic Technologies.*



One wildlife organisation identified the ‘*Increase in disturbance from human recreational activities*’ as a high risk factor. Habitat conflicts caused by coastal squeeze, exacerbated by coastal defences, were also identified suggesting that the mitigation and compensation

requirements of the Habitats Regulations will have a very significant impact in this area. One respondent wrote:

“Removal of sea defences would reduce coastal squeeze but sea defences will be necessary to protect some terrestrial/freshwater components of the European designated sites, and of course the surrounding urban areas (Portsmouth, Havant and Hayling Island)” (Wildlife Organisation).

Yet others advocate maintenance of coastal defences to protect habitats on Farlington Marshes, adding to the difficulty of developing a shared understanding of the habitat conflicts arising as a result of sea level change.

“Of particular concern is the future of the sea wall that surrounds Farlington Marshes Local Nature Reserve (the sea wall protects a very important area of coastal grazing habitat that is also a key roosting & feeding site for the harbour’s passage & wintering bird populations)”. (Wildlife Organisation)

Furthermore others noted the high level and density of population, some of the highest in Europe, in the surrounding area and that there is an expectation that protection from sea level rise will be forthcoming, even if it is paid for by communities themselves rather than through state funding.

“In order to protect people, property and communities from the climate change impact of sea level rise it may, where it is appropriate and affordable to do so, be necessary to maintain and improve coastal defences.” (Coastal Partnership Member).

“We will see communities pulling together to invest in defending themselves where public funds cannot be used.” (Statutory Environmental Organisation).

“Individual property owners will become increasingly aware of the risks and all development will build resistant and resilience into properties to address the residual flood risk.” (Environmental Organisation).

Respondents identified conflicts between wildlife protection and commercial fishing, specifically increased levels of clam dredging which has the potential to damage wildfowl food supplies and between the need to protect the valued environment and urban-economic infrastructure. Indeed one respondent noted that if there is a strategic reason for protecting human activity, this can override concern for wildlife. However there is apparent difficulty in assessing the relative value of different habitats within the Harbour.

3.4 Tipner Regeneration, Portsmouth: Economic Development versus Environmental Protection

3.4.1 Nature of the Conflicts: Thematic Classification

The Tipner site is a highly contaminated ex military site which is at high risk of flooding from tidal events and sea level rise. It is adjacent to protected wildlife habitats (Figure 5.13). A conflict has arisen, during the process of planning application for major housing and mixed use development, between the long term protection of wildlife habitats/decontamination of land and the urban development which is central to the delivery of the Portsmouth Plan. Subsidiary conflicts have emerged over the quality and type of housing, the transport provision and the impact on the waste water management system. There are therefore competing interests in conflict with the development proposals.

Tipner is the largest development site available in Portsmouth and has been the subject of successive (failed) planning applications in the past. The pressure for residential and related mixed uses (retail, leisure) continues to be high, with planning and housing policy looking to further house building and densification/re-use of available land to support economic growth and meet housing need. The Tipner land use is classified as 'brownfield' (previously developed land). It is within an SSSI and SPA designated area (Portsmouth harbour) and a Ramsar site.

From 2000 to 2010 Portsmouth's population increased by 10,000. It is continuing to rise. International migration has accounted for a significant proportion of this increase. Housing development pressure intensified over this same time period with the completion of over 3,300 dwellings. Recently revised housing targets recommend that between 6,800 and 8,900 new homes are constructed in Portsmouth before 2027 (Portsmouth City Council, 2011). Objectives within the Draft Portsmouth Plan are to develop approximately 50,000 square meters of comparison retail floorspace within the city core, 5,500 square meters of convenience retail floorspace in neighbourhoods and an additional 243,000 square meters of employment land mainly along the western corridor of the city to supplement the existing industrial areas on the eastern side of the city.

Figure 5.13. *Tipner aerial view (main site marked in red). Source: Portsmouth City Council.*



Tipner is a flood-prone area (if defences were not present), and there is considerable area of high probability (annual probability >0.5%) of flooding from the sea (flood zone 3). Sea level rise is likely to have a negative impact resulting in almost the entire area of Tipner categorised as zone 3 (high risk of flooding) by 2115. Currently most flood defences around Tipner have crest levels equivalent to tidal heights of 50-100 year return period with lower level of protection (20-50 year return period) offered along 700 m in the southwest. The investment currently needed to maintain protection against events of 1 in 200-year is low, while in 2115 a high level of investment will be required along 1.1 km of the defences at the westernmost section of Tipner and a moderate level of investment is likely to be needed elsewhere. In terms of risk to people, most of Tipner is considered to show ‘danger to some’ if breaching occurs. Current defences can be overtopped by 1 in 100-year water levels at some locations, especially along the northern coastline close to the M275. Most defences would be overtopped by the predicted 1 in 100 year event by 2100 if they are not upgraded and most of the area would be flooded as a result.

This case study primarily addresses SECOA’s thematic priorities of *Economic development versus environmental protection* and *Human mobility and resources*.

3.4.2. Parties Involved: Legitimation of the Conflict

The planning applications at the time of writing include provision for:

- 518 homes -111 x 1 bed, 256 x 2 bed, 21 x 3 bed flats; 1 x 2 bed, 19 x 3 bed, 20 x 4 bed houses (418)+ 90 x 2 storey houses (on former Greyhound stadium site). 820 car park spaces, 553 cycle spaces
- Hotel (150 bed) & offices (25,000m²)
- Waterfront - Tipner Point: listed building/commercial leisure 2380m². New coastal path (440m)
- Local centre 1750m²⁺: Shops 147m², Children's play area, CHP, Restaurants/cafes 237m²
- Park & ride scheme - bus service linking Cosham to the north and city centre to the south
- New sea wall - raise land level by 4.3 to 4.5m

Two applications were finally submitted in September 2010 - One led by Tipner Regeneration Co Ltd. (10/00850/OUT) and one led by Tipner Regeneration Co Ltd and SEEDA (10/00849/OUT) the regional development agency for the South East of England. Both plans propose land remediation (including thermal desorption), land raising, the development of new dwellings, CHP plants, sea wall and coastal path. The decision from the planning committee about both applications is still pending. In general, planning permissions can only be given if the applications are in line with Portsmouth City Plan (2006-9) planning and development policies. This statutory framework entails more than 50 policies.

Interviews with officers from Portsmouth City Council (the statutory unitary planning authority) have highlighted the following key issues that have, in previous years, prevented any planning applications from reaching the submission stage: the number of stakeholders, an increased flood risk with rising sea level, need for sustainable drainage systems to cope with surface flooding, contamination of land and water, impact on nature conservation, access to the site, the potential effects upon neighbouring properties by reason of air quality, noise, landscape and townscape.

Tipner falls under the Local Development Plan for Portsmouth. Current planning applications are guided by The Draft Portsmouth Plan (-2027), a revised statement of which is currently out for public consultation. This is Portsmouth's Core Strategy. It is the overarching planning policy document, which forms part of a wider set of local planning policy documents known as the Local Development Framework (LDF). The LDF will gradually replace the City

Local Plan, adopted in July 2006. The Portsmouth Plan does not contain detailed area plans - these are contained in Site Allocation documents, Area Action Plans and Supplementary Planning Documents for specific areas or topics. The Portsmouth Plan is a strategic document and sets out key issues and main locations for development and change. It has to reflect national planning policies. Table 5.1 outlines the planning framework governing the development of Tipner.

The Portsmouth Plan strategy for Tipner has developed in line with EU Directive 2011/42/EC requiring Strategic Environmental Assessments (SEA) & Planning and Compulsory Purchase Act 2004 (Core Strategy/Local Development Framework) and South East Plan.

Stakeholders were found to share the overall aim to de-contaminate and develop this site. Most addressed aspects of these applications, which were thought of as not complying with the aforementioned Portsmouth City Plan (2006/2009) planning and development policies. The statements suggest that the overall strategic behaviour has generally only been directed towards single policy and planning issues – usually within the realm of institutionally manifested expertise.

It seems that by pursuing the best possible planning decision for single policy issues, these stakeholders have not left much room to negotiate the best system-wide response. This single issue focus seems to have already caused delays in the planning decision, and, thus, jeopardizes the commonly shared aim to decontaminate and develop the land. The aim of this study is to analyse the discourse in more detail and validate these claims.

However not all stakeholders necessarily value the development proposals for Tipner. A summary of objections to the current planning application reveals a number of explicit potential conflicts between development and conservation and between specific development goals:

- RSPB - Coastal path, disturbance from recreational (human) use and effect on wildfowl. Residential and commercial/leisure development. Need to wait for results of Solent Disturbance & Mitigation research project (due for completion mid-2011)
- Natural England – insufficient Environmental Impact Assessment (EIA), coastal squeeze (new sea wall setback), recreational use – impacts on intertidal area and habitat
- Housing need – dwelling sizes (3-4 bed houses/dwellings) 45% in City plan versus only 24% in latest planning proposal. Mixed tenure/communities, more affordable housing required, also poor design
- Pressure on amenities from increased population (n=1000) e.g. schools, GPs etc.

- Transport congestion (roads, junctions), lack of secure cycle parking
- Contaminated land cleansing on site is partial (not whole Tipner site) - health impacts/residual risks

Table 5.6. summarises the key participants in this conflict, their interests, goals, positions, capacities and relationships

Table 5.6. Participants in the Tipner local conflict case study.

Organisations	Interests	Goals	Positions	Capacities	Relationships
Highways Agency	An Executive Government Agency	Strategic traffic management	Traffic management	Strategic road network management.	Formal relationships - national and local statutory authorities, agencies and partnerships
Natural England (formerly English Nature)	Protection of landscape and natural heritage	Protect natural landscape and heritage of LH	Protect natural environment	Environmental Protection	Formal relationships with local statutory authorities, agencies and partnerships
RSPB	Protection of Island Reserve Habitats	Retention of Island Reserve	Protection of wild birds	Large NGO - influential members	Formal and informal links with public authorities, other NGOs
HWLT	Protection and Management of Farlington Marshes	Retention of Farlington Marshes Reserve	Protection of species and habitats	Regional NGO - influential members	
Environment Agency	Statutory advice/regulation /funding	Planning for sea level rise	Develop /implement statutory advice and guidance to protect the environment	Executive Non-departmental Public Body.	Formal relationships with local statutory authorities, agencies and partnerships
Local Councils/City Authorities	Enabling development while protecting amenity and wildlife	Balance development with enhanced environmental protection	Seeks to mediate between development goals and protection of the environment	Budget holder and policy maker for Hampshire	Local electorate, links with national and local agencies, local firms and neighbouring local authorities
Portsmouth Cycle Forum	Campaigning for better increased cycling and cycle facilities	Improve/increase cycle routes, facilities and provision	Seeks improved cycling	Voluntary organisation	Membership / informal ties with other environmental and social/community NGOs / formal consultee on local plans
Enabling (Community Housing)	Provision of social/accessible Housing	Increase number of affordable housing units	Seeks to maximise opportunities to develop accessible/affordable housing	Housing Association	Formal ties with local and regional authorities and agencies, local community groups and voluntary sector organisations

3.4.3 Typological Classification

This is a *chronic* conflict (Cadoret, 2009). It is a *persistent* conflict, reflecting the existence of other brownfield and contaminated sites which can or will be developed in the case study, either in the near future or longer term. This is exacerbated by a relatively slow moving planning system which affects the resolution or termination of the conflict.

The conflict centres mainly on issues resulting from changes in the quality of a resource (Chandrasekharan, 1996), as a result of a programme of decontamination of industrial land. There are also *policy conflicts* relating to policies and planning processes concerning the site.

It is a long established conflict which is currently in the conflict management stage (Rupesinghe, 1995): it is current, and high profile, and awaits resolution or transformation.

In terms of Warner's (2000) classification, this is difficult to classify as it involves a mixture of scales.

3.4.4 Current trends of the conflict

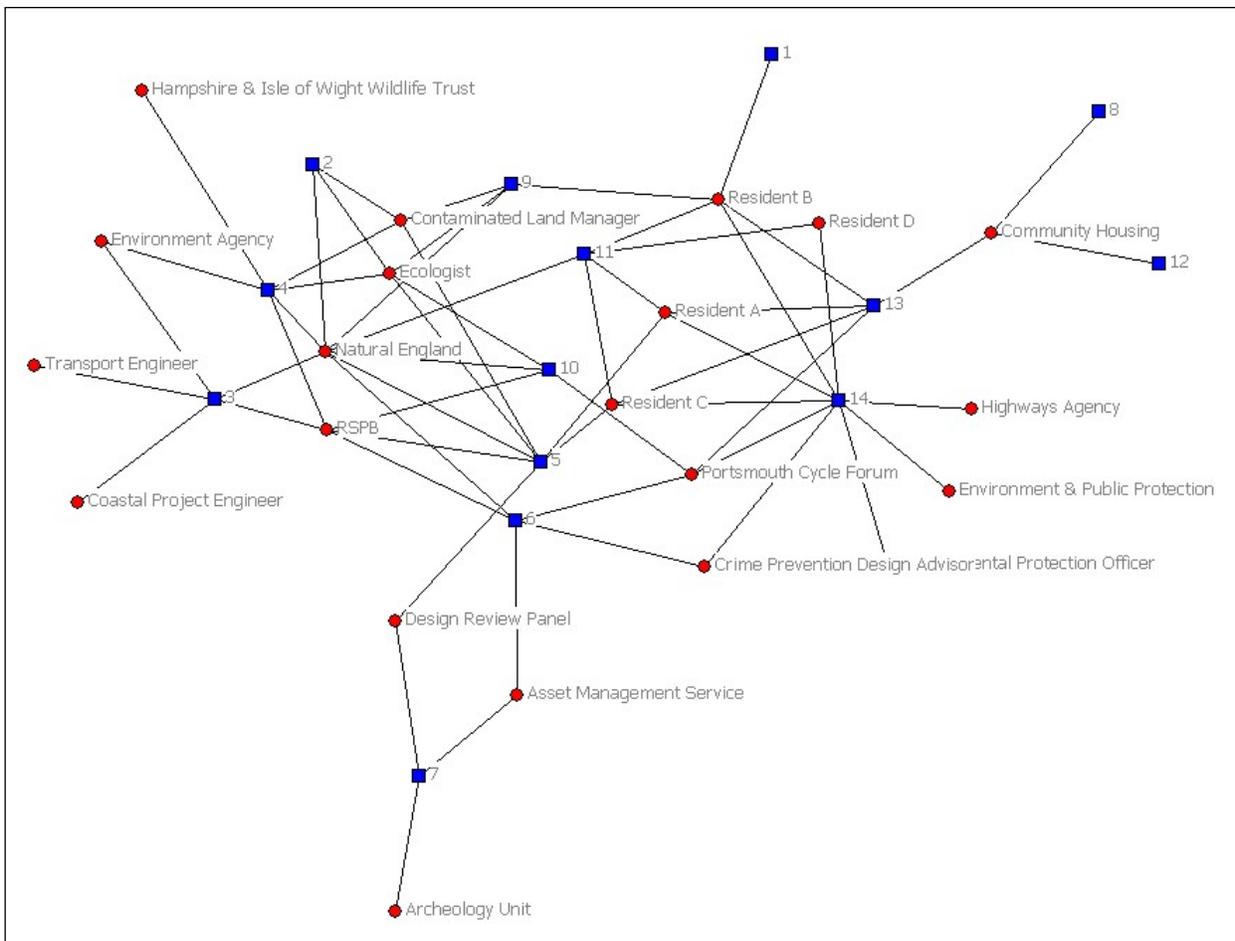
A discourse network analysis (DNA) was used to map the network for Tipner following the submission of planning applications in September 2010. This approach allowed identification of key stakeholders, their patterns of interaction and positions in relation to the proposed Tipner development.

The node with the highest score across all the measures is assumed to inhabit the most important structural position in the network. Natural England has the highest centrality scores and should, therefore, have the best overview of what happens in the remaining parts of the system. Thus, Natural England should be in an excellent position to mediate between nodes that would not otherwise be connected. Those stakeholders with the lowest closeness and betweenness centralities can be expected to be least likely to do so (ie the Design Review Panel). A 'second tier' of stakeholders emerges from the analysis in which the RSPB, The Hampshire County Council Ecologist and the Contaminated Land Officer have the second most central positions in relation to most (if not all of the dominant) themes (see Figure 5.14).

At the time of writing the planning decisions on Tipner were still pending. The resolution of the conflict over the proposed Tipner development may take the form of a conditional or compromised (depending on viewpoint) planning approval. The development process is however not predictable whatever the outcome. If planning is refused (again) for this strategic site, issues of land contamination/protection will still need to be resolved as the risks of pollution remains from surface water/drainage, storm flooding and, over time, sea level rise in

the absence of strengthened coastal defences and clean up. Planning blight of the site whilst pressure for housing continues will also remain a political and community conflict. Award of planning approval (with or without mitigating conditions) is also no guarantee that the development will go ahead or in its proposed form. Developers can sell on land (whose value will have risen) with planning approval to new developers or investors, or can retain the land for several years (up to 3) without having to seek renewed approval. Another scenario is that the development is undertaken piecemeal (as has happened in other major contaminated land developments e.g. Greenwich Millennium Village and Olympic Park, London).

Figure 5.14. *Bipartite Tipner network. Visualised using NetDraw © 2002-9 Analytic Technologies.*



The planning consultation process has been limited to vested interests (only four ‘near residents’) including those concerned with the natural habitat, birds and amenity with, as already noted, little obvious room for negotiation or trade offs proposed by either side.

4. Typologies and comparative rankings of UK local conflicts case studies

The typologies of the local conflict studies undertaken in the UK are set out in Table 5.7. In terms of Cadoret, Thames Gateway is largely an anticipated conflict over the exact location of proposed (but not yet funded) major crossing of the river; it has potential to shift relatively quickly to the chronic stage. The other three are chronic, but Barking also invokes elements of anticipatory conflicts relating to future population migration. In terms of Chandasekharan, there are conflicts relating to access, changes in the resource quality (associated with urban regeneration), values (between preservation group, and between them and pro economic development groups), and policies/legal issues. The latter reflect the highly developed system of land use, and conservation policies in the UK.

According to Rupershinghe’s typology, none of the conflicts are in either the first (formative) or final (transformational stages). Instead, Farlington and the Lower Thames Crossing represent a mixture of manifestation and endurance conflicts, while Barking and Tipner represent later-stage management conflicts. Warner’s typology suggest that Barking and Farlington are micro-micro conflicts relating to population changes and boundary shifts respectively, Lower Thames Crossing is a micro-macro conflict between project sponsors and local communities, while Tipner is a hybrid, difficult-to-classify conflict.

Table 5.7. Typologies of conflicts.

CASE STUDIES	Cadoret	Chandrasekharan	Rupesinghe	Warner
Barking Riverside	Chronic Anticipated	Access Change in Resource Quality Values Policy	Management	Micro-micro
Lower Thames Crossing	Chronic Anticipated	Access	Manifestation Endurance	Micro–macro
Farlington Marshes	Chronic	Access Change in Resource Quality Values	Manifestation Endurance	Micro – micro
Tipner Regeneration	Chronic	Change in Resource quality Policy	Management	Hybrid

Table 5.8 summaries the comparative rankings of the UK local conflict case studies. All four local conflict case studies are considered to be critical as they relate to long term developments that have potentially major consequences for socio-economic and environmental systems at a number of different scales, ranging from the local to the national and, to some

extent, international. They relate to major transport infrastructure investments (Lower Thames Crossing), the alignment of coastal defences (Langstone/Farlington), the strategic development decisions for a key urban site (Tipner) and the detailed implementation of a major housing project (Barking).

In terms of urgency the local conflict case studies range from low urgency to immediate concerns. The Lower Thames Crossing is at an early stage of discussion, and lacks funding commitment – an issue that is unlikely to be quickly resolved given both the long time frame for funding major project and severe fiscal tightening in the UK. Farlington has passed from urgent to medium urgency, following the deferral of a decision about the alignment of coastal defences. The time frame for this major decision is within 10 years. It therefore is in the medium urgency category, but at some point in the next 10 years, it will become urgent as that decision reaches the top of the policy agenda. Barking is a medium urgent conflict as the strategic planning decisions have been taken, with the granting of outline planning permission in 2006, but there will continue to be recurring conflicts over the detailed implementation of the scheme over the next 20 years. These could potentially move from moderate urgency to urgent at particular moment – such as attempts by developers to negotiate agreed targets for the housing mixture. In contrast, the conflict at Tipner is immediate as a planning application has been made for the site, and the decision has to be taken within the guidelines laid down for dealing with planning applications, and any resulting appeals. If the application is refused, then the conflicts could move to the moderate urgency category, although they would be overshadowed by the prospect of urban blight.

The constraints imposed by the planning process mean that Tipner is considered a short term conflict, at least in its present form – although if planning consent is refused, this could re-emerge later in other short term conflicts relating to new proposals. In contrast, the other three conflicts are all considered to be chronic. The Lower Thames Crossing is still at such an early stage of planning, that it is in many ways a classic anticipatory conflict – anticipation of much feared, but as yet not fully understood, consequences by local communities and conservation groups in particular. However, the long time frame for its resolution and implementation makes this a chronic conflict, which is likely to remain a recurring source of conflicts. Barking also has elements of an anticipatory conflict, as it is at the centre of broader concerns, fears and political contestation relating to the future socio-demographic composition of the area. Given that the strategic planning permission has been agreed, and the twenty year implementation horizon, it constitutes a chronic conflict. Farlington, where the conflict centres on the consequences of realigning coastal defences in response to sea level rises, and to the need for renewal of existing defences, is very much a chronic conflict. These decisions will need to be

reassessed and revisited over the long term, either in Farlington itself, or in adjoining areas, as the evidence about sea level and about environmental and social consequences continues to emerge.

Table 5.8: Ranking of local conflict case studies.

	CRITICALITY	URGENCY	DURATION
Barking Riverside	Critical	Moderate- Immediate	Chronic
Lower Thames Crossing	Critical	Low	Chronic /Anticipation
Farlington Marshes	Critical	Moderate	Chronic
Tipner	Critical	Immediate	Short term

5. Conclusion

This chapter reported on the four local case studies selected in the UK for initial exploration of coastal conflicts. The UK team sought local case studies with a range of environmental conflicts which could be identified as both representative of the UK as a whole and of the core SECOA research themes. Four local conflict areas were selected for detailed study taking into account three main criteria.

A conflict often occurs when there is a ‘perception’ that one group is gaining (or, in economic terms, maximising their utility) at the expense of another. In the UK case studies the emergence of conflicts have arisen and been expressed through the planning processes because of demographic change - a sharp influx of new-comers driven by uneven economic development (Barking and Tipner); natural resources competition between habitat preservation, recreational amenity and flood defence (Farlington); and developmental pressures as government policy changes, prioritising infrastructural investment over agriculture and habitat conservation.

However many of the typologies and rankings used in SECOA reflect circumstances where planning systems and consultation is less well developed. In conclusion it should be noted that in the UK where public consultation is embedded within the policy and planning process, conflicts are more likely to be expressed through institutional submissions to formal processes. Given this, there are elements of hybridity and complexity which the above typologies fail to grasp and which make it difficult to classify the UK local conflict case studies. All of them are the outcome of a governance processes in which consultation is an ongoing

process rather than a static or single entity. Particular events, structural or institutional changes, at different scales, have the power to shift conflicts between categories, either for very short or for much longer durations.

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ABSTRACT: This chapter reports on the identification of conflict case studies in the UK. The main objective is to describe their selection, analysis and classification. Four local case studies were selected taking into account three main criteria: 1) SECOA conflict themes; 2) institutional and structural differences; and 3) temporal scales, duration and urgency of local conflicts. Different research strategies were adopted depending on local circumstances. In Portsmouth these included planning and policy analysis; Discourse Network Analysis (DNA); and stakeholder surveys. In Thames Gateway, the Barking Riverside case study relied on analysis of media reports and policy followed by key informant interviews whereas in the Lower Thames Crossing analysis of published consultancy reports, government briefings and local press coverage was undertaken. Struggles over access, resource quality, values and governance were identified representing manifestation, endurance and management conflicts. All four studies were found to be critical with major consequences for both socio-economic and environmental systems at a number of spatial scales from local to international. Three were deemed chronic in terms of duration (Lower Thames Crossing, Barking Riverside and Farlington) representing protracted problems within complex environmental contexts. Only one (Tipner) was of immediate urgency and of short term duration. The remaining three case studies were moderate (Barking Riverside and Farlington) and low urgency (Lower Thames Crossing). This chapter concludes that the UK local conflict case studies are complex and in a state of flux in

which events, structural or institutional changes have the potential to shift conflicts between classificatory categories.

KEYWORDS: global changes, coastal areas, environmental conflicts, Barking Riverside, Lower Thames Crossing, Farlington Marshes, Portsmouth

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CHAPTER 6.

Coastal Conflicts in the Context of Changing Planning and Policy Paradigms: The Israeli Case

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1. Introduction

Competition over coastal resources is a global phenomenon; continuous population growth and demand for development increases whilst attempting to accommodate a growing plea for sustainable use and environmental agendas. Populations over the centuries have been attracted to coastal zones exploiting its resources resulting in a hotspot for conflicts involving land use disputes and recently environmental disputes. Land use along the coast has gone through different periods with different requirements and agendas. These agendas were outlined by regulators who in reaction to these periodic demands sought out paradigmatic plans and land uses accommodating requirements deemed appropriate at the time. These paradigms distinguish between the current view of the coast as a public domain and the previous paradigms regarding the coast as a city's backyard or as an urban front-yard emphasising tourism and recreation. Whilst these periodic and paradigmatic changes occur features from previous eras continue to exist and result in conflicts amongst beneficiaries of each era. The objective of this chapter is to briefly examine these paradigmatic changes in the context of the Israeli coast and comparing three case studies that epitomise the current debate in Israel. The three case studies are a) Haifa port, located in the city of Haifa b) Netanya's sand stone cliffs, characterising the Netanya coast line and c) Palmachim beach, located south of Tel Aviv (Figure 6.1).

Haifa port epitomises the ongoing clash between port activity and urban development in port cities. The port, originally development by the British in the 1930s, consists of several sub conflicts concerning land use disputes illustrating the increasing demand and competition in urbanized coastal zones and port cities. The case study encompasses disputes concerning environmental protection and port development, development of a metropolitan park, a continuous debate between port activities and city waterfronts, and finally an ongoing clash between the port, nearby infrastructure and the city. The scope of the conflict goes beyond the local arena owing to the substantial impact the port has on the Haifa metropolitan area and its extensive port activity.

The second case study concerns the coastal stretch of Netanya and the sandstone cliffs that characterise large parts of the Israeli coast. Eroding sandstone cliffs, shaped by crashing waves and inland processes, are potentially disastrous to urban areas, emphasised in the context of this case study. This subject has received increasing regulatory attention over the past

few years as the erosion of the cliffs threatens an increasing number of users and land uses along the coast. The conflict consists of various agendas involving the use of the coast, development inland and offshore, and the construction of coastal defences; the estimated cost of which has been estimated at approximately a hundred million Euros. Development of the coastal strip is a major feature in the municipality's plan for economic development. Subsequently the most important discussion concerning the Netanya coastal strip is the defence of the sandstone cliffs, the significance of which is economic, environmental and public safety.

Palmachim beach is located in the southern area of the Tel Aviv metropolitan coastline in the jurisdiction of Gan Rave local authority and is subject to an ongoing conflict involving the development of a beach resort. The selected case study represents a number of conflicts along the Israeli coastline and inland involving contrasting agendas of development and environmental protection with the repeating problem of compensating stakeholders affected by overturning prior decisions and permits. In 1983, the National Outline Plan No. 13 was approved designating the Palmachim beach area for tourism development, a location which was later identified by another national outline plan (35) as an area for preservation of the natural environment. The conflict consists of two main issues, the social impact consisting of public access to the coast maintaining the coast as a public domain, and the environmental impact. The Palmachim case study was widely shaped by grassroots activists who partook in the different stages of the conflict demanding the termination of the development plan.

Several interviews were conducted with stakeholders involved in the different case studies and the Israeli coastal environment providing an insight into the main features characterising the conflicts and current trends. This was complimented by official reports concerning the coastal environment, media sources and planning documents. The analysis of the case studies is based on the aforementioned data sources and as such provides a comparative analysis of the paradigmatic changes and ranking of the conflict discussed in later stages of this chapter. The paradigmatic changes will be discussed in each case study and summarised in the conclusions.

Figure 6.1. *The location of the three conflicts discussed in this chapter.*



2. Methodology

The three selected case studies were chosen from a comprised list of over 30 identified conflicts along the Israeli coast from the year 2000. Conflicts along the Israeli coastline can be classified into five types of conflicts: conflicts involving public exclusion, competing land use conflicts, the particular case of environment vs. tourism development, pollution associated conflicts, and conflicts involving offshore development and coastal defences. Each of the conflicts demonstrates more than one of these issues and as such represents different issues concerning the coastal environment. The three case-studies have received wide media interest, political intervention, judicial activism and public interest. Subsequently the conflicts involved a wide array of state and non-state actors playing different influential roles and shaping the conflicts. The initial identification of the list of conflicts and the selected case-studies is what DeTombe (2001) defined as phase 1.1: becoming aware of the problem and forming a vague mental idea of the problem. The data for the case-studies was based on four main sources: Media reports, official reports and documentation, interviews, additional media sources.

- Media reports conferring the conflict – articles written concerning the case studies from newsagents and internet media sources.
- Official reports and documentation – reports prepared by environmental NGOs and government bodies such as the Ministry of Environmental Protection regarding the different case studies. Planning documentation serves as an additional source, particularly concerning the changing paradigms.
- Interviews – interviewing stakeholders involved in the specific case-studies and stakeholders involved in all three cases and the coastal agenda in general.
- Additional media sources – internet sites referring to the case-studies and sites representing the different stakeholders.

The analysis of the conflicts was based on interviewing various stakeholders involved in the different case studies and the Israeli coastal context in general, and information gathered from different media sources. Once the information was gathered we classified the conflicts according to the different coastal attributes and resources in each case stud. We then categorised the conflicting uses and the primary stakeholders involved in the case studies. Further classification of the conflicts is based on four different concepts; Cadoret's (2009) classification, Chandrasekharan (1996), Rupesinghe (1995), and Warner (2000).

Cadore (2009) classified three categories for the classification for conflicts of use related to the environment. The categorisation includes chronic conflicts, anticipation conflicts and hushed or deferred conflicts. Chandrasekharan (1996) classified conflicts based on cause and reason comprised of conflicts involving six attributes: infringement over access, changes in resource quality and availability, authority over resource, conflicts that are value based, conflicts associated with information processing & availability, and legal \ policy reasons. Rupesinghe (1995) classified conflicts based on the stage they are at and included five possible stages: conflict formation, conflict manifestation, conflict endurance, conflict management, and conflict transformation. The final classification is that of Warner (2000) who classified conflicts according to the scale of conflict with three identifiable classes: intra micro-micro, inter micro-micro, and micro-macro conflicts. Each of these classification are discussed in the context of the case studies subsequently providing a comparative overview of the conflicts in the context of the paradigmatic changes and definition of the conflict based on the different classifications. In addition to the above, further comparative analysis concerns the ranking of the three case studies amongst themselves on the basis of criticality of the conflict, urgency of the conflict and duration of the conflict. The ranking is based on the interviews and knowledge gathered on the three case studies enabling proper understanding of the issues at stake, and public and regulatory opinion.

3. Analysis of the conflict cases

3.1 Haifa port

3.1.1 Nature of the conflict: thematic classification

Haifa port consists of several sub conflicts concerning land use disputes illustrating the increasing demand and competition in urbanized coastal zones. The case study encompasses disputes concerning environmental protection and port development, development of a metropolitan park, conflict between port activity and waterfront redevelopment and finally an ongoing clash between the port, nearby infrastructure and the city (Figure 6.1). Throughout the conflict several stakeholders are involved expressing conflicting agendas and aspirations. The scope of the conflict goes beyond the local arena owing to the substantial impact the port has on the Haifa metropolitan area. The port and surrounding activities are a significant source of income and employment for the locals and the municipality; hence, attract attention from local

and national bodies seeking to further develop the area. The port houses both civilian activities and military activities (the largest naval base in Israel) further complicating land use contrasts on waterfront redevelopment and urban infrastructure.

The port dates back to the British mandate (1920-1948) who sought to develop the region. The British constructed a highly advanced port, now the western part of the existing port. A number of interviewees emphasised the fact that the original port remains active though its relatively shallow waters cannot capacitate the magnitude of modern shipping hence activities have shifted to newer parts of the port. During the early years of the mandate Haifa was a relatively small city but development of the port promised to attract supporting activities and investment into the region (Herbert & Sosnovsky, 1993). Haifa has since evolved into one of Israel's largest cities and one of the major metropolitan areas (Tel Aviv and Jerusalem naming the other two). Haifa port has also developed over the years and continues to grow, competing with the port of Ashdod in the Tel Aviv metropolitan area. Geographically, the port is the centre point of the Haifa metropolis and more significantly the centre of the city forming a barrier between the city and the sea. Transport corridors that were simultaneously developed in order to service the port further disconnected the city from the coast and continue to do so in the 21st century (Figure 6.2).

Haifa port accommodates several sub conflicts that are all conceptually interrelated though are treated as separate entities hampering attempts to resolve the conflicts and establish a wider outlook. Fragmentation and overlapping jurisdictions have intensified bargaining power and created a complex network of stakeholders with importunate agendas. The conflict is classified into four issues: waterfront redevelopment in the western port, proposed development in the east, Kishon estuary and park development, and surrounding activities (Figure 6.3).

3.1.1.1 Waterfront redevelopment plan

The background to this conflict was a regulatory initiated plan proposing converting the western part of the port into a public recreational strip whilst continuing to service leisure cruises. Preparation of the plan was promoted by the municipality and the Coastal Conservation Committee. The original plan presents a visionary approach to waterfront redevelopment in the urban fabric of Haifa. Throughout the planning process the planners had to consider the problems faced with the implementation of the plan firstly requiring compensation the port authority and secondly the naval base. Six major stakeholders are

involved in this issue overall: the Israel and Haifa port authorities, the Navy, the Coastal Conservation Committee, the municipality, and the public.

3.1.1.2 Port development in the east

Current debates on future development of the port suggest two options, either further developing the existing port or massive development of a new port. Development of the latter is only possible in the eastern section of the bay. Subsequently, in order to develop the new port immense environmental consequences are expected. The government's agenda is to increase economic competition by privatising the new port thus creating competition with the Haifa Port Authority. Environmental consequences are inevitable and are further elaborated by discussions on sources of sand necessary for the development of a new port.

3.1.1.3 Kishon park

In recent years a metropolitan park has been developed north of the city of Haifa. Although a large part of the park has already been developed the final stage to be developed is the Kishon estuary located near the port. The area is currently undeveloped however the Israel Port Authority proceeded to prepare the land for container storage whilst the Kishon river authority planned the development of the park in the area based on a master plan for the park (Kishon river master plan, March 2001). The plan included a clause requiring the port authority to pass on 123.5 acres in favour of a park. The river basin itself was already going through a process of cleansing following years of unmonitored pollution damage; the work was subsidised by the port authority.

3.1.1.4 Surrounding activities: the airport and industrial activity

The airport and port are entwined as the development of either one affects the other, and the airport consumes large areas otherwise usable by the port. Further development and expansion of the port will most likely terminate any plans of expanding the airport. Many activities such as chemical plants and oil tanks surround the port and are entwined with port activities and although their location is questionable their dependency on the port prevents relocation.

Figure 6.2. Transport corridors along Haifa bay.

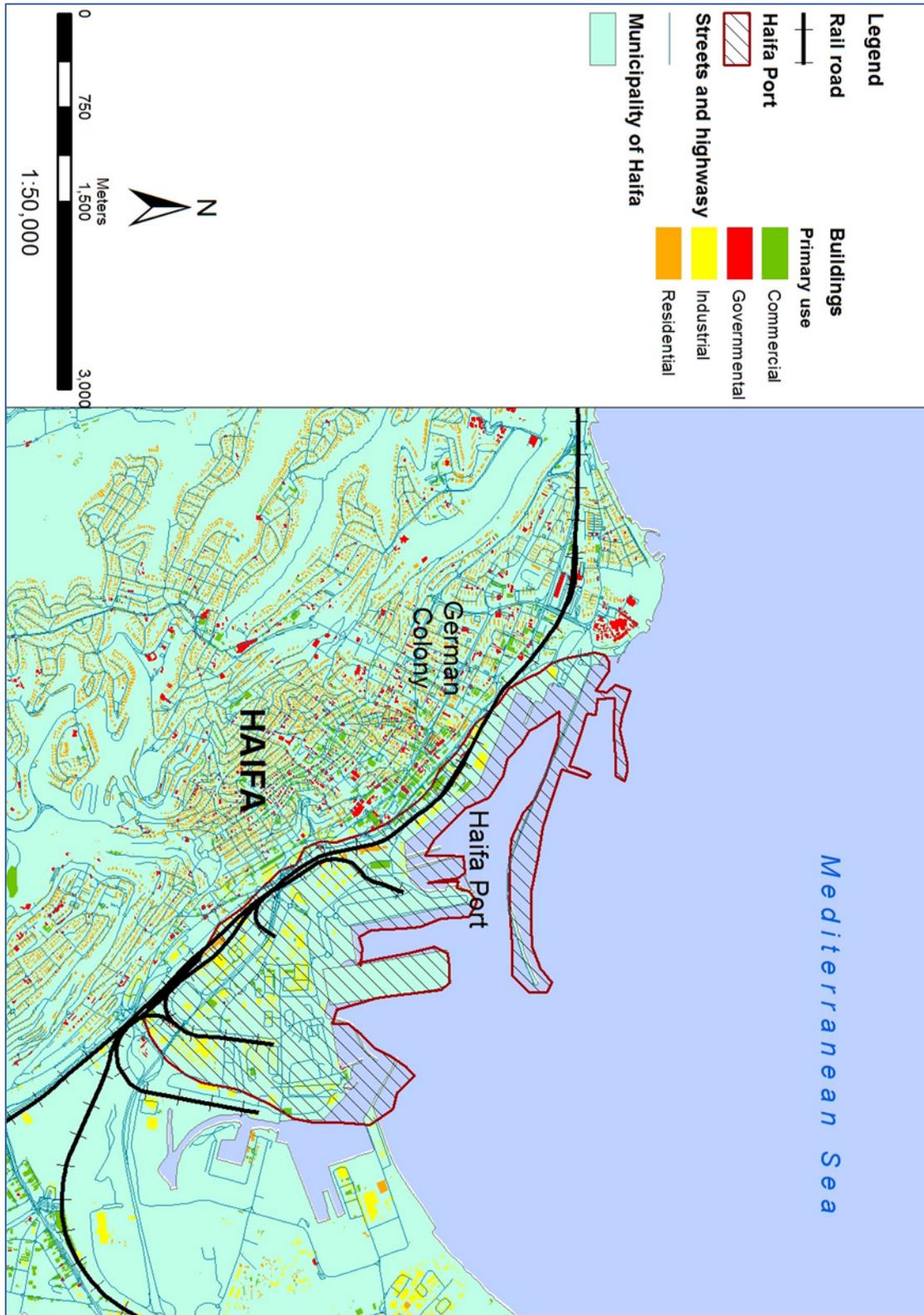


Figure 6.3. The four main issues discussed in the Haifa port case study.



Changing paradigms in the case of Haifa present a different passage of change between the three periods as the general shift is between the first period ‘the backyard’ paradigm and the third period ‘the public domain’ paradigm. Hence, the following description of the periods omits the second period though some characteristics of the second period feature as proposed in the opening chapters, specifically elements of waterfront redevelopment. An additional significant factor is the continuous development of the port and future developments plans which presumably fit with the first paradigm but are somewhat inevitable due to economic activity. Whilst some suggestions proposed the possibility of relocating the port they are farfetched and doubtful and the port is expected to expand in its current location. Presumably the quest to develop the Kishon estuary and park that promotes the environmental and sustainable agenda would be subject to wide attention and regulatory intervention as posited in the paradigmatic change hypothesis. However, even though the conflict has been the subject of interest, lack of commitment and economic implications prevent the park from being fully developed. The most substantial change accommodates the proposed waterfront redevelopment plan for the western port. Similarly to the Kishon Park, lack of commitment and economic attributes currently hamper the materialisation of the plan. But noteworthy is the promotion of the plan by regulatory agencies as opposed to self interest government agencies.

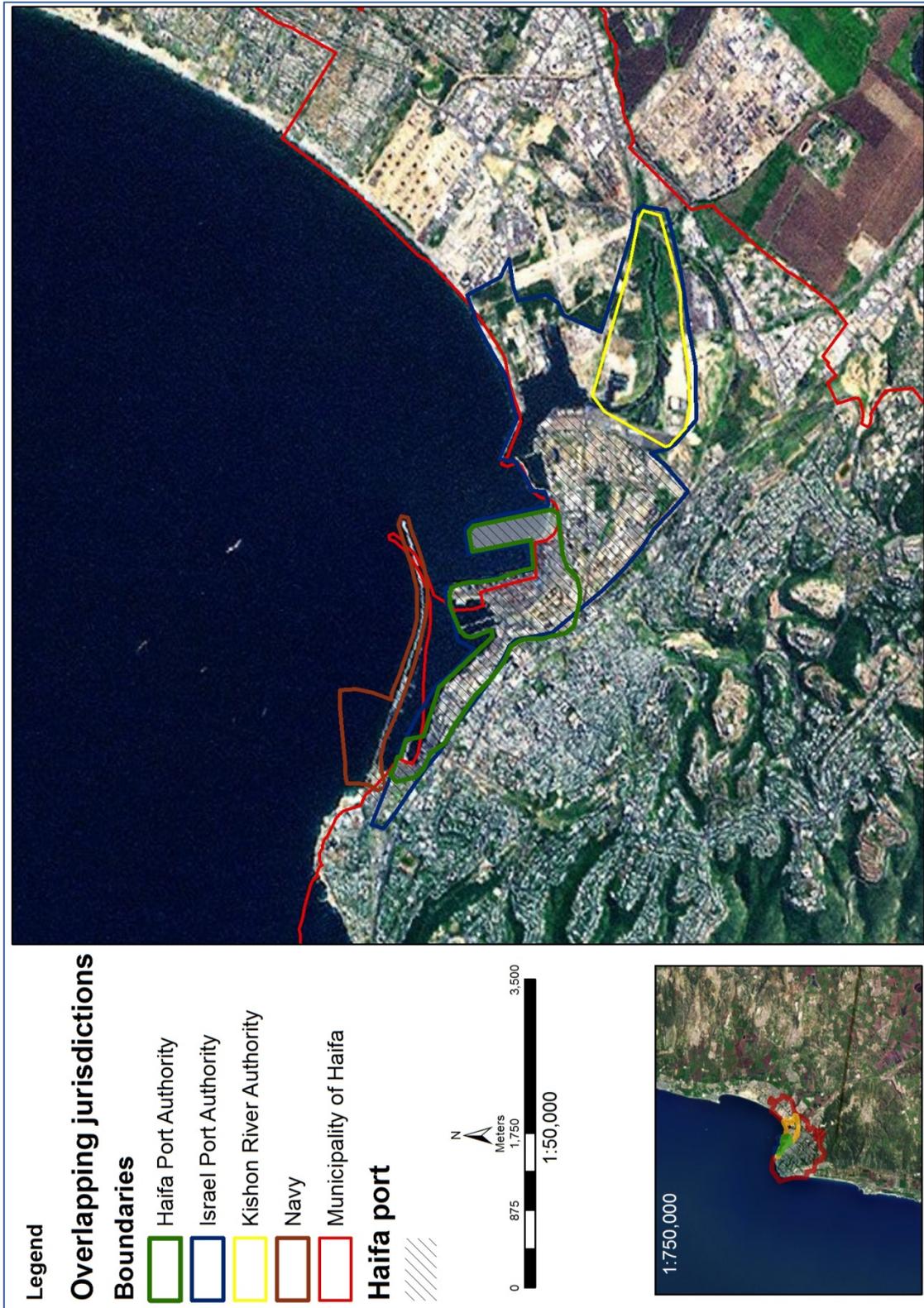
3.1.2. Parties involved

Although in the past matters were far less complex with fewer stakeholders involved, recent processes and privatisation of the port have intensified the number of stakeholders involved. Figure 6.4 illustrates the overlapping jurisdiction in the vicinity of the port. The following provides a short description of the primary stakeholders involved in the case study divided into three categories: government and government offices, government agencies and private stakeholders and NGOs (Table 6.1).

Table 6.1. Stakeholders involved in the Haifa port case study.

A. Government and governmental offices	B. Government agencies and bureaucratic gatekeepers	C. Private stakeholders and NGOs
Ministry of transport Ministry of environmental protection Haifa municipality Local municipalities in the area	Coastal conservation committee (CCC) Israel port authority Haifa port authority (Independent government agency) Military (Navy) Israel airports authority Kishon River authority Society for the protection of nature in Israel	Public Private plants and industrial units

Figure 6.4. Overlapping jurisdictions in the vicinity of Haifa port.



3.1.2.1 Government and governmental offices (Table 6.1A)

Stakeholders involved in this instance are primarily the ministry of transportation and the local municipality. The ministry of transportation is the government's office responsible for the activity of the port and thus has an influential role in the port's activity and development. The role of the local municipality is in its ability to shape the development of the port and surrounding activities that fall under its jurisdiction whilst the other municipalities in the area are likely affected and may serve as deal breakers for potential resolutions.

3.1.2.2 Government agencies (Table 6.1B)

The most significant stakeholders in this field are the Israel Port Authority and the Haifa Port Authority. The former is responsible for the development of the port and property ownership in the vicinity of the port, whilst the latter, the Haifa port authority received a 49 year operational lease on the port's activity in 2005. Noteworthy is the role played by the planning committees through the initiative of the CCC concerning the waterfront plan. Additional stakeholders mentioned in table 6.1 partake in the process and potential outcome of the conflict but are of less magnitude than those mentioned above.

3.1.2.3 Private stakeholders (Table 6.1C)

Whilst the public may affect the process via different mechanisms, they are of less significance in the outcome of the conflict as opposed to the Palmachim and Netanya case studies. The other private stakeholders involved in the case study may play an influential role in future as they are directly linked with the port's activity but are currently somewhat impassive.

3.1.2.4 Stakeholder coalitions and networks:

Coalitions imply cooperative interaction amongst stakeholders in order to achieve a common goal, in the conflict arena this would often increase the influence of the stakeholders on the outcome. But in the Haifa port case studies the general notion is the individuality of the stakeholders and lack of cooperative association intensifying the complexity of achieving resolution, as each stakeholder seeks to achieve the personal goal regardless of the collective. The only tangible coalition in the case study is the municipality and planning agency's waterfront plan promoted by both stakeholders and the continuous collaboration directed at implementing the plan.

3.1.3 Typological classification

Cadoret's (2009) classification of conflicts defines this conflict as a *hybrid conflict* with an intersecting profile. Conceptually the land use conflict has been spread over a long period of time characterised by several disputes. Some of the disputes involved the media, the judicial system and disputes amongst powerful stakeholders. Other disputes are closely related to *anticipation conflicts* concerning infrastructure projects leading to change. The final classification of conflicts also appears in this case study; *hushed or deferred* conflicts appear in some of the disputes in the conflict, decision-making is often deferred leading to a stage of impasse but are somewhat hushed due to social and political pressures.

Due to the diversity of the sub-conflicts in Haifa bay it is expected that a number of the causes/reasons Chandrasekharan (1996) raised would appear in this conflict. The Kishon Park and western port conflict both raise the question of authority over the resource, i.e. ownership and development rights of the land designated for the park. The Kishon Park can also be classified as a value based conflict raising the question of park development vs. port development, 'good vs. bad'. The extension of the port poses a threat to a number of sensitive resources, including the Kishon Estuary, and fluvial processes carrying sand and sand extraction. Each sub-conflict is related to a different cause/reason hence the complexity of the case study.

According to Rupesinghe's (1995) classification the case study is primarily at the stage of *conflict endurance*, with only one of the conflicts (Kishon River Park) reaching the stage of conflict management whilst the others are either at the stage of *conflict manifestation* or *conflict endurance*. It is likely that some of these conflicts will prolong for years until reaching a stage of *conflict management* due to the process of planning approvals prolonged decision-making and compensation problems. The location of the port within the city's boundaries will always be a source of disputes amongst stakeholders. However it is hopeful that the stage of *conflict management* will eventually materialise through planning and regulation.

Probably the best way to classify this case study in Warner's (2000) is to classify it as an *intra micro-micro* conflict as it depicts a case of capturing of benefits by an elite organization backed by the government. All four of the conflicts discussed involve the Israel Port Authority and use of prime resource (waterfront). Naturally such an important area will also consist of *micro-macro conflicts* as it involves the use of the waterfront by an agency rather than the community, environmental problems associated with the development of the port and contradictory needs of the resource.

3.1.4 Current state of affairs

Whilst the waterfront redevelopment plan has received ratification by planning agencies the materialisation process would require mobilisation of port activity and as such requires the consent of the Haifa Port Authority and the Israel Port Authority. The ongoing dispute on future development hampers the resolution of the waterfront conflict as the Haifa Port Authority demand development rights as a conditional mechanism for vacating part of the western port. The development of the Kishon Park also depends on the outcome of the above disputes but has neared resolution and could be resolved on the basis that alternative property would be handed to the Israel Port Authority. Future expansion of the port is somewhat inevitable in order to compete with other ports as is its current location. Relocation of the port has been motioned but remains unlikely. Through regulatory agencies have expressed desire for change, lack of commitment and economic attributes hamper these changes.

3.2 The Netanya coastal stretch and sandstone cliffs

3.2.1 Nature of the conflict: thematic classification

Sandstone cliffs, shaped by crashing waves and inland processes, are common phenomena along the Israeli coast; the impact of the eroding cliffs is potentially disastrous to urban areas. Vulnerability of the sandstone cliffs features throughout the Netanya coastal stretch intensified by human impact. The eroding cliffs are the setting for several disputes mainly discussing defence of the cliffs and the outcome of future erosion (Figure 6.1). The sandstone cliffs have received increasing attention over the past few years as the erosion of the cliffs threatens an increasing number of users and land uses (The erosion of the cliffs along the Israeli coast, 2009).

The conflict in this incidence is more complex than a 'basic' case of environmental protection vs. development. It consists of different stakeholders with different agendas involving the use of the coast, the construction of coastal defences and developments onshore and offshore. The estimated cost of the defences has been estimated at approximately a hundred million Euros. Various developers are involved including the municipality who wish to develop along the cliffs and offshore; some developers seek to protect the coast and attempt to combine the two agendas of environmental protection and development. If coastal developments fail to be developed the municipality and government would most likely cover the costs of compensation demanded by stakeholders due to the eroding cliffs. Though

according to Vital, this issue raises legal issues questioning the responsibility of the municipality as opposed to private responsibility.

The case study covers two main themes, economic development vs. environmental protection and preservation of natural sites. The economic development includes examples such as the potential development of a marina initiated by the municipality or the development of hotels along the cliffs rather than focus on the environmental protection of the site. The development of the coastal strip is a major feature in the municipality's plan for economic development attracting economic investment. The preservation of natural sites is associated with the possible coastal defences developed by the authorities and mechanisms for the protection of the cliffs from further erosion and collapsing. Subsequently the most important discussion concerning the Netanya coastal strip is the defence of the sandstone cliffs, the significance of which is both environmental and public safety. In recent years public interest has increased resulting in the forming of an inter-government committee responsible for examining the different possibilities and costs for the protection of the cliffs. The Netanya municipality had already taken the initiative to examine the possible processes and has been chosen as a pilot site for the development of coastal defences pending planning approvals and economic guarantees. The following further describes the two main themes characterising the case study:

3.2.1.1 Environmental protection vs. development

One of the main issues rising from the erosion of the cliffs is the development along the cliffs; Netanya is one of Israel's major coastal urban areas and is constantly under pressure of demand for development of housing and tourism. As a municipality seeking to maximise income, its interest is to encourage such development. The coast provides potential and valuable land for development and tourism opportunities. Property ownership on the coastal stretch is divided amongst regulatory agencies and private property owners. The latter, who are aware of the increasing value of property, seek to execute their rights to develop. Recent research has shown that a link exists between development along the cliffs and the accelerated rate of erosion. The problems of development would not be so grave had the coastal defences be capable of protecting the cliffs properly, but in the past this has not been the case, and as long the development of the defences are not built the erosion of the cliffs remains a problem to be tackled. The cost of the coastal defences is estimated at hundreds of millions which are currently supposed to be carried by the central treasury. The alternative to this is not funding the defences but then face the consequences of further erosion which entails compensating

landowners who will no longer be able to develop their land for the sake of maintaining the cliffs from further collapsing, and property owners who may need to vacate buildings at risk. Eventually the treasury may possibly end up paying more in compensation than the cost of the defences.

Several examples of contrasting agendas pertaining development and environmental agendas exist throughout the coastal stretch. Often the verdict coincided with the developers that were granted development permits after appeals by environmental NGOs. The 'Island hotel' which has recently been developed epitomises this; prior to the development environmental NGOs contested the project claiming it was too near the edge of the cliffs and posed a threat both to the cliffs and the project.

3.2.1.2 Preservation of natural sites

As mentioned above, both themes in this case study are entwined. The most important discussion regarding the Netanya coastal strip currently is the defence of the sandstone cliffs, the importance of which is both environmental (preserving the natural site) and safety (the collapsing cliffs have already taken their toll where in one case a person was killed whilst camping underneath the cliffs). The cliffs are a unique natural site, however, development over the years reduced the sandstone cliffs to only a number of areas throughout the coast, preservation of what remains has been prioritised by the regulators. The significance of preserving the cliffs is recognised and accepted throughout the government ranks. Through the means of planning and policy, preparing an outline plan for the coastal strip, Netanya's municipality has already set itself up as a pilot site for the coastal defences which have been discussed and recommended by the appointed committee. The cost for this enterprise would have to be carried by the treasury who under pressure from different bodies realised the vitality of this project.

In the outline plan prepared by Netanya's municipality appears a marina which is planned to be developed, the marina is consistent with an intended change in the National outline Plan 13 regarding Netanya's coastal strip. Whilst the marina may well provide localised defence against the crashing waves, further implications exist involving other stakeholders further down the coast. Similar to the affect of other marinas further down the stream, Netanya's marina may affect sedimentation further down the stream. In this context two significant points are made: the first stated by Brandies (whose office prepared the plan for Netanya's coastal stretch NOP 13/6) that the plan only states the possibility of future marina

development rather than initiate immediate development. The second point, outlined by Vital, was the consistency of the marina with the planned and existent defences and hence minimising the affect of the marina on coastal processes.

The determination of the three case studies was based partially on the notion that each case study represents different types of conflicts and agendas, and involves different landscapes. The Palmachim case study represents potential development in previously open areas in non urbanised regions, and the Haifa case study involved the distinct case of the clash between cities and ports. The Netanya case study, though similarly to Haifa consists of urbanised areas, represents a wider agenda involving coastal development in urbanised areas as opposed to a sustainable approach with the additional complication of the sandstone cliffs. As discussed above the coastal area of Netanya provides potential real estate and urbanised development much required in its ongoing competition with other coastal cities in the Tel Aviv metropolitan area. Hence, the clash between development and sustainability intensifies. The ongoing debate on further development of the coastal area for tourism, housing and recreation does question the existence and dominant of the third paradigm in this context. The social agenda associated with the third paradigm is far more distinguishable than environmental agenda.

Whilst the sustainable agenda is represented in this case study it is not as extensive as the social agenda, primarily focusing on the nature reserve in the southern coast mentioned above. The location of the coastal area in an urbanised area, bound for development, expectedly instigates further development along the coast thus hampering environmental agendas though does not necessarily eliminate the agenda entirely. The development of promenades and statutory limitations on development due to the proximity to the cliffs enables further preservation of sites though not entirely preventing partial development such as public services. Environmental activists have and continue to contest developments along the coast, particularly hotel development along the sandstone cliffs, seeking to promote the environmental and sustainable agenda as opposed to development.

3.2.2 Parties involved

Although the number of stakeholders is less than those involved in the Haifa port case study the number of stakeholders is still significant and they all play an influential role in the different issues featured in the conflict (table 6.2). Agreements reached between different stakeholders remain dependable on the consent of other parties less involved in that specific

issue. In order to resolve the conflict concerning the protection of the sandstone cliffs, a joint effort must be made by government offices and agencies. The effort must involve central government, the ministry of interior (planning committees), ministry of finance, ministry of environmental protection and the Israel land administration all of which have a role to play in proposed solutions.

Table 6.2. stakeholders involved in the Netanya sandstone cliffs case study.

A. Government and governmental offices	B. Government agencies and bureaucratic gatekeepers	C. Private stakeholders and NGOs
Central government Ministry of finance Ministry of environmental protection Local municipality	Coastal conservation committee and other planning committees Society for the protection of nature in Israel Israel land administration	Developers and land owners Public

3.2.2.1 Government and governmental offices (Table 6.2A)

Central government plays a significant role in the case study primarily in the establishment and overseeing of an intergovernmental committee appointed to direct the initial policy making procedure and preliminary decision-making. The committee’s main task was the foundation of proper actions necessary for the protection of the sandstone cliffs, survey of actions taken by local authorities and provision of an estimated cost for the selected method (Intergovernmental committee report, April 2010). Following the publication of the report the ministry of finance guaranteed to allocate necessary funding for the protection of the coast but solely for offshore coastal defences hence requiring local authorities to cover inland processes. Consequentially the majority of the costs necessary for the protection of the sandstone cliffs from further erosion would be covered by the participating local authorities. As Vital notes, of the estimated expected costs of 400million NIS directed towards the protection of the Netanya sandstone cliffs 250million would be distributed by the municipality for the inland stabilisation of the cliffs. The municipality in this case study is by far the most influential stakeholder and the initiator of the original plan directed at the protection of the eroding cliffs. The initial plans, and proposed policy agendas subsequently triggered the wider debate discussed by central government. Clearly though central government and government offices are greatly involved in the conflict playing a significant role, particularly concerning decision-making and cost distribution.

3.2.2.2 Government agencies (Table 6.2B)

The role of government agencies primarily involves planning committees who must approve the plans for coastal defences and associated plans. Another significant agency is the Israel land administration with the authority to allocate alternative land for development in exchange for current undeveloped property within a short distance from the cliffs. In addition to the above two agencies, the environmental agency, the society for the protection of nature in Israel, has been increasingly involved in disputes concerning development along the cliffs.

3.2.2.3 Private stakeholders (Table 6.2C)

Some areas along the cliffs in the Netanya area remain in private property ownership who recently expressed their desire to develop in accordance to current trends promoting development along the Netanya coastline. The other main private stakeholder involved is the general public and users of the coast for whom protection of the cliffs is vital for the continuous use of the coast. Currently parts of the coast in Netanya and the rest of the country exclude public access for public safety reasons due to the vulnerability of the cliffs in those areas.

3.2.2.4 Stakeholder coalitions and networks

Coalitions in this case study feature widely as a tool for achieving possible resolution, particularly the development of coastal defences. The committee established by the central government consists of several stakeholders cooperatively working on possible resolutions for the collapsing cliffs, without which solutions would be hard to come by. The coalition includes the central government as an overseer of the committee, ministries directly involved in the conflict and the municipality of Netanya as a significant actor.

3.2.3 Typological classification

Based on Cadoret's (2009) classification of conflicts this conflict would fall under what is described as anticipation conflicts, less so in the context of people's actions but in the context of expression of fear and anticipating change without a clear view. The development of coastal defences and other activities around this project such as the marina will change the landscape of the sandstone cliffs and Netanya's coastal strip. The various stakeholders have expressed fears of future erosion and are incapable of anticipating the outcome of the development of coastal defences. Local authorities further north of Netanya have expressed their fears as to the consequences developments may inflict on their coastal strips. This is a conflict which deals

with a massive infrastructure project on a national scale; some estimates have the cost of the defences at around 400 million NIS. The classification in the case of Chandrasekharan (1996) would involve foremost policy reasoning regarding the coastal defences. The defences of the coast were taken on by the government who committed to finance the project based on a policy decision following a prolonged process of consultations and joint efforts to comprise a clear-cut policy. But the government later instated that the costs will be shared rather, thus requiring the participation of the municipality. This of course raised the initial question regarding the authority over the resource, who's responsible for the defences and who should finance the project.

Rupesinghe's (1995) classification is divided between classification of the economic development vs. environmental protection issue and the preservation of natural sites. The first issue would be classified as *conflict endurance* as it is an ongoing issue. The sub-conflicts within this conflict are at different stages of conflict and the consequence is a prolonged conflict that has yet to be managed on a general scale. The second issue is the only conflict which has reached the stage of *conflict transformation*, following the long process of decision-making a consensus was reached and the conflict has gone beyond the stage of conflict management. This case study involves two types of conflicts according to Warner's (2000) classification: *inter micro-micro* and *micro-macro* conflicts. The former is not as relevant; however it plays a role specifically concerning the dispute over the development of coastal defences and the up-stream effect on the neighbouring communities. The *micro-macro* class involves all aspects of the case study, environmental problems and contradictory resource needs emerge throughout the conflict, concerning the environmental problem of the eroding cliffs and the use of the resource for development rather than environmental protection.

3.2.4 Current state of affairs

Coastal defences have featured in governmental endorsed committees and governmental meetings and as such have been legitimised whilst stressing the criticality of suitable solutions. The debate on defences has shifted from conceptualisation to attempts at materialisation but remain subject to planning and regulatory processes. Currently the Ministry of Environmental Protection are drafting a public tender for the preparation of a plan for coastal defences along the coast of Netanya. That said the distribution of the cost-burden remains a critical aspect hampering the development of coastal defences. Whilst the Ministry of Finance guaranteed funding, it only covers offshore development relaying the costs for inland

protection on the local ministry. The expected sums required for this are farfetched and beyond the means of the Netanya municipality. Promotion of plans affecting the coastal zone continue to emerge but take into account the fragility of the cliffs and as such seek to prevent future conflict concerning the collapsing cliffs. These attempts have been partially disputed primarily by property owners who according to the plans are required to pass on development rights in return for alternative property and development rights. Additional protests involve environmental agencies who wish to minimise development along the cliffs as opposed to the current trend promoting development whilst exploiting the merits of coastal development, particularly tourist attraction.

3.3 Palmachim beach

3.3.1 Nature of the conflict: thematic classification

Palmachim beach is located in the southern area of the Tel Aviv metropolitan coastline in the jurisdiction of Gan Rave local authority (Figure 6.1). The conflict involves the development of a beach resort (with a total area of 70 acres) by two private developers who received development rights following a public tender in 2003. The selected case study represents a number of conflicts along the Israeli coastline and inland involving contrasting agendas of development and environmental protection with the repeating problem of compensating stakeholders affected by overturning prior decisions and permits. The beach resort in question was planned to house approximately 350 rooms and suites and includes a 1400 sqm recreation area, a large convention centre and restaurants on an area estimated at 34,000.

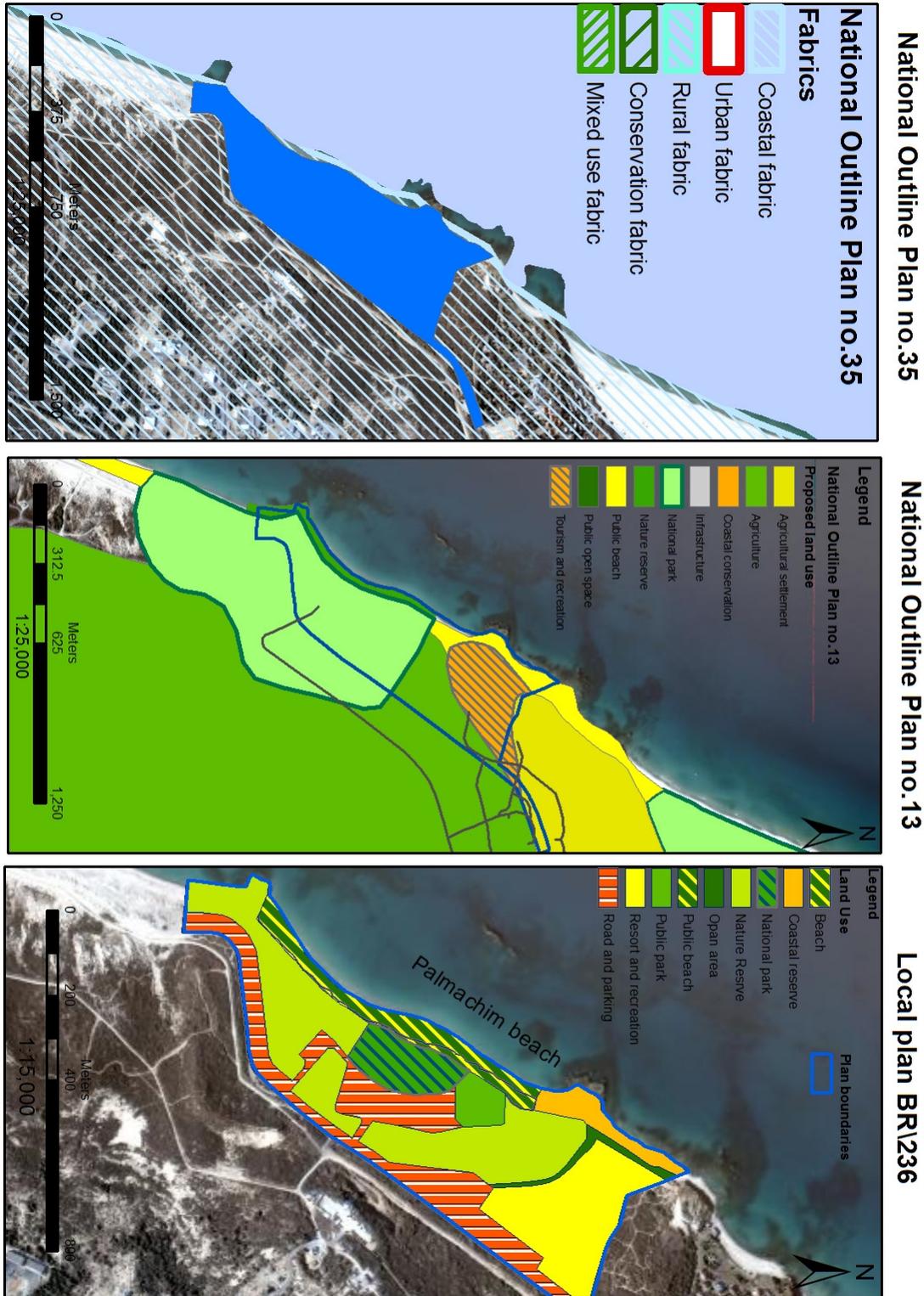
In 1983, the National Outline Plan No. 13 was approved designating the Palmachim beach area for tourism development. In 2004 a new coastal conservation law was authorised, including the forming of a Coastal Conservation Commission (CCC), however plans approved prior to the establishment of the CCC remained in effect. Therefore due to the above circumstances the resort remained legitimate and did not require further approval. Prospectively the Palmachim area is subject to three different plans: The localised plan BR\236, National Outline Plans 13 and National Outline Plan 35 (Figure 6.5). The localised plan designates an area for tourist development as does NOP 13 but the latter determined a 100meter no-build zone. Contrastingly, the local plan designates an area for development within the 100-meter zone, though the requirement to submit development plans prevented development within that area. National Outline Plan no. 35 defines the area highly sensitive

scenic and environmental characteristics (State comptroller; Palmachim resort development, November 2009). The conflict consists of two main issues, the social impact consisting of public access to the coast maintaining the coast as a public domain, and the environmental impact. The social issue played a major part in the conflict serving as the grassroots activist's case against the developer.

The conflict transpired when a group of locals were confronted with solid fencing within a short distance from the waterline. The activists involved various organisations and established a public organisation "Save Palmachim organization". The first action by the grassroots activists was approaching environmental NGOs and the Ministry of Environmental Protection in an attempt to seek flaws in the project and halt it. One of the approaches was to examine the legality of the approval. The NGO 'Adam Teva V'Din' specialising in legal activism pursued this claim questioning the development taking place 30 meters from the waterline which was not permitted by the Coastal Conservation Act. The court ruled that the development must be halted and diverted to the 100-meter buffer, causing a setback and subsequently halting the entire project.

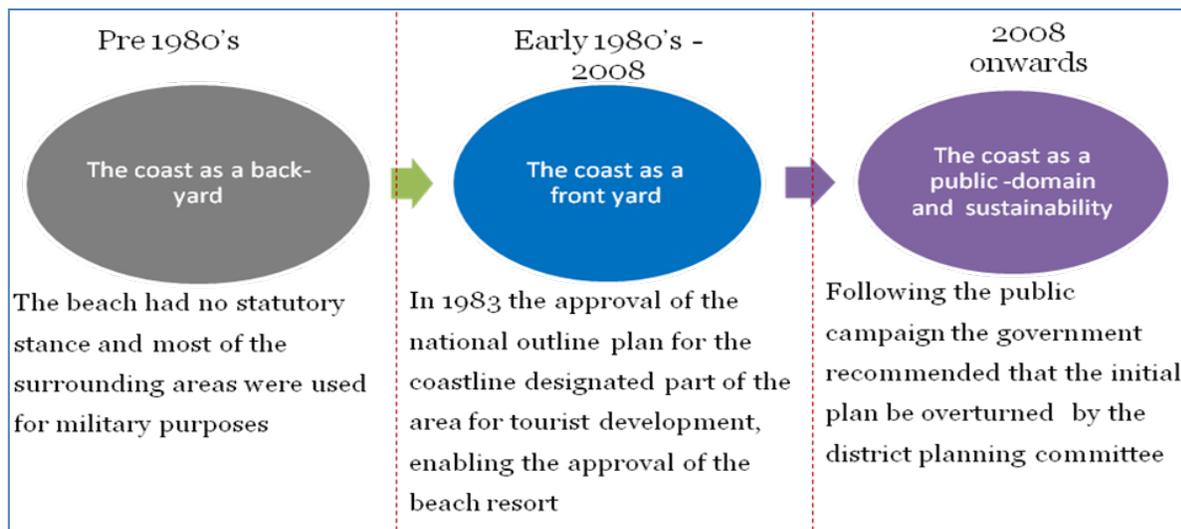
While engaging in different activities the activists set out to increase public awareness approaching the media that subsequently played a key role. Another significant act was approaching the state comptroller who decided to follow up and examine the case study. The state comptroller in his report recommended to approach the government's legal advisor for further investigation concerning the legitimacy of the initial approvals and questioned the local authority's dealings concerning the original planning approvals. The conflict, due to its public attention and persistence of the Minister of Environmental Protection, featured in a government meeting discussing the topic consequentially recommending that the initial plan be reviewed with the possibility of overturning planning approvals. The meeting concluded that the coastline should be preserved due to the scarcity of open areas along the coast and maintain a public access to beaches. Whilst these recommendations were announced, causing a stir in the public and planning arena, the committee emphasised that the outcome should not set a precedent regarding future conflicts.

Figure 6.5. The three statutory plans for the area of Palmachim (NOP 35, NOP 13 and Local plan BR\236).



Palmachim provides a distinct overview of the changing paradigms particularly between the second and third paradigm, distinguishing between tourism oriented development and the environmental approach. The first period is somewhat less distinct than the following two as the area was generally used for military purposes. Unlike the Haifa port and Netanya case studies there exists a clear-cut shift between the second and third paradigms, in both the social and environmental agendas associated with the third paradigm. Although the activists promoted the initial protests against the development the third paradigm concerns shifts in policy and planning within the regulatory agencies rather than the public debate. So in the context of the Palmachim case study the shift can be dated to the government meeting in July 2010, Figure 6.6 depicts the paradigmatic changes in the Palmachim case study. The most distinguishable notion is the current promotion of a revised plan for the area overturning the initial plan for tourism development. The proposed plan promotes the extension of the existing national park thus defining the area as a nature reserve prohibiting any future private development in the area (Figure 6.7).

Figure 6.6. *Paradigm changes in the context of the Palmachim case study.*



3.3.2 Parties involved

The actors involved in the Palmachim case study consist of all levels of government and the private sector, all of which played a significant role in the conflict and the decision-making process. Though the main interests expressed throughout the conflict involve two primary agendas mentioned above, some stakeholders involved in the conflict play a supposedly objective approach but maintain an influential role in the final outcome. Table 6.3 constitutes the different stakeholders involved in the conflict portraying a comprehensive list of actors.

Figure 6.7. Proposed conservation plan for the area of Palmachim beach (data source: Israel Nature and Parks Authority).

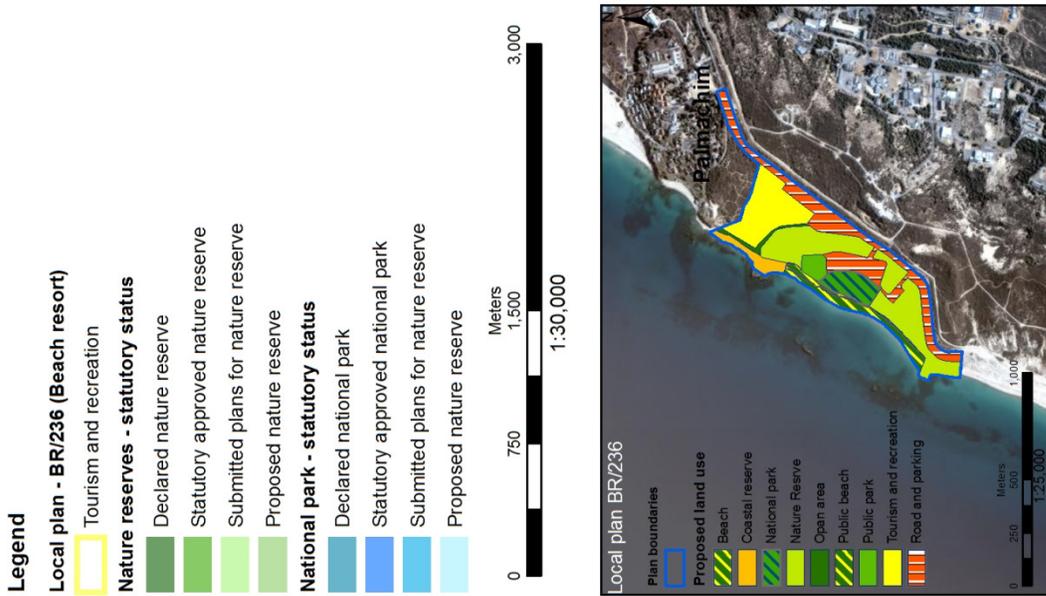
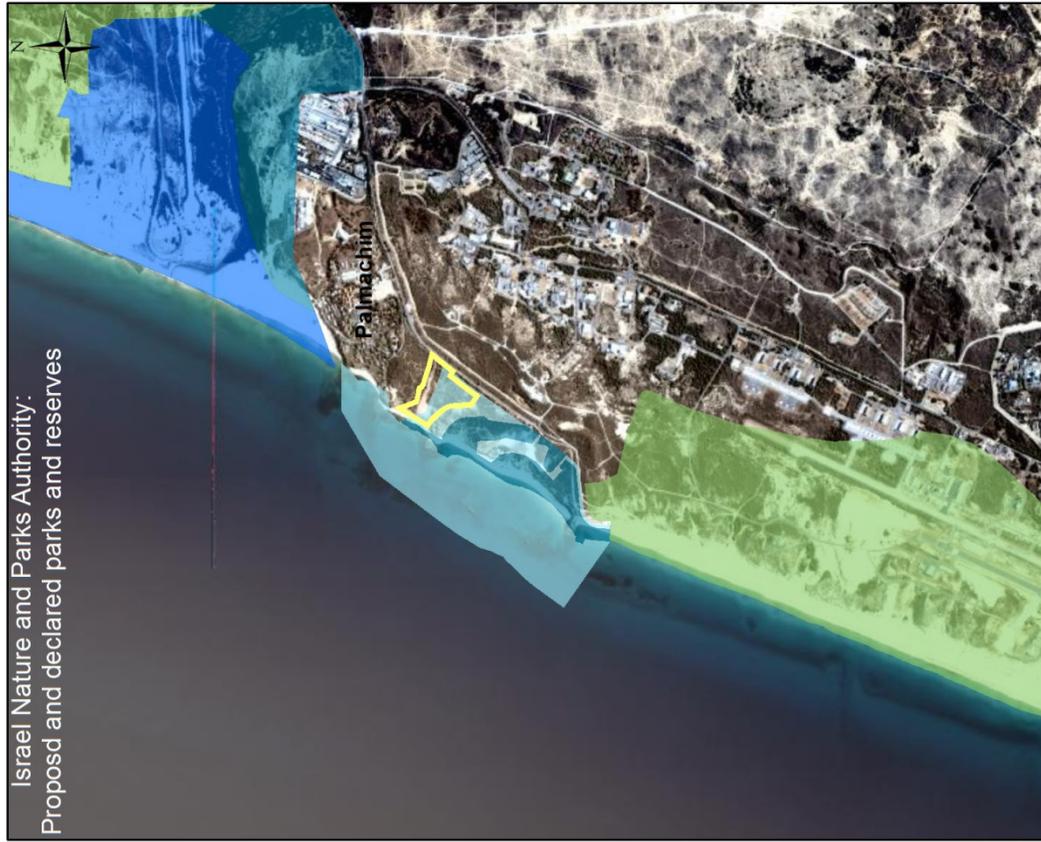


Table 6.3. Stakeholders involved in the Palmachim beach case study.

A. Government and governmental offices	B. Government agencies and bureaucratic gatekeepers	C. Private stakeholders and NGOs
Central government Ministry of environmental protection (MEP) Ministry of tourism Regional council – Gan Rawe	Planning agencies Israel land administration (ILA) Israel Nature and Parks Authority (INPA) Judicial system State comptroller State attorney	Grassroots activism Developer Adam Teva v'Din (NGO) Media

3.3.2.1 Government and governmental offices (Table 6.3A)

The involvement of central government in the conflict has been criticised due to its meddling in a scenario involving local rather than national matters. The main event took place on the 11th of July, 2010 whereupon a government meeting was devoted to the Palmachim beach resort conflict. The two ministries mentioned in Table 6.3, the ministry of environmental protection and the ministry of tourism both expressed their opinions concerning the development of the site and are directly involved in the conflict. Locally, the conflict involved the regional council of Gan Rawe who originally approved the plans for development of the resort and continuously argued in favour of the developers.

3.3.2.2 Government agencies (Table 6.3B)

Although the Coastal Conservation Committee (CCC) was established during the course of the conflict, it was not involved in the events as the plan was approved prior to its establishment, but a newly submitted plan would require the approval of the CCC. It is noteworthy that a resubmitted plan would not necessarily be rejected. Other government agencies have yet to play a significant role in the conflict but may in future be called upon in order to end the conflict. The ILA would be required to reclaim the land and return the investments originally paid by the developer. The INPA who originally opposed the plan would be required to submit an alternative plan for the extension of the national park thus officially terminating the plans for development.

The role of bureaucratic gatekeepers was vital for the success of the struggle after being approached by the activists and participating parties. The judicial system reached a decision that would influence the outcome of the conflict and although its interests are primarily objective during the ruling the court expressed its opinion “that the coast is a public domain and that the notion should precede any private interest” (Tel Aviv district court; 7.4.2009). Two other actors were involved and paved the way for the success of the struggle and the intervention of central government: the state comptroller and the state attorney.

3.3.2.3 Private stakeholders (Table 6.3C)

The outcome of the opposition, led by the organisation “save Palmachim”, reflects on Grassroots activism’s influential role in conflict shaping. The struggle introduced the public as a significant stakeholder that should not be excluded from areas such as the cost by development and private ownership. Conjoined with the activists in the conflict is the other significant actor, the developer(s) who originally purchased developed rights and commenced development on the disputed site. The first major turning point in the conflict was the introduction of the NGO Adam Teva v’Din into the conflict, an NGO specialising in judicial activity that became an active stakeholder throughout the conflict utilising its expertise to accomplish the goals of the struggle. The media played a significant role throughout the conflict and generally sided with the activists.

3.3.2.4 Stakeholder coalitions and networks:

Networking is distinctive characteristic of the conflict and was initiated by the activists; well aware of their limitations the activists sought out government officials, environmental agencies and NGOs in order to induce pressure on the decision-making process and extend their outreach on all fronts. The outcome was an influential coalition capacitating regulatory, judicial and public activism capable of empowering their claim against the development of the resort. Unlike the activists, the developer was somewhat unaided and overshadowed by the extent of the activists influence on the decision-making process and the collaborate effort.

3.3.3 Typological classification

Drawing on Cadoret’s (2009) classification of conflicts, the Palmachim beach conflict would most likely appear under what she defines as *hushed or deferred conflicts*; Although the background of the conflict can be dated back to the beginning of the 80’s, the actual conflict only dates back to 2008 when the locals stumbled upon the fencing and development, hence it is a relatively short time period for a conflict. The characteristics of the conflict fit in with the Cadoret’s definition. The strong social pressures and the public and authorities interest in dealing with the topic of the beach resort are evident throughout the proceedings. In addition to which we find an absence of mediating amongst the stakeholders on both sides and very few disputes in front of the court. In this case the conflict falls under the categorisation of non solved conflicts. Due to the circumstances of compensation the conflict is currently being dragged along and may well reach the court in the future eventually leading to a possible

reclassification into a *chronic conflict*. Chandrasekharan's (1995) classification refers to a number of possibilities possibly describing the cause / reason behind this conflict each playing a part in this conflict. The proximity of the resort's development to the coastline and infringement over access to the beach initially instigated the grassroots activism. The development posed a threat to public accessibility. The conflict over time instigated dilemmas over legal and policy issues, the legal issue is concerned with the right the government had to recommend the plan be re-examined.

3.3.3.1 Rupesinghe's classification

Palmachim case study in Rupesinghe's (1995) classification would most likely fall somewhere between the categories of *conflict endurance* and *conflict management*. The stage of conflict management will be reached once the court system resolves the matter of compensation. In the meanwhile the conflict will continue to drag along. Conflict *transformation* will most likely never be reached due to the antagonism between the sides and sense of resentment by the developer towards the regulators. Based on the categorisation of Warner (2000) the conflict would fit the *micro-macro* conflicts as it involves relations between project sponsors and communities (the developer vs. local grassroots activists), environmental problems (the environmental effect on the area) and contradictory resource needs (the use of a public beach for private enterprise excluding the public from the use of the resource).

3.3.4 Current state of affairs

Development of the site has ceased but the conflict has yet to be fully resolved with the remaining dispute over compensation and the distribution of the cost-burden. Two main issues are currently on the agenda: 1) where things currently stand, and 2) how will the compensation, due to the developers, be distributed (who will end up paying and how much?). Although the regulatory verdict demanded the project be halted pending new plan approvals, in order to overturn the existing plans a new plan must be submitted for the area. Consequentially the plan remains in effect though requiring the developer to restart development (therefore necessitating resubmission of development plans) following the court's ruling on the legality of the development near the waterline.

4. Ranking of the conflicts

4.1 Criticality of the conflict

The three case studies were chosen because of the long term effects each have on the development of the region and are all defined as highly critical, however some ranking can be applied in this instance and the case studies have been ranked as follows:

Netanya's sandstone cliffs – this case study has been identified as the most critical by most interviewees and the panel as it is potentially the source of human and environmental disasters. The collapsing cliffs have received wide attention over the years, and is thus defined as the most noticeable and urgent conflict to be resolved.

Haifa port –in this case the criticality of the conflict is the affect any outcome will have on social and urban attributes throughout the region. The development of the port and region is critical to the city and region's economic development and the city's public waterfront reshaping urban development in the area.

Palmachim – Palmachim is critical in its outcome as it has reformed coastal environmental thinking and shaping of coastal conflicts and is precedence-setting, but it remains a local struggle with localised affects on the area of the development.

The case studies of Netanya and Palmachim have received wide public attention and media coverage and generally consist of environmental issues and development. Haifa port though, is more identified with land use conflicts and struggles between powerful stakeholders including infrastructures, military, political etc.

4.2 Urgency of the conflict

The ranking in this case is similar to that of the criticality of the conflict, but although Palmachim beach is ranked third the urgency of the conflict is far less substantial that the others.

Netanya is undoubtedly the most urgent conflict to be resolved and that has been recognised by all relevant factors, especially due to recent events (the recent collapsing of a cliff in an area which is used for recreational use in the summer). The urgency is noticeable in the fact that the Ministry of Finance has already guaranteed to provide funding for the project of coastal defences.

Some of the disputes in the Haifa case are urgent as they affect the area economically and port activities which are vital for the region and the nationally but as they do not involve human risk resolutions are less urgent.

Although Palmachim is ranked third the urgency of this conflict is far less substantial than that of the other two case studies. The general outcome of the conflict is already decided and the only urgency involved in this case study is the problem of compensation which primarily concerns the developer with the regulator opting to prolong the conflict.

4.3 Duration of the conflict

Haifa port land use conflicts will exist as long as the port is located in the vicinity of the city and continues to expand. Some disputes are likely to be resolved in the near future but the land use conflict will most likely exist as long as the port remains in that location.

The Netanya sandstone cliffs conflict is a long term event dating back to the early days of development along the cliffs, but unlike Haifa the conflict resolution is environmentally, public safety and economically vital to the region. The conflict demands an immediate systematic approach by the regulating system and will most likely be partially resolved in the near future in the shape of investment in coastal defences.

Palmachim conflict can be defined as an acute conflict as it has already been resolved and was only truly triggered in 2008 by the grassroots activists. The conflict as a precedent-setter does give this conflict long term value as it affects future conflicts and sets an example to the success grassroots activism and environmental struggles may have in future conflicts.

5. Conclusions

The Israeli coastal zone has in recent years emerged as a stage for environmental and land use conflicts. Pressures on the coast have increased as economic agendas continuously dictate procedures whilst environmental agendas are promoted. Adaptation of regulatory agencies to these new demands has as of yet fully manifested but as awareness increases, and the flow of knowledge and advancement intensify the regulatory agencies are better equipped to deal and analyse the appropriate course of action. Demand for coastal property and resources increases whilst the supply diminishes. Hardin's (1968) thesis on the "tragedy of the commons" concerning the overexploitation of resources is comprehensively reflected on the coastal zone. Coastal zones are finite and the constant exploitation of coastal resources threatens the public's accessibility and enjoyment of this resource whilst also threatening vulnerable ecosystems.

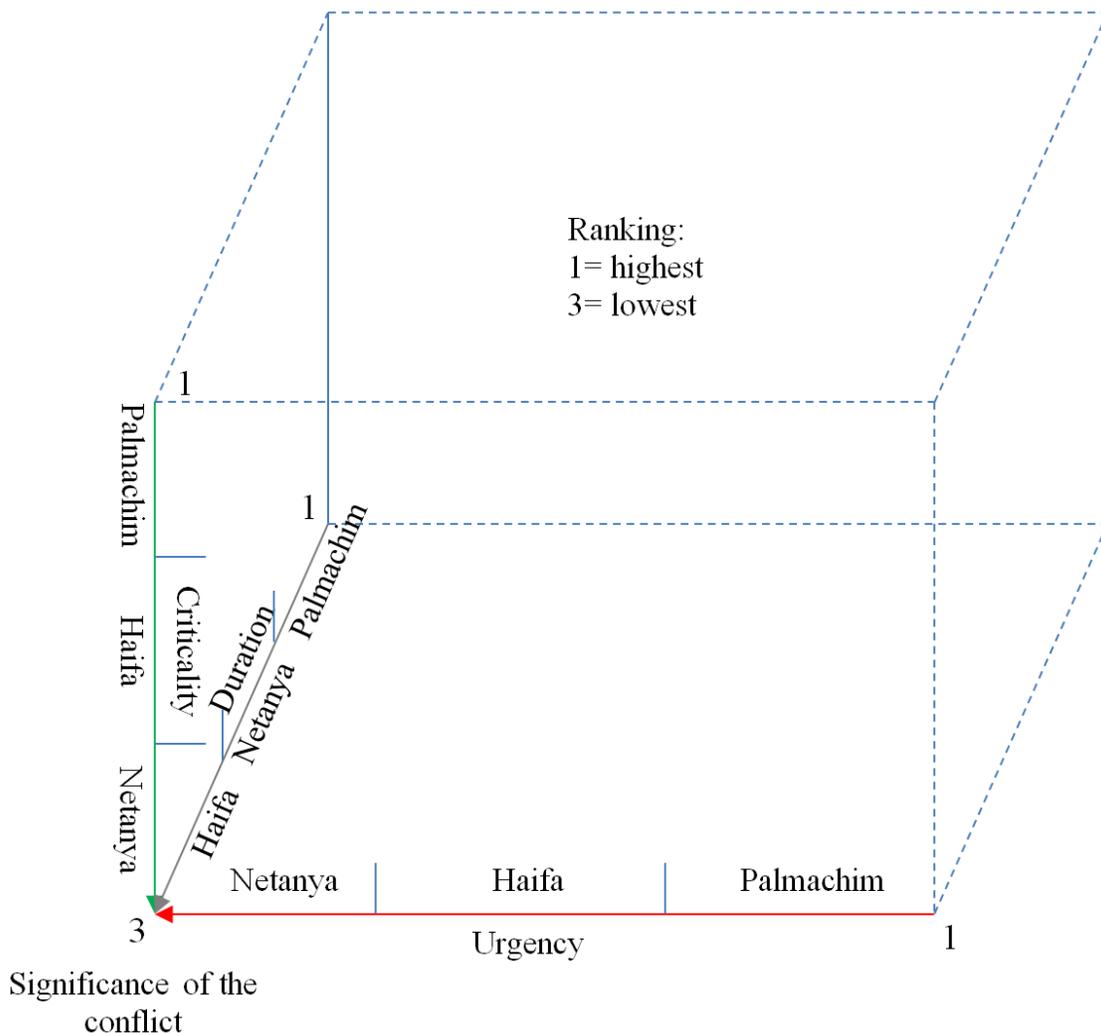
Analysis of conflicting uses in this chapter was based on the study of three case studies that represent the various conflicts along the Israeli coast. The first issue concerns out-of-date urbanisation and infrastructure development within the vicinity of cities. This issue involves constant debates on the accessibility of coastal areas and the interaction with cities whilst attempting to accommodate development from previous eras. The second issue is characterised by natural processes and urban fabrics and the constant clash between the two. Although the demand for preservation has intensely increased in recent years, regulatory agencies maintain their desires to develop along the coast as a catalyst for urban rejuvenation and economic development. The final issue concerns the classic conflict between development and preservation in open areas. This is widely characterised by tourism and recreation development as opposed to preservation of previously undeveloped sites. Conflicts such as these are not bound just to coastal zones and reflect on the wider debate on development vs. preservation.

Planning and policy paradigmatic changes can be globally observed as the increasing demands for environmental and social agendas have inserted themselves into public and regulatory debates. The Israeli case study has shown fragments of these changes, particularly the shift from the first period, characterised by infrastructural development. But unlike what the hypothesis suggests, the shift from the first and second paradigm towards the current paradigm is not as apparent. Though environmental agendas are being promoted and previous out-of-date plans are disputed amongst regulators, the intricacy of the conflicts and processes along the coast prevent outright implementation of these agendas. Economic prosperity remains a pivotal feature along the coast as individuals and public agencies continuously, and on many occasions undisputedly by regulatory agencies, utilise coastal resources in order to achieve their goals.

Following the description of the three case studies and the characteristics of conflicts along the coast this chapter sought to compare between the case studies based on a ranking method. The method was based on three features, the criticality of the conflict, urgency of the conflict, and duration of the conflict, subsequently providing an insight into the most imperative type of conflict requiring immediate resolution as opposed to prolonged decision-making and implementation (Figure 6.8). Not surprisingly, the most urgent and critical type of conflict is one that involves risk to human lives and massive economic and environmental impact; though the risk to human lives is what differentiates this conflict from the second type and third type. Conflicts involving social and environmental features on a wide scale remain pivotal in the debate on conflict resolution but lack the urgency of the first type. Whilst

environmental impacts have received wide attention in recent years they have yet to fully infiltrate the public debate and as such are foreseen as critical but only to a degree. Other conflicts involving social and environmental impacts but on a smaller scale, primarily on the local level, are ranked last as the magnitude of impact is relatively minor. That said, the magnitude of the conflict could rise beyond the local level as a precedence setter but the outcome of the specific case study remains locally bound. The duration of the conflicts can usually reflect on stages of impasse in conflicts and as such reflect on the view of regulatory agencies on the criticality and urgency of the conflict. However, the significance of this feature is the insight into future processes as opposed to past trends as public awareness, public interest and technological advancement enable regulatory agencies a better understanding of circumstances.

Figure 6.8. Conflict ranking based on urgency, criticality and duration.



Employing a cross-sectional analysis and assessment amongst various case studies, extending beyond the national scope, enables the identification of conflicts that are most critical and as such require the most attention in the global context. Under the assumption that identification of critical and urgent conflicts assists in the decision-making process and pinpointing conflicts that must seek resolution, the role of ranking and identification of conflicts is pivotal in the decision-making process and regulatory intervention. But this is not without reservations, as a distinctive division must be taken into account based on the characteristics of the different selected case studies in each of the participating groups and the scale of the conflict. Conceptually, conflicts may appear to resemble similar situations but the scale of conflict and potential outcome must be taken into account. Hence a comparative analysis ought to take the different attributes into account whilst accommodating local agendas and interests.

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ABSTRACT: Environmental and land use conflicts have intensified in recent years as global agendas averted from development to sustainable approaches prioritising preservation and public access. Coastal zones epitomise these changes as the increasing demand for development and preservation continuously trigger conflicts. The Israeli Mediterranean coastal zone which consists of a total of 153 kilometres exemplifies these pressures on coastal zones as the increasing demand for economic development by private and public stakeholders regularly clashes with the increasing environmental agenda. The complexity of conflicts involving preservation vs. economic development, biodiversities and human mobility intensifies as regulatory agencies clash and fail to dictate consistent agendas. The increasing array of state and non-state actors involved in conflicts further complicates attempts of resolving them. Coastal conflicts are influenced by paradigmatic changes in planning and policy as regulatory agencies seek to adapt to public attitudes. The paradigms distinguish between the current view of the coast as a public domain and previous paradigms regarding the coast as a city's backyard, or as an urban front-yard emphasising tourism and recreation. Inconsistency in these changes has proven to further trigger conflicts whilst complicating resolution. The Israeli case is analysed through three case studies representing the array of conflicts throughout the Israeli coastal zone. These refer to major coastal infrastructure, mainly port development; cliff erosion, urban development and the construction of coastal defences; and a 'typical' conflict that involves preservation vs. tourism development.

KEYWORDS: global changes, coastal areas, environmental conflicts, Haifa, Netanya, Palmachim Beach

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CHAPTER 7.

Assessing Environmental Conflicts in Sweden: Case Studies From the Malmö and Gothenburg Areas

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1. Introduction

This chapter is a short version of the Swedish research report for SECOA deliverable 4.2 (Böhler *et al*, 2011). In the report a more detailed description of the case studies and detailed sources can be found (e.g., administrative sources and planning documents).

Four environmental conflicts are analysed that are relevant for the long-term development of the study areas, the metropolitan areas of Malmö and Gothenburg in Sweden. The conflicts show the necessity of integrating strategies for conflict resolution, climate change adaptation and sustainable development.

The Swedish coast is attractive for settlement, recreation, and in urban areas also for industrial and economic development. National level priorities aim to keep the coast clear, limit certain forms of resource use or allow for access to beaches by everyone. Conflicts of land use (as in the development-conservation conflicts in Torsviken or Falsterbo described below) may increase with climate change. New residents are moving into these areas although the problems of climate change adaption are evident. In the Malmö area this means higher pressure to use valuable agricultural and green hinterland for settlement and other purposes. In the Gothenburg area this implies that within the city boundaries new forms of concentrated settlement are sought, e.g., through the use of formerly industrially or commercially used areas for housing.

Mitigating the effects of climate change, a main challenge of coastal development, requires new strategies for coastal cities as described by Birkmann et al (2010): new forms of adaptive urban governance beyond adaptation planning. The second generation of urban adaptation strategies to climate change requires a threefold integration: integration of temporal and spatial scales of governance in multi-scale perspectives, integration of different kinds of expert and lay knowledge, and integration of different tools (including physical adjustment and social measures that take into account the attitudes and interests of the urban dwellers). What is not said by Birkmann et al: the new strategies require solution of the kind of environmental conflicts analysed here in four exemplary cases.

2. Methodology

The methods to identify and analyse the conflicts have been combined in two steps of conflict analysis:

A preliminary identification of relevant environmental problems and environment related conflicts was possible by using prior reports and deliverables in SECOA-work packages 1-4 (especially national reports 2.1, 3.1, 4.1) and a variety of further sources: planning and other documents of the municipalities in the study areas, newspapers and websites.

A more systematic analysis of conflicts included document analysis (especially public planning documents in the metropolitan areas) and qualitative interviews with key stakeholders (where also the parties in conflict and their views, opinions, objectives, and interests have been identified). Additionally internet material was used (from municipalities and further actors involved in conflicts). The stakeholders involved in the conflicts and their influence have been identified by way of stakeholder power analysis.

The method used to classify conflicts is a descriptive classification with criteria from different typologies. Conflict typologies described in the literature about natural resource conflicts are often structured according to some key criteria (dynamics, substance, ethics, behaviour forms, etc.). Certain classifications are multidimensional, e.g., the complex “dynamics”-model by Cadoret (2009) from which some of the terminology can be used for comparative purposes. The four conflicts analyzed require more than one typology for classifying them. Typologies discussed by Hens *et al* (2010) can be used for complementary conflict classifications. A two-step classification with elements from several classifications was used to describe the multidimensionality of resource use conflicts:

We describe the conflicts combining criteria from different typologies (see 3.4). Criteria that can be used to describe and classify the conflicts are, e.g., that from Schmitz (Hens *et al*, 2010). Descriptive categories include: values, interests, access to resources, resource scarcity. Our analysis is oriented to actors, interests, resource use practices – aspects analysed in all four conflicts.

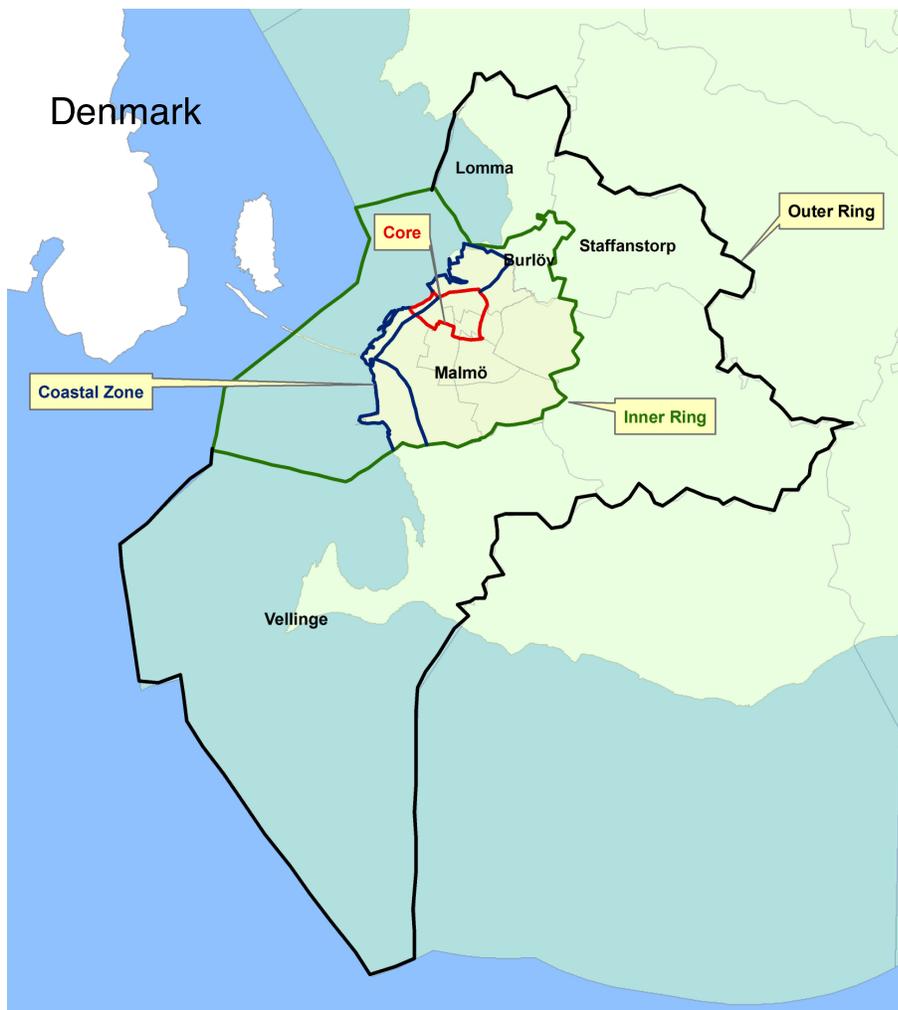
Further criteria are used in the analysis of spatial and temporal or process patterns of the conflicts, for ranking and comparison (see 3.5, 3.6). Process components (e.g., whether a conflicts is formalized, thematically specific, with few actors with clearly defined interests; instruments applied to manage the conflict) and the duration of a conflict influence the possibilities of conflict mitigation. We use concepts from Rupesinghe (Hens *et al*, 2010), but in a less rigid phase model. Simple temporal or geographical classifications as local, global or

violent and non-violent conflicts remain inexact. Spatial dimensions, although varying in the conflicts, may include national or global components, but still the conflicts are articulated and managed at local/regional levels, also when they have multi-scale aspects.

3. Analysis of the conflict cases

3.1 Case Malmö - Managing urban sprawl in the Malmö area (Andrea Morf)

Figure 7.1. Delimitations of Malmö cases with core, inner ring, and outer ring, and coastal zone (Source: SECOA, WP 3).



3.1.1 Nature of the conflict

This conflict includes the following SECOA-themes: (a) mobility related changes in settlement development causing environmental problems, (b) economic development versus environmental conservation. This case touches the whole Malmö-region, including urban centre and surroundings. Mobility related changes in settlement development causing environmental problems and contrasts between economic development and environmental conservation are included.

Since the inauguration of the Öresund-bridge in 2000, the Malmö region has experienced a steady growth in population and economic development even during a period of global economic decline. With the bridge the Malmö region becomes more and more part of a joint metropolitan region with the Danish capital of Copenhagen. In the area a trend is towards “living in the green”, outside the urban areas (Table 7.1, for details see Böhler *et al*, 2011). Person- and goods traffic (number of cars) are increasing, and so is the consumption of space for communication and housing. Negative impacts are such as consumption of valuable agricultural land, fragmentation of urban space and ecologically valuable areas, sealing of ground, noise, vibrations, and bad air quality.

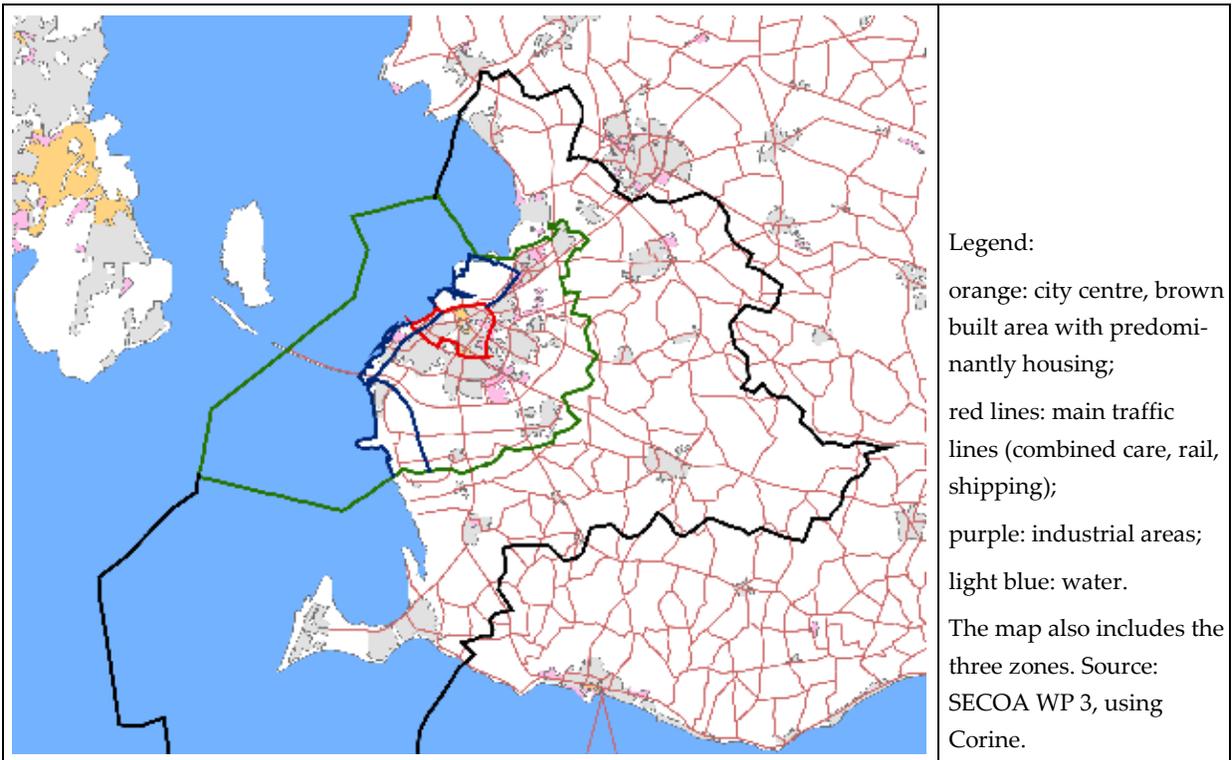
Table 7.1. Residents, households, and cars in the Malmö metropolitan area.

Year	Core		Inner Ring		Outer Ring		Coastal Zone ¹	
	2000	2005	2000	2005	2000	2005	2000	2005
Number of Residents	99180	105470	172732	178992	86280	89894	25716	29108
Number of Households	59845	63010	72760	75228	37921	39632	13169	15393
Mean size of Households	1,66	1,67	2,37	2,38	2,28	2,27	1.95	1,89
Number of Cars	23795	26220	76618	82834	45325	47295	9605	11318
Nr of Cars / 100 residents	24	25	44	46	52	53	37	39

¹ Note: the coastal zone does not include Lomma or Vellinge. Source: SECOA WP 3, using SCB-statistics.

Except for the main train stops in Malmö and Lund many surrounding villages depend on car-traffic that is only insufficiently connected to the urban centre by rail-bound public transport (Figure 7.2). Building of train stops is planned on national and regional lines towards Copenhagen, Lund, and Trelleborg. Further complementary regional railways, e.g., towards the Falsterbo peninsula in Vellinge and to Svedala with Sturup-Malmö airport are under evaluation.

Figure 7.2. Malmö region including settlements and important traffic connections.



Land use statistics indicate that the consumption of agricultural land, urban green areas, and natural habitats (orange in Table 7.2) in favour of sealed areas for housing and infrastructure (yellow in Table 7.2) occurs mainly in the inner and outer ring and less in the centre.

Table 7.2. Land use statistics for the Malmö metropolitan area (Source: SECOA WP 3, using CORINE-data).

Total Area (m ²)	Core 13'558'145		Inner Ring 161'041'855		Outer Ring 526'000'000	
	Year	2000	2005/6	2000	2005/6	2000
Natural Habitat Area (m ²)	0	0	0	0	43481032,03	39822603,04
Natural Habitat Area %	0%	0%	0%	0%	8,27%	7,57%
Agriculture Area (m ²)	0	0	85478044,1	77904740,86	419874522,5	420988202,8
Agriculture Area in %	0%	0%	53,08%	48,38%	79,82%	80,04%
Urban Green Area (m ²)	2177542,5	2177542,5	8352428,796	1988992,334	3004609,066	3004609,066
Urban Green Area % tot	16,06%	16,06%	5,19%	1,24%	0,57%	0,57%
Continuous Urban Fabric (m ²)	1264174,6	1264174,6	0	0	0	0
Continuous Urban Fabric %	9,32%	9,32%	0%	0%	0%	0%
Discountin. Urb. Fabr. (m ²)	8642025,1	8642025,1	37394699,95	40752094,51	39577953,25	41025666,37
Discountin. Urb. Fabr. %	63,74%	63,74%	23,22%	25,31%	7,52%	7,80%
Road & Rail Networks (m ²)	361235,5	361235,5	10148619,42	10557428,77	4857328,263	4961807,265
Road & Rail Networks %	2,66%	2,66%	6,30%	6,56%	0,92%	0,94%
Industrial/Commercial (m ²)	921211,5	921211,5	8736787,201	10867011,28	2244029,146	2455267,068
Industrial/Commercial %	6,79%	6,79%	5,43%	6,75%	0,43%	0,47%
Port Area (m ²)	237665,6	237665,6	11923235,92	11653001,72	0	0
Port Area % of total	1,75%	1,75%	7,40%	7,24%	0%	0%

The conflict about the settlement structure in the Malmö region touches many issues. The main dichotomy is between municipal development strategies, combined with an economic-environmental dilemma – how to use space most effectively with least damage to the environment. More specifically, the conflict implies the following clashes:

Clash of strategies: Urban municipalities want to concentrate settlement and blend resource uses, reducing motorized traffic and concentrating development to public transport nodes. Rural municipalities see their attractiveness in “green living”, residency on the countryside, however often depending on car-traffic.

Land use implies use for traffic infrastructure and settlement that is in conflict with agricultural land use (Scania has Sweden’s most valuable agricultural land), urban green areas and other areas valuable for recreation and biodiversity conservation.

Pollution and mitigation of pollution: Environmental effects of increasing traffic led to mitigation attempts by concentrating settlement to urban areas and public transport nodes.

Costs of concentration of settlement for health, risks and security: Concentration of settlement and development of multiple uses in urban areas can have negative impacts on the population close by. Re-development of polluted areas requires treatment of contamination. Here, environmental and security objectives may clash.

Since the mid 20th century, an important planning strategy to avoid risks and conflicts of use has been the separation of functions. Housing areas were planned with large safety margins from transport ways. Industrial and other working spaces were kept separate from recreational and housing areas. This has led to the above environmental problems. Fragmentation of urban space is also negative from a social perspective, as the cheaper housing areas are cut off from the centre by roads and rails and the large safety-zones along them.

The urban municipalities like Malmö and Lund have, in concert with the Region of Scania, decided to *change their urban development strategies from separation to concentration and blending of uses*. This was done, in order to reduce environmental impacts and use urban space more effectively, and to create a more attractive, equitable, and liveable urban environment. Malmö has the ambition to become the world's most sustainable city. The city is struggling with socio-economic segregation (e.g., areas with a high percentage of immigrants and people with low income and education). The municipalities in the fringe, some far from public transport, with rural landscapes as an asset try to *attract residents by offering space for detached or semi-detached houses*, or use a *double strategy* of concentration in some areas and detached housing in others.

3.1.2 Parties involved in the settlement-structure conflict

The following main groups of stakeholders have been identified from different sources (interviews, administrative and planning documents; for detailed description see Böhler *et al*, 2011). The *County Administrative Board* (various offices responsible for different sector perspectives) has the overarching goal to improve the environmental situation and make Scania more climate-adapted. In principle, the CAB is in favour of a more effective use of space and the concentration and diversification strategy. Through its formal role with regard to national interests and cross-municipal coordination of plans, the CAB can put pressure on municipalities with regard to settlement structure.

The *Region of Scania* has been driving the development of a public transport system to reduce car-traffic and promote economic development. The region in principle supports the concentration strategy of urban areas, but may be ambiguous about the priorities of the rural

municipalities. The region has most influence on infrastructure planning and economic development, but not much formal influence in municipal spatial planning. The SouthSouthWest Scanian (SSSV)-collaboration of municipalities is able to lift issues in need of coordination and to present a forum for discussion and coordination, but has no formal power.

Urban municipalities in favour of concentration and diversification of uses (Lund, Malmö) need to tackle the environmental problems and social segregation caused by increasing traffic and urban sprawl. The more *rural municipalities at the urban fringe* are so far not strongly affected by negative environmental impacts and interested in more taxpayers. These municipalities are presently using a double strategy by offering attractive, detached house dwelling on the countryside (Staffanstorp, Svedala, Vellinge) at the same time as proposing concentration to nodes of settlement, and suggesting suburban railways connecting them to the urban centres of Malmö and Lund. The development of detached-house areas and use of agricultural land and green areas for other purposes is criticised by the CAB during review and referral of municipal plans as not in line with the Environmental Code's and Planning- and Building Act's objectives of "good husbandry" of water and land.

Municipalities have little formal power to affect each others' spatial planning. However, because planning occurs in a collaborative spirit, at least some accommodation occurs. Because of the lack of a regional planning organ, accommodation is achieved case-by case, through meetings with public servants and letters of review in connection with municipal spatial planning, not in a forum of discussion. Municipalities can to some extent influence settlement by way of planning and land development and by limiting the housing units available per year.

The *residents* have varying preferences but are rarely in direct clash for the strategic conflict. According to municipal studies there are two main types of residents (a) those interested in living in detached or semi-detached houses on the countryside, caring less about the increasing car-traffic and commuting distances, and (b) people attracted by a living urban centre with different functions close by: working areas, commerce and services, and recreational possibilities and the seashore. Conflicts are expected when changes occur in the closer surroundings, such as new development plans or the placement and design of public transport features.

Landowners and permanent or seasonal residents who are sensitive to changes in their local surroundings are usually those who have had contact with the area for a longer time. Residents have so far not have been active parties in the conflict that is more one between authorities (politicians, public servants). Residents and enterprises react mainly to changes in

their closer surroundings. Most attentive to changes are seasonal and permanent residents knowing the area for years (see also Vellinge case). The rights of appeal against detailed development plans and building permits for neighbours and environmental NGOs legitimize the stakeholders.

NGOs are highly alert of development planning and participate actively. *Local sections of well-established recreational and environmental NGOs* often function as instances of referral for municipalities. Local organisations work as representatives of interests for rural development, cultural history, conservation, and recreation. *Ad-hoc protest-organisations* are a common phenomenon too.

3.1.3 Typological classification of the settlement conflict

Manifestation (Cadoret, 2009): the conflict is of hybrid character with chronic components and spatial planning, anticipating and managing the problems. It is a wicked issue, consisting of a complex of problems that cannot be solved one time for all, but are in need of re-evaluation and adaptation of strategies.

Causes: The conflict includes resource and environmental dimensions: land use, access to the shore, pollution/health, climate change, and rural and urban development. The social dimensions include mobility, conflicting societal goals, “green” living, and recreation. Spatial and environmental management policy and priorities clash on strategic level: the municipalities do have strategies, but avoid taking a position and negotiate in relation to their neighbours.

Stages: The conflict is in a new round of management on strategic level. Management uses multiple tools and sectoral and integrative procedures, mainly related to spatial- and infrastructure planning.

Scale (administrative, spatial and temporal patterns): It is a multi-level conflict over several administrative levels, spatially dispersed with regard to specific problems and resulting conflicts. The conflictive events are dispersed in time, coupled to external drivers as the Öresund bridge, economic development, new legislation, especially EU-legislation, political mandate periods, and spatial planning periods. Presently conflicts concentrate to detached housing development in rural areas and the urban fringe and housing close to traffic lines. Experts interviewed expect future conflicts in more urbanised areas under re-development.

Participation and forums: The conflict is complex with many stakeholders and dimensions. At present mostly authorities are involved by way of spatial and infrastructure planning. Political forums are used for raising issues as well. Stakeholder constellations include

rural municipalities on the one side and urban on the other, and the CAB promoting an environmental perspective. Conservancy NGOs, ad-hoc founded issue associations and highly active individuals can raise problems in relation to specific issues. The resource use conflict includes future users, whose interests are defended by the CAB and environmental NGOs.

3.1.4 Current trends and management of the Scanian settlement-structure conflict

The earlier strategy of solving conflicts – separation of uses by municipal spatial development planning – creates too many environmental problems. The problems of urban sprawl have only recently become acute in Scania, there is so far no coordinating, overarching settlement development strategy all municipalities have subscribed to.

Municipal plans and proposals from the 2000s show two strategies to address the conflict. The urban municipalities reacted to the environmental- and land consumption problems by proposing to concentrate the development to existing urban nodes. The next step, proposed by rural municipalities – often after criticism of draft plans by the CAB – was to propose new rail-bound public transport (Böhler *et al*, 2011).

The conflict needs a cross-sector management approach. Large scale changes by the Öresund connection have not been anticipated (and not addressed by use of a cross-sector tool on an appropriate scale). Environmental effects are taken as they come and have not been anticipated and planned for (e.g., by some kind of strategic environmental planning and agreement on regional level, merely an EIA of the project itself). In contrast to Gothenburg, the Malmö region has no organisation with mandate for regional spatial planning. Neither the instrument of regional development plans intended to steer rural development funding can play such a role. The CABs do not have such a role and mandate either. Spatial planning is in the hands of the municipalities.

The conflicting nature of urban sprawl and measures to prevent it are expected to increase in the near future. Malmö may experience an increase of 2-3000 residents per year and needs space for residency, jobs, services, and recreation. Re-development of harbour areas (Västra Hamnen, under way: Norra Hamnen, Limhamn) or old industrial areas with main problems of soil contamination may not suffice anymore. Within a few years these areas will be used up and the municipality will need to find other areas. According to interviews, Malmö municipality is expecting conflicts and is in an intensive dialogue with its citizens, not the least in connection with a new municipal comprehensive plan under way, including a vision for sustainable urban development.

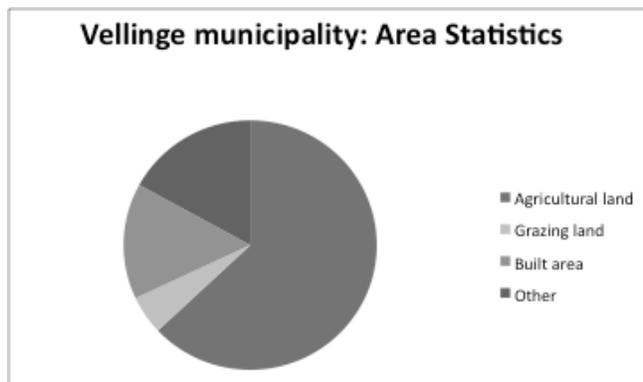
3.2 Case Falsterbo-Peninsula: A multi scale conflict between man and nature (Andrea Morf)

3.2.1. Nature of the Falsterbo conflict

The Falsterbo-peninsula lies in Vellinge municipality (Figure 7.1). On the peninsula environmental conflicts can be found that include all of SECOA's overarching themes. They show varying combinations of (a) preservation of ecologically valuable sites and biodiversity, combined with cultural heritage values onshore and in the water, (b) development vs. environmental protection, (c) contrasts of uses between seasonal and permanent residents through recreational and settlement pressure, and d) problems related to climate change and mitigation of these problems.

Natural values. Eighty per cent of Vellinge municipality's territory consists of shallow coastal waters of less than 20 m depth. 63% of the land territory is valuable agricultural land. Most grazing land and about half of the built area, housing two thirds of the population, are located on the Falsterbo peninsula.

Figure 7.3. Area statistics data from 2009 (Source: Vellinge municipality homepage, based on SCB, 2010).

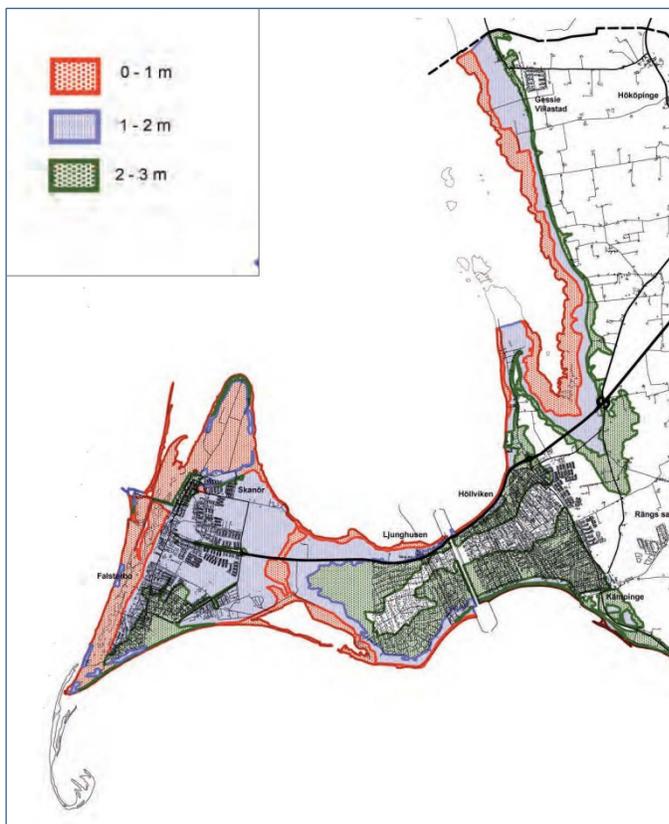


High ecological values on the outer part of Falsterbo peninsula include the shallow sandy shore with varying sandbanks and two lagoons and eel grass meadows that are important for fish recruitment and wading birds. The outer peninsula is also valuable for breeding, resting, and wintering of migrating birds and waterfowl and for of seals.

Vellinge is rich in *cultural heritage* objects from pre-historic (Iron- and Bronze Age) and historic time spread out in the landscape. During the 19th century, seaside tourism resulted in a revival of the towns and the building of hotels, summerhouses, and beach huts, and a steam train line to the seaside resorts of Falsterbo and Skanör.

Climate change in Vellinge causes sea-level rise, rise of ground water level, and coastal erosion. Long-time inundations due to sea-level rise and high water levels onshore are less a problem yet. Large parts of the peninsula can be under water for a few hours in connection with westerly storms. The municipality proposes to construct two rows of dams to break the peaks. The dams have impacts not just on the landscape but also on cultural heritage objects and biological values. The location of the dams implies prioritising between cultural and natural values (for further analysis see Morf and Olsson (2011)).

Figure 7.4. Topographic map of the Falsterbo-peninsula in Vellinge with meter-intervals in relation to today's mean water line (source: CAB, 2009; see Böhler et al, 2011).



Social, economic, and political conditions. Between 2000 and 2010 population growth was about 3000 (now ca. 33300). Almost half of the population in working age commutes out (ca. 7500). In summer, the seaside attracts thousands of visitors, so do the annual bird- and horse shows and the Viking reserve attract international visitors. Tourism related services make an important sector.

The main part of Vellinge's population is concentrated on the peninsula: at the tip in the towns of Skanör and Falsterbo (together ca. 6900) and in the centre of the peninsula, on both

sides of the channel in Ljunghusen and Höllviken (ca. 13000). Closeness to the sea is important for residents, even if now threatened by climate change. Vellinge has a long shoreline and a considerable amount of buildings within the 300m zone (see Table 7.3). A large fraction of the population, infrastructure, houses, and natural and cultural values are affected by sea level rise (see DPSIR-analysis in Morf and Olsson, 2011).

Table 7.3. Buildings within 100 & 300 m from the shoreline in 2000 (Source: SCB statistics homepage).

Municipalities				
Distance from shore line	Area in ha	No of buildings	Area in ha	No of buildings
	100 m		300 m	
Lomma	125	157	369	789
Burlöv	6	0	18	0
Malmö	474	259	1164	1519
Vellinge	600	40	1556	959

Since the 1988 elections, Vellinge has been governed by right wing liberals in absolute majority. The 2010 elections changed the political situation a little, but so far no shift of majorities in decision-making bodies.

The conflict on the Falsterbo peninsula is complex and difficult to solve one time for all. High dignity conservation interests overlap with each other and stand against increasing pressure of development for housing and recreation, both for permanent and seasonal residents. Moreover, national-level strategic goals and sector interests are not thoroughly harmonized. The following problem dimensions and user interests need to be dealt with (see Box 7.1):

- Nature conservation of national and international dignity
- Cultural heritage conservation of national and international dignity
- Landscape conservation and outdoor-recreation of national dignity
- National interest for defence
- Shoreline-protection along the shore
- Development pressure for residency and recreation due to economic development and population increase in the whole Malmö area.
- Climate change and (mitigation of) its effects on all activities and values.

Box 7.1. Competing interest claims on the Falsterbo peninsula (Sources: Böhler et al, 2011).

National interest areas according to the Environmental Code

Nature conservation: A number of nature reserves contains almost the whole territorial waters of Vellinge and the shore of the outer peninsula. Here, different conventions and protective arrangement principles are implemented: Natura 2000-protection of biodiversity based on the RAMSAR-convention, and the EU's Habitat and Bird-directives, nature reserves of national and regional dignity. This includes areas for seals and migrating birds, ecologically interesting sandy flats and reefs, coastal dune and heather landscape, and coastal forests.

Cultural heritage priority areas cover the agricultural landscape onshore and with a few exceptions the outer part of the peninsula. Objects include historical environments on the peninsula and onshore, individual cultural heritage objects onshore and wrecks in the water, and the cultural landscape including agricultural structures.

National defence: A shooting range on the south-eastern part of the peninsula reaches from east of Falsterbo out into the water overlapping with the other interests.

Shipping: A traffic separation area around the light house of Falsterbo Reef is included.

Fisheries: National interest area for fisheries.

Outdoor recreation: The whole outer part of the peninsula, outward from the Falsterbo channel, is of priority. Besides the classical recreational activities, e.g., boat-sport, hiking, bathing, or bird watching, numerous new, activities are developing. These have not been evaluated with regard to their impacts on other interests.

Shoreline protection: In order to protect valuable coastal habitats and ensure public access, almost the whole shoreline is protected from development (a band of 100-300m along the shore, with few exceptions in the built areas), requiring dispensation permit or development planning if building is to be allowed. So far, shoreline protection has not been used to prevent development for coastal defence reasons.

Recreational activities

- Water sports: bathing (probably largest fraction of summertime users, sand castle competition), sailing, kayaking and canoeing (all seasons), water-scooters and motorboats (summer time), kite surfing, windsurfing close to Skanör harbour (all seasons), skating (wintertime)
- Bird- and nature watching
- Hiking, amber collection at the beach
- Horseback riding along trails and on the beach, including as an event the Falsterbo Horse Show
- Camping: campgrounds and individual camping
- Golf: two golf courses close to the coast on the peninsula and one close to Ingelstad farther inland.
- Motocross

These activities do not necessarily place under the label of "outdoor-recreation" originally intended by the national interest areas and are partially incompatible, because the same space is used at the same time.

Development activities

Building and development for permanent housing, summer residency, local commerce, recreation.

Except for housing and infrastructure, all interests are supported by national and international priorities. The development pressure on the coast, the overlap of national and international priority areas and related sector administration processes require a lot of coordination. This provides potential for a variety of conflicts which Vellinge municipality and the County Administrative Board have to address by spatial planning and sector policy (see Böhler *et al*, 2011):

Conflicts about the *siting and design of new and taking down of old buildings in historical environments*. These conflicts are often connected with different interests of permanent and seasonal residents. Falsterbo and Skanör are highly attractive for summer tourism and residency. Such villages “die” in winter, when there are not enough customers or users of public and commercial services – a problem known from other areas (see e.g. Morf, 2006).

Development close to nature- and green areas has led conflicts with *conservation and recreation*. Both types of controversies have not only mobilised the existing local NGOs (natural and cultural values conservation) but also led to the formation of local protest organisations and a new political party (for more information, see Böhler *et al*, 2011).

A third type is between *conservation and different forms of recreation clashing in the coastal zone and offshore*. This includes clashes between conservation and other uses in the coastal and marine areas of the peninsula, specifically disturbances by new forms of water sports for both nature and the more traditional low-impact outdoor activities. Water-scooters, windsurfers, and kite-surfers are competing for space in the water and at the beach with other, established uses. As protection of valuable nature areas developed gradually over decades, a number of smaller nature reserves with different norms overlap around the peninsula. Conflicts about commercial use of the public right of access and its impacts also exist in other areas of Sweden in connection with tourism.

3.2.2 Parties involved in the Falsterbo conflict

The following main stakeholders can be found in the conflict about the nature reserves on the Falsterbo peninsula (for detailed description see Böhler *et al*, 2011):

National sector authorities with various sector interests established by national interest areas through the Environmental Code: the Army), National Board of Fisheries, nature conservation (SEPA), cultural conservation (National Board of Cultural Heritage), and the Transport Authority. Priorities are not established; these are located under different ministries

and should be established on government level, which is to some extent in conflict with the municipal planning monopole. Further involved authorities have been, e.g., the National Board of Housing, Building, and Planning, the Police, Swedish Survey, National Board of Forestry, and the national authority managing state property. Two authorities have been most active:

The Coast Guard: It is responsible for enforcement of regulations from other sectors (conservation, fisheries, maritime traffic) and interested in harmonisation of regulation.

The Maritime Authority manages marine traffic ways and lighthouses and is interested in keeping marine traffic ways open for both leisure and professional traffic. It owns land close to the piers of the Falsterbo channel and wants to develop there.

The *County Administrative Board of Scania* with its various offices is responsible for different sector perspectives, with the overarching goal of improving the environmental situation and making Scania more climate-adapted. The nature conservation section conducted the process of prioritising and adapting reserve regulation. The planning section, responsible for reviewing municipal planning, cannot prioritise between interests.

Vellinge municipality is aware of problems and conflicts and tries to address them by various instruments. It is interested in keeping as assets for tourism and residency the cultural history, landscape amenities and valuable habitats. It is also interested in keeping the beaches in good shape for recreation and wants to extract sand within the reserve. The municipality wants to achieve “living” communities with a sustainable local economy and a slowly growing population.

Nongovernmental organisations (NGOs) with varying focus include organisations for conservation (Scania Nature Protection Association), bird watching (including Falsterbo Bird Show, also supported by authorities), cultural heritage, marine rescue. From these the following ones have been most active:

Falsterbo Peninsula Nature Conservancy Association (FNF) is a section within SNF (Sweden’s Nature Conservancy Association). FNF is a highly active organisation, using digital media to lobby and to organise protest. Its interests include the preventing of further development on the outer peninsula if natural values are impacted, and the establishing of an urban national park. It is critical of certain development projects and requests stronger restrictions for wind- and kite-surfing.

Scania’s Ornithological Association and Falsterbo Bird Station has similar attitudes like FNF, especially against kite surfing and water scooters. It is positive towards the new nature reserves regulation and boundaries.

Local harbour associations and boat clubs want to have the right to traverse the area and to expand harbours. They want to protect slower users and are positive towards more clear regulation of reserves and boundaries.

Kite-surfers, wind surfers and their organisations (four clubs): They want to share the area, trying to work to reduce negative impacts. The kitesurfers see themselves as nature interested and make suggestions when and where sharing can be possible.

Fishers' associations (three organisations): positive to the reserve, but against some speed restrictions. Fishing boats need to have high enough velocity when the wind canters or suddenly rises, which is common in the area (5 kn can be too slow in some areas; proposal of a 200 m zone from the shore with 10 kn, by the CAB in the areas where they are fishing).

Ljungskogens strandbad AB (beach manager) is one of few economic actors, however not taking a position to the proposals presented.

Land owners at the sea shore have to grant access to their beaches. At least 30 private landowners are affected by the reserve. Some are disturbed by the behaviour of motor boats, water scooters, and kite-surfers. They see their beaches' commercial value, but are not exploiting it. They are against the commercial use of the public right of access by others (or would like to be compensated).

Permanent residents want to live in an attractive area close to the seashore (with a tendency to prefer detached houses). Permanent residents also have recreational interests, but are often reluctant to considerable changes in their surroundings caused by seasonal residents. *Seasonal residents* are interested in visiting the peninsula especially during summer time for many recreational activities. *Tourists and tourism enterprises* (hotels, restaurants, etc.) are also oriented to the summer season.

Further stakeholders with less visibility are: a motocross-area, a flying strip for model airplanes, and horseback riders.

Alliances: Stakeholder constellations vary over time and with the specific problem at hand. Conservancy NGOs, ad-hoc founded issue associations and highly active individuals are prominent. Alliances are formed across sectors and levels (e.g., national interest organisation or higher level authority mobilised by neighbours and natural and cultural conservation interests joining against development). Most interest groups are against kite-surfing and high velocity vessels in the area. Conservationists are against almost all kinds of disturbance by vessels and activities and against a test-area opened to windsurfers. Fishers and boat clubs have some special wishes in relation to the delimitations, which were to some extent granted. Wind- and

kite-surfers seek co-existence and dialogue with other users, but are hampered by the so far observed impact of their activities and the misbehaviour of individuals from their group. The concession by the CAB is an area open for windsurfers in order to test the effects on wildlife.

Salience: All groups named are close to the conflict, however, the seasonal residents and tourists only a small part of the year. Most influential are the authorities, followed by NGOs. Well established NGOs have a formal right as instances of referral and they are considered to have high legitimacy by representing a larger group of members. A third group with relatively high influence are the land-owner, as they have a right to appeal against a decision. Least influence have unorganised, individual interests.

3.2.3 Typological classification of the Falsterbo conflict

Manifestation: The conflict is a hybrid conflict with chronic problems and anticipation through planning. It implies wicked problem with high complexity as well: the overall-conflict shows a high complexity and is never finally solved. It is a multiple stakeholder and multiple issue conflict. Some partial conflicts are less complex or can be reduced in complexity and more easily addressed (e.g., nature reserves).

Causes: Direct causes include competition for scarce resources, disturbance of uses in the same area, economic impacts of other uses or changes in policy, clashes of interests of authorities on various levels, and value conflicts. The pressure is intensified by seasonal migration. Climate change adds new components - where to locate settlement with least negative environmental impact. National level priorities include conflicts of goals that are so far unresolved. Triggering events include authoritative action, planning processes, and actual incidents: municipal planning, applications for building permits that are declined (conflict with individual citizens), new projects (ditto), management measures (neighbours and interest groups mobilizing), establishment of various types of reserves, actual disturbing events on the other users in the area.

Stage (hybrid): The conflict is chronic in an area attractive for many, with elements of anticipation and deferring (management instruments and strategies). Climate change makes conflicts solved earlier acute again and yet unsolved ones more acute. The instruments used (spatial planning, permits, nature reserve regulation but also licences, fees, information etc.) usually solve parts of the conflict. Many conflicts follow the whole chain of appeal up to the government (administrative and other actors) or the highest legal instances. The conflict about

the nature reserve seems to be more easily addressed than the recurring conflicts about building in the coastal area.

Scale (multi level): Specific conflicts about specific areas and uses arise locally and, when they have been addressed and settled, often return in other form later (e.g., a nature reserve needs to address new uses). Conflicts about similar issues arise in similar constellations in other areas close by (e.g., where development is proposed).

Participation and forums: Legal rights of consultative participation are enacted in planning legislation and for EIA in the Environmental Code. Special rights apply to well-established nature conservancy organizations. Municipalities and higher-level authorities are relatively free to use various methods to come in contact with stakeholders (e.g., meetings, internet, walks and discussions on site). Political forums and elections are used for raising and addressing the conflicts as well. Media and internet have become important forums for the public and NGOs to raise their issues and opinions.

3.2.4 Current trends and management of the conflict

Problems related to population growth are expected to increase. Vellinge municipality may have 41000 residents by 2025. The municipality has to deal with the increasing population pressure and at the same time protect the natural and cultural assets important for its attractiveness. Dilemmas to address include that of either placing further development on valuable agricultural land farther onshore or consuming and affecting ecologically and culturally valuable areas of the peninsula. The lowlands of the peninsula, attractive for residency due to the closeness to the sea, are also more exposed to the effects of climate change.

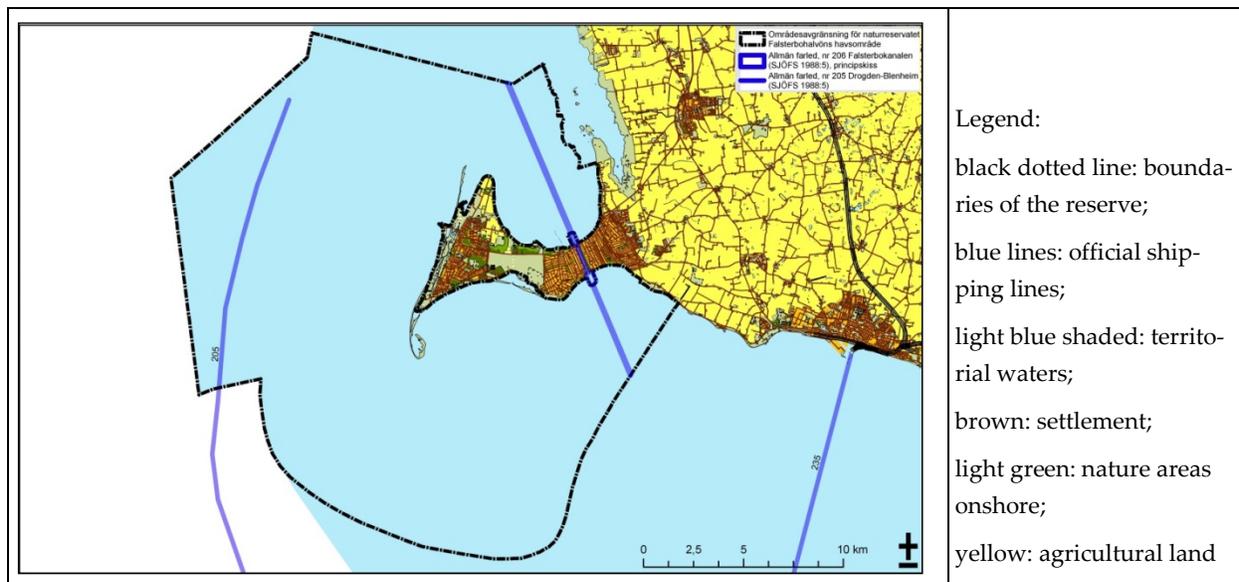
As the natural and cultural values of the Falsterbo peninsula are of national and international dignity, the regulation of uses is influenced by trends of national and international policy. Vellinge municipality does have the possibility to use municipal comprehensive planning to steer the uses of land and water and suggest priorities with regard to national interest areas, but has also not been actively managing the coastal waters from its own perspective. Active regulation and management of the uses of the water-areas has mainly occurred through the nature reserve process in the responsibility of the CAB.

Box 7.2. Chronology of the conflicts of the Falsterbo peninsula (Sources: Böhler et al, 2011; Morf, 2006).

- 1952 Shoreline Protection Act to counteract increasing development pressure. The Swedish state decides to protect the shoreline of all of Sweden by establishing a principal shoreline protection 100 m (or 300) from the shoreline. Development is only allowed based on exemption permits or after spatial planning. Thus, public access to the shore is enacted.
- 1964 Integration of shoreline protection into the Nature Conservation Act adding a nature-conservation purpose.
- 1966 *and forward:* spatial planning is performed to protect nationally important assets (various sectors).
- 1970s a number of nature reserves is established around the Falsterbo peninsula: Mäkläppen, Ljunghedens strand, Flommen, Höllviken
- 1987 Designation and codification of national interest areas in Natural Resource Act: Large parts of the Falsterbo/Skanör peninsula and surrounding sea are declared of national interest for: Nature conservation, landscape protection and outdoor recreation, fisheries, cultural heritage
- 1987 Planning and Building Act: municipalities have the right to dispose over their territory (municipal planning monopoly) including territorial waters. Municipal comprehensive planning can be used to establish priorities between national-level interests from a municipal perspective.
- 1990s Some national interests are strengthened in the 1990s, partially due to the joining of the European Union and partially due to Sweden's signing of other international treaties (RAMSAR, Bern Convention, EU-birds- & habitat directives etc.).
- 1992 The Nature reserve Falsterbo peninsula and surrounding seas is established. Uses with high impacts are regulated (e.g. no-go zones for people, rules for behaviour with dogs, rules in relation to impact on the vegetation and the sandy beaches. However, it never receives an actual maintenance plan. A number of earlier established nature reserves are overlapping (=> problems with regulation and understanding).
- 2000 Vellinge contests the shooting range in MCP 2000. It does not formulate priorities for other national. interests
- 2000s new recreational interests develop: windsurfing, kite-surfing, water scooters and are becoming a nuisance for both people and animals.
- 2005 Introduction of regulation for water sports in marine reserve Falsterbo peninsula (no-go zones & restrictions of velocity in certain areas).
- 2007 CAB introduces general rules for water scooters: confined to marine fairways and specifically designated areas, none within the Falsterbo reserve.
- 2009 CAB initiates a discussion on adapting rules & boundaries of the large reserve around the peninsula
- 2010 New rules for surfing in one of the reserves are established.
A proposal for a municipal comprehensive plan suggests protection dams in many areas and expanding the harbours of Skanör and Höllviken. CAB is critical to dams, but cannot prioritise. The municipality proposes sand-extraction for beach reconstruction in erosion areas; the CAB's conservation section criticises this.
- 2011 CAB decides about a specified delimitation for the Falsterbo peninsula reserve and harmonised regulation (abolishing older rules in earlier established partial reserves). Problems with priorities in relation to dams and other measures against sea-level rise on CAB-level remain unresolved. Shoreline protection is not used for shoreline defence.

The establishment and management of nature reserves of international, national and regional dignity is in the hands of the CAB, which also takes care of conservation offshore. During 2009 and 2010, the CAB has been in contact with landowners, local interest organisations, and authorities on various levels and negotiated forth a proposal to harmonise boundaries and regulation of the reserve and to regulate disturbing activities more strictly. A process of discussion and negotiation began by way of public and more informal bilateral meetings, exchange of documents and an official referral process during 2010. During the later part of the process, the conflict was mainly managed bilaterally by the CAB and not through larger round table negotiations. In March 2011, the Falsterbo peninsula nature reserve has received a specified delimitation and harmonised regulations (see above, Figure 7.4). It is forbidden to extract sand from the water and disturbances of animal life should be minimised. Land- and water owners are limited in their use of their real-estate (dredging, digging, using chemicals to fight oil spills); they can be compensated for the restrictions. Visitors of the area are at certain times of the year not allowed to go into certain areas. Water sport activities have to avoid certain areas and to accept speed limits in other areas (boat owners, windsurfers, kite-surfers, and water scooters). Conflicting regulations from other reserves are abolished (see Böhler *et al*, 2011).

Figure 7.5. Nature reserve The Marine Areas of Falsterbo Peninsula (*Falsterbohalvöns havsområde*) according to decision by CAB 2011-03-10 (Source: CAB, 2011, see Böhler *et al*, 2011).



3.2.5 Remaining problems

The underlying problems of the coastal conflicts in Vellinge are not entirely addressed and solved by the nature reserves. It can be seen as an example how a problem complex with conflictive components is shaped by the available instruments and portioned into manageable parts (e.g., nature reserves) and partial solutions.

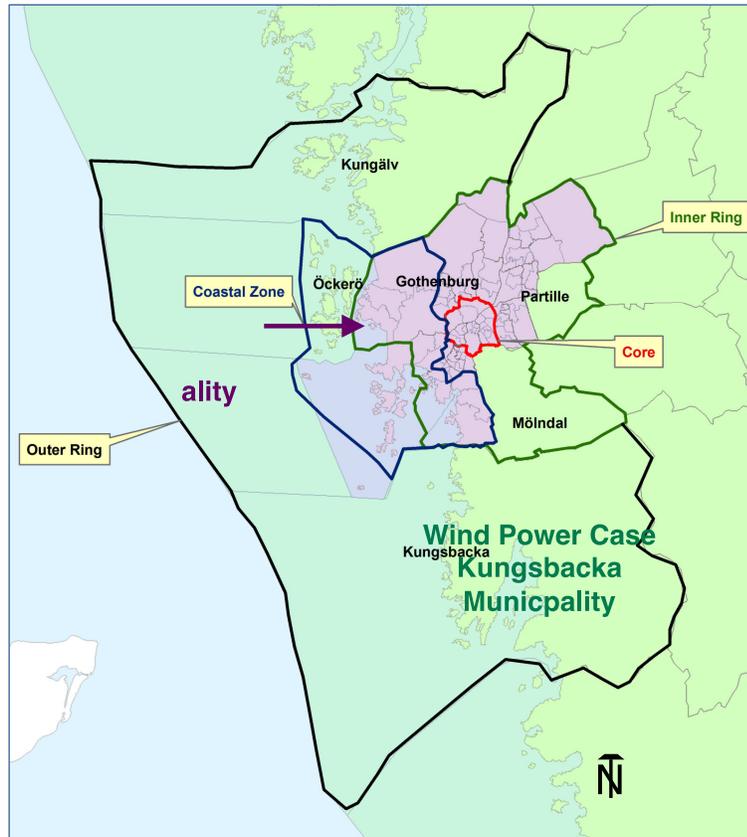
Development pressure continues and prognostics for climatic change become increasingly serious. The municipality is confronted with several dilemmas: (a) moving population to the higher land - Sweden's best agricultural land, (b) concentration of settlement (not in style with rural and recreational towns), (c) protecting the existing settlements by dams. Climate change will lead to a loss of coastal habitats and areas for beach recreation.

Municipal spatial planning is the main coordinating tool with a comprehensive spatial plan under way. Municipal politicians consider it as inappropriate to move 20'000 citizens farther onshore and to the agricultural land. Economic and environmental arguments are used. To deal with the inundation issue, the municipality is planning to work with two sets of dams around the most important areas. These dams are to a large extent using already existing natural and man-made features in the landscape, but in some areas new sections of dams need to be established. In these areas, conflicts arise between natural and cultural conservation values. The CAB, representing different national sector authorities, would need guidance from above, which is difficult to get, as the national structure is sector-based without integrative cross-sector planning.

Also in the water exists an unresolved clash of strategic level priorities: the national interests of natural-, landscape-, and cultural conservation and the national interests for outdoor recreation and marine transport, e.g., with regard to kite-surfing. The assumed harmony between recreation and landscape/nature conservation, dating back to earlier times with outdoor activities with less impact, is no longer valid. One area, considered important for birds and seals by the local nature conservancy organisation is now open for windsurfing - to evaluate the impact on birds and seals. After two years testing the regulation may have to be adapted. Moreover, the municipality and the National Transport Authority want to develop in the area of the North-West pier. But the municipality and the CAB have differing views on the value of natural habitats in the water. Finally, the commercial use of the public right of access to the shore and the requests for compensation of landowners for impacts these have to tolerate by commercial activities has not been solved either (instruments are lacking). Only now Vellinge is, according to the interviews, starting a complementary water management plan.

3.3 Case Gothenburg – Torsviken, a “development or conservation”- conflict (Olga Stepanova)

Figure 7.6. Map of the Gothenburg case study area (from SECOA report 4.1 Sweden).



The area of Torsviken belongs to Gothenburg municipality and is a part of the Torslanda district – the part of Gothenburg that takes one third of the North-Western city island of Hisingen. Torslanda is a resource for industrial development dominated by Volvo and its suppliers and refineries. It is also an area with opportunities for expansion of the Gothenburg Port, especially in its south-western part. At the same time it is attractive to build residential areas close to the sea with access to the coast with open air activities and bathing opportunities.

The total area of Torsviken (147 ha) consists of an artificially mounded (invalld) marine bay surrounded by salt marshes. In the general plan 2009 of Gothenburg city the area is marked as coastal area with high value in terms of open air activities and nature. During the 1900s the area was used for oil storage, a small airport, and later (1978-1999) for storage of

environmentally dangerous waste (of the highest risk class 1). Even today environmentally dangerous mud is dumped in Torsviken, but this activity is on the way to be shut down. The area is to a large extent surrounded by intensive industry and harbour activities and buildings in the east and north-east.

3.3.1 Nature of the conflict

The following themes were found as the most important and relevant ones in the Torsviken conflict case: (a) a conflict between economic and industrial development (including port restructuring and expansion) and environmental conservation and preservation of ecologically valuable sites and biodiversity; (b) human mobility is also an issue in the conflict, but doesn't play a key role. The key issue in the conflict in Torsviken is about the Gothenburg Port development and its expansion over the Torsviken territory that is marked as Natura-2000 area (bird protection directive), which is also a national interest for open air activities as well as a valuable sport and recreation area. According to the environmental law Natura-2000 areas do not automatically become nature conservation sites (so that industrial expansion can still happen in Torsviken).

Despite the industrial, landfill and tip activities Torsviken has a rich bird life and is a very important wintering and rest area for birds. The Natura-2000 area is for the protection of the Ruff (*Philomachus pugnax*), the Smew (*Mergellus albellus*) and the Whooper Swan (*Cygnus Cygnus*) which winter or rest there. Torsviken is furthermore appointed as an Important Bird Area (IBA, BirdLife International) for the Whooper Swan (*Cygnus Cygnus*), the Common Goldeneye (*Bucephala clangula*) and the Greater Scaup (*Aythya marila*). Apart from the mentioned species there are some 20 endangered and protected bird species observed in the Torsviken area. The unique environment that was created in the filled flat soft bottoms and protected bays became a highly productive environment with fish species, insects and other marine organisms which are a food base for the birds.

Local and regional nature protection and conservation agencies are striving to minimize the effects from the neighbouring industry and residence areas. The main goal is to make the Torsviken area a nature preservation site. On the other side there is a Gothenburg Port AB with the interest to develop and expand its activities and buildings over the parts of Torsviken area to have better logistic infrastructure. Part of the Torsviken conflict are minor conflicts between

nature protection and construction of new residential areas, active recreation in the area (small-boat harbour, golf and football field), and issues of population growth, transport and mobility problems are related to it. There is a potential conflict developing at present regarding the location of a windpower offshore construction just outside Torsviken, but this conflict is in a very early phase and not yet relevant for the main conflict.

The *social-cultural context* of the Torsviken conflict includes cleavages between different land use forms (economic use, open air and recreation and nature protection and conservation), linked with different socio-cultural values. Not only nature protection organizations and the municipality value this context, but also residents of the area, as there is a golf- and a football field and a small-boat harbour in the area.

The *economic context* (more important than the socio-cultural in the Torsviken conflict) includes the debate about the long-term development of the municipal economy, especially the Gothenburg Port. The port and other economic activities related are important for the region (the largest national shipping hub). The Swedish Maritime Administration is looking to reinforce its presence in Gothenburg through the investment and development of the city port (one of the most important transport logistics centres in Sweden) to bring together the whole of its operations in Gothenburg in one place.

The *political context* is closely connected to the economic. The conflict is part of decisions in the municipal parliament about the future economic development and public investments. Västra Götalands region aims to broaden the labour market for over 500 000 more inhabitants in the region by massive infrastructure and industrial development. The government has distributed generous funds to the regional development and among other for the optimization of the national and international goods flow through the Gothenburg Port. Västra Götalands region is the most important industrial region in Sweden with 26% of total export done here.

The land in the area of Torsviken is owned by the municipality of Gothenburg. The Gothenburg Port AB (owned by the City of Gothenburg) is a national interest company as the largest port in the Northern Europe with around one third of Swedish international trade (shipping) done here.

It is difficult to give an exact chronology of the conflict as it is not highly formalized. For the conflict analysis it appears that the start of the conflict was around 2000 when the Torsviken

area became a Natura-2000 area. Since then the conflict continued with a high point between 2003-2009 when the new city plan had been worked out and accepted.

Box 7.3. Chronology of the Torsviken conflict – important events (Source: Böhler et al, 2011).

The following documents were discussed by stakeholders and have been the arena for communication of the conflicting interests:

July 2000	The governmental decision to make Torsviken a EU Natura-2000 area (Birdlife directive)
Jan. 2005	Conservation plan for Natura-2000. Torsviken. The county board Västra Götaland
2006	“Extreme weather – how well Gothenburg is prepared?”: The main report by the city secretariat
2006	Municipal comprehensive plan for Gothenburg – deepened for the outer harbour areas
2008	Nature, Culture and Sociotope report for Gothenburg
2008-2011	In-depth Municipal comprehensive plan for Torsviken
March 2008	The description of the Torslanda city district
Feb. 2009	Municipal comprehensive plan for Gothenburg – executive exhibition, responses for city districts
2009-2010	Environmental report for Gothenburg City
May 2010	Municipal comprehensive plan for Gothenburg - the follow up

3.3.2 Parties involved in the conflict - legitimation

1. Västra Hisingen city district (the district is a part of the Gothenburg City municipality, but in the conflict it takes the nature protection interest side)
2. Gothenburg City (the municipality has interest in both nature protection and economic and industrial development and expansion – it can represent both conflicting interests through different departments, i.e., environment and construction and building; the Construction and Building Office has a responsibility for forming the municipal nature preservation sites)
3. Gothenburg Port AB, enterprise, a stock company owned by the municipality
4. Environmental Board
5. Nature and Parks Board
6. Torsvikens Nature Preservation Society
7. Ornithological Society of Gothenburg, the Torslanda Committee

8. Ornithological Society of Gothenburg, Bird Protection Committee
9. CAB (as responsible for Natura-2000 program)
10. Political parties in the city district Västra Hisingen

Many of the actors involved in Torsviken conflict are interrelated. Actors 1, 2, 4, 5, 9 are public institutions; actors 6, 7, 8 are private organizations that support each other. Three major stakeholders in the Torsviken conflict are the Ornithological Society of Gothenburg, Gothenburg Port AB and Gothenburg City municipality (for detailed description see Böhler *et al*, 2011).

The Ornithological Society of Gothenburg is actively cooperating with Torsvikens Nature Preservation Society towards a solution that the Torsviken area becomes a nature preservation site, applying the developed plan for restoration and care for the natural environment and bird species. The Society has positioned itself clearly in the conflict as opposing the planning of industrial expansion in the Torsviken area as well as opposing the offshore windpower construction plans outside the area that were presented in the municipal city plan 2009.

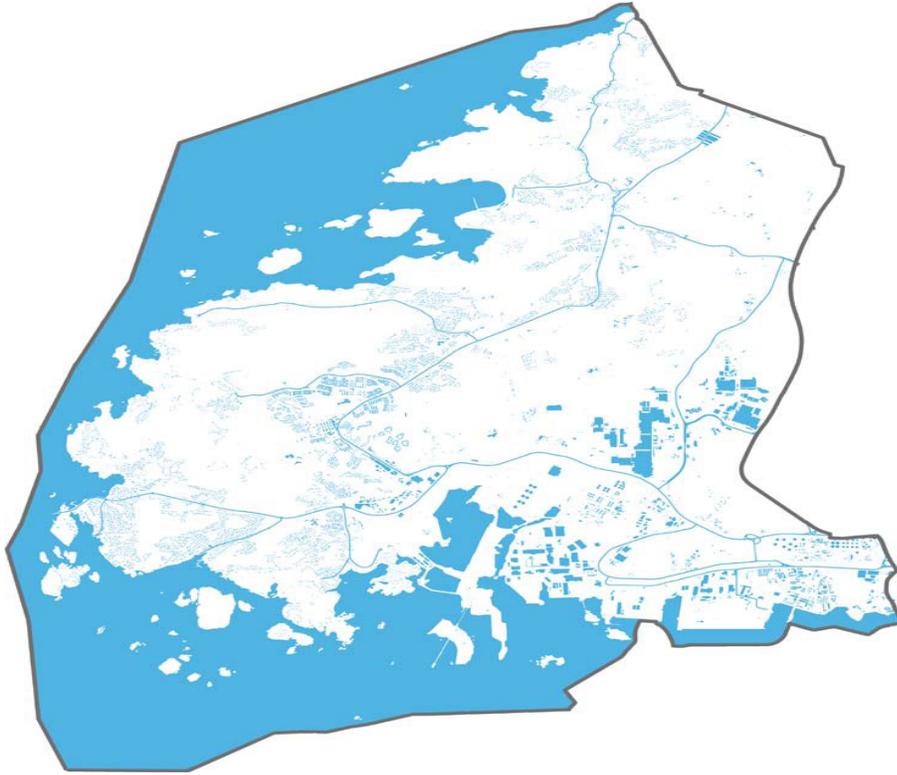
Gothenburg City has as main interest to develop local industry and economy using the coastal location but at the same time contribute to sustainable urban development. The municipality doesn't have a clear position in the conflict as it has interest in both sides' positions: nature protection and conservation and industrial development, which reflects the main municipal interest of sustainable urban development. The municipality has different roles, among these is that of a mediating actor, as it suggests corrections to the municipal plans and makes further investigations required by the stakeholders in order to make a decision.

Gothenburg Port AB (a stock company owned by the municipality) has main interests linked with economic development and expansion of economic activities in the area. The further development of supplying infrastructure (transport and storage opportunities in the first place) and space for new logistic opportunities is a main goal. The company doesn't take a front conflicting stand with the other stakeholders; rather it marks and makes its needs in the public municipal planning of Gothenburg municipality.

Attempts to mediate the conflict. The Swedish city planning system obliges the planners to exhibit the plan on several occasions for the public in order to take in the comments and complaints from the stakeholders (private persons and organizations). Through this public process the actors in Torsviken expressed their concerns, requirements and opinions which were commented by the city planners and some of them were taken into consideration and satisfied. This is true for both interests: nature protection and conservation and industry

expansion and development. The collective and public discussion in the municipal planning process can be seen as a means of conflict mediation that has been practiced so far.

Figure 7.7. Map of Torslanda, Gothenburg (Source: Böhler et al, 2011).



3.3.3 Typological classification of the conflict

The Torsviken conflict can be seen as a model conflict between nature protection and industrial development in coastal areas, articulated as land use conflict. Whereas this characterises its dominant issues, the conflict is more complex with several conflict lines crossing each other and - similar to the Falsterbo conflict - more interests and actors involved. Regarding its territorial location and main stakeholders the conflict can be seen as local, but the importance and interests involved are relevant especially for local and regional, to some degree also national level institutions.

The conflict is not acute (absence of clear mitigation strategies), but manifested and salient due to intensive discussions in the municipal planning process (mainly visible in that arena, not in the media or in general public). It is a multi-stakeholder and multi-dimensional conflict of interests based on limited resource availability (land) for various interest groups. In

terms of process and development patterns the conflict is in the endurance stage. It has been going on for about 10 years and is not finished yet.

3.3.4 Current trends of the conflict

At present the conflict is in the endurance phase and not acute. The parties involved required new and in-depth investigations which haven't been completed yet. The conflict development and stakeholder strategies in the conflict point at the future prospects of conflict mitigation and mediation. It is likely that the stakeholders with nature protection interests will convince the CAB and the city construction and building office to make Torsviken area a nature preservation site with the consequences and limitations it will imply for the industry in the area. At the same time the territory of the nature preservation site may be delimited to partly satisfy the industrial development interest of the municipality/region and Gothenburg Port.

The conflict in Torsviken has a particular inner conflict between the national interests in economic, industrial development and nature protection and outer local and regional recreation and open air activity interests on the same territory owned by the municipality. The degree of complexity rises due to the conflicting national interests, but because of these one might expect more effective and quick conflict mediation efforts in the future.

3.4 Case Kungsbacka, Gothenburg area – windpower conflict (Tom Böhler, Karl Bruckmeier)

3.4.1 Nature of the conflict

The windpower conflict in Kungsbacka, one of the outer ring communities in the metropolitan area of Gothenburg located south of Gothenburg, covers two main issues (a) economic development (industrial development, tourist industry, harbour restructuring, marina construction) and (b) environmental protection (creation of protected areas), preservation of natural sites and biodiversity.

More specifically the conflict is one where local economic development (through new energy technology) is conflicting with other interests in land use – mainly for recreation, for the cultural conservation of a scenic landscape, and more and more also for nature conservation and biodiversity maintenance. When analyzing the conflict in-depth in all its ramifications and the interlinked conflicts aspects of the third conflict theme “contrasts for the use of resources between residents and newcomers for processes of human mobility” come into view. But such mobility

related aspects are of limited significance for the core conflict, which is also one outside densely settled areas.

The planning by the municipality of Kungsbacka has been restrictive with planning of new energy sources. In the municipal plan from 2006 it is stated that the municipality has a positive attitude towards inquiries concerning establishment of wind power plants, but that the appropriateness of actual cases always has to be assessed. In 2009 a specific wind power plan for the municipality was produced as a response to various political decisions at regional and national levels. The inland zone where the case study is located is seen as suitable for wind power location.

The conflict is one about location of windpower in a land area (no offshore location) where the interests of land owners and inhabitants of the area to develop windpower as a local energy source are in conflict with the municipality and further interests, e.g., in nature conservation. From the beginning the conflict has components of the well known pattern called "NIMBY" that is found since long time in many environmental, land-use related conflicts: the controversial land use should be located everywhere but "not in my backyard" (that is, not in the neighbourhood of a privately owned real estate or land area because it is seen as disturbing the interests and activities of adjacent inhabitants). The remarkable point seems that during this conflict the municipality of Kungsbacka has changed its position and is now supporting windpower development. Whereas the earlier NIMBY conflict situation can be characterized as one of individual, personal and private interests of few local inhabitants against windpower that are conflicting with other interest of larger groups or common public interests (articulated through governmental or municipal public organizations), the situation is now the opposite. A local landowner wants to develop windpower and had to fight against the municipality which now has changed its position. But there are further interests involved as the following description shows, so that the conflict can be described as one often found in coastal areas close to urban areas, not only with regard to windpower (or as energy conflict), but of the more general type of a landscape with high amenity value and historical value as cultural landscape where many competing and conflicting land use interests can be found

According to its spatial dimensions the conflict is small and local: five windpower facilities, each of them of 3 MW size and the height of the towers 150 m, with a total energy production of 30 GWh annually. The establishment of windpower facilities requires, according to the legal and planning procedures, a long preparation process and it is in this preparatory and planning phase that the conflicting interests came up and have been dealt with, also formally, in decisions by the County Administration and by the Environmental Court. The conflict has gone through formal and legal procedures which are also to be understood as trials to mitigate or resolve the conflict with a final settlement (see chronology) through two decisions, the first by the environmental court

(Vänersborgs) that gave permission to build four of the five wind towers and finally the higher environmental court that dismissed the objections of the Swedish Nature Protection Association.

The history of the actual conflict can chronologically be recorded since 2006, when the formal planning procedures started until its juridical settlement after three years in 2009 (see box 7.4).

<i>Box 7.4. Chronology of the windpower conflict Kungsbacka/Dal 1:1 – formal decisions</i> (Source: Böhler et al, 2011)	
April 24, 2006:	Start-up event – consultation of municipality Kungsbacka and County Administrative Board
June 14, 2006:	Consultation with public and future neighbours to the wind power plants'
December 22, 2006:	Application for the wind power establishment handed in to County Administrative Board
June 25, 2007:	Complementary additions regarding the application requested by the County Administrative Board handed in to the board
July 13, 2007:	Application announced in the local media
August 16 and 17, 2007:	Statements from future neighbours to the actual wind power plants handed in
September 27, 2007:	A statement from the environmental and health committee of Kungsbacka municipality
December 21, 2007:	County Administration (Västra Götalands Län) dismisses applications to deny building of windpower establishments; the further procedure is from now on one at the institution of appeal, the environmental court
December 11, 2008:	Decision of the Environmental Court – Gäsevadsholms Fideikommiss AB does not receive permission to build all wind towers planned, but four of five
May 14, 2009:	The Environmental Court dismisses the application of the Swedish Association for Nature Protection

Much of the social and informal reality of the conflict does not become visible in the formal decisions that are exceptional events in the continuing, everyday existence of the conflict. However, critical events and efforts to mitigate (no mediation procedure has yet been used in the conflict) are visible in the chronology:

A decisive event in the course of the conflict is the decision by Kungsbacka municipality to change its energy policy to become a more “green coastal community”.

The conflict resolution approach chosen so far by the protagonists is rather conventional – formal decisions by public institutions (political decisions) or legal decisions by the environmental court.

All parties involved, including the environmental court, can be seen as belonging to the local and regional actors that are involved in the planning process.

The important context factors can be summarized as follows:

Socio-cultural context: The conflict has a symbolic dimension which includes aspects such as sense of place or local identity by inhabitants and cultural value components. But it is difficult to figure out coherent “worldviews” in the stakeholders positions and interests because of the historically changing interests.

Economic context: Direct economic interests (of private firms) are only to a limited degree involved (windpower is not yet big economic business at the Swedish West coast), mainly by the energy enterprise.

Political context: The remarkable feature of the political context is that the municipality of Kungsbacka, hitherto not strongly engaged in efforts to develop a “green community” as other ones at the Swedish west coast have done, has with the present municipal plan changed its goals and opts for renewable energy.

3.4.2 Parties involved in the conflict – legitimation

The following parties are according to the planning documents involved in the local windpower conflict in Kungsbacka:

- Kungsbacka municipality
- Hallands Län (regional authority: CAB)
- Swedish Association for Nature Protection (SNF)
- Enterprise (Gåsevadsholm Fideikommiss AB), connected with:
- Land owner N. (large land owner)
- Inhabitants of the area (some families and groups)
- Space observatory Onsala
- Further energy enterprises (Rabbalshede Kraft AB) interested to develop windpower in the area
- Scientific institutions that want to preserve the unique landscape

Two main stakeholders are Kungsbacka municipality and the Enterprise Gåsevadsholm Fideikommiss AB (for detailed description see Böhler *et al*, 2011).

Kungsbacka municipality has as main interests to develop the local economy and make use of the location at the coast, to contribute to local sustainable development. The municipality has

positioned clearly in the conflict with the aim to support the development of windpower, but it has to take several roles in the conflict, therefore its positioning is somewhat complicated.

Enterprise (Gåsevadsholm Fideikommiss AB) has a dominant interest to develop the company's economy by making use of the various natural resources (farming, forestry, wind harvesting) of the real estate. As an economic actor the main strategy of the enterprise appears to be to make use of national laws as much as possible to reach its goals as these laws are supportive of the establishment of windpower. The enterprise is the main advocate of large scale wind power production.

3.4.3 Typological classification of the conflict

The dominant themes or conflicting issues are that of competing interests between windpower establishment in coastal land and national interests of natural, cultural and recreational areas, furthermore interests of aviation, military interests, and interests of a space observatory dealing with radio astronomy. These conflicting issues are blended in the interests and strategies of the stakeholders.

The local core conflict is about conflicting use of land for different purposes. However the causality is more complex than that – it can be said to represent a new type of resource use conflicts influenced by the sustainability discourse and policies, in which hitherto contradicting and conflicting interests realign and separate in surprising new constellations (e.g., conservation and economic use go together against recreational and aesthetic interests in the cultural landscape). The conflict is part of a larger, multi-scale conflict of global dimensions in the transition to a new post-industrial energy regime. But the national and global – “structural” – problems are not necessarily affecting the perception of local actors and the solution of the local conflict.

According to the conflicting interests the local conflict has a NIMBY-component that has been found in many conflicts about windpower establishment and location hitherto, in Sweden and elsewhere. The important point seems, however, that this NIMBY component is downgraded with the redefinition of interests regarding windpower that happened in this conflict. In difference to former trials to establish windpower it happened now that the planning succeeded with a decision for windpower. This indicates a significant change of interests of various stakeholders. The interests of energy providers and economic firms turned towards windpower (in the broader context of crises of fossil energy resources and the sustainability discourse).

3.4.4 Current trends of the conflict

According to the mitigation of the conflict in Kungsbacka (court decisions), the conflict can be described as practically solved, but further location of windpower facilities may evoke similar conflicts. At the local level the conflict is outstanding and has even significance for the further development of windpower in the metropolitan area (e.g., in Kungälv). A further windpower conflict is developing in the entrance of Gothenburgs' harbour area where offshore windpower location is planned, but this conflict is still in an early phase.

The recent development of the conflict is an example of how the establishment of wind power plants by an economic actor, backed up by new "green" national political goals of sustainable energy production, forces the local authorities and other actors to rethink their prior strategies. Powerful private enterprises have more possibilities and influence than environmental movements to initiate significant changes towards sustainable development.

The dominant interests in the conflict (interests of sustainable resource use against a variety of other interests, including other use of the landscape, nature and species protection) are linked with a variety of values and abstract components of worldviews. But the conflict is no longer a pure value conflict: it has advanced from more vaguely defined values to more specific and clearly articulated interests of stakeholders, and at this level of interest definition it turned out to be solvable. With the transformation of the conflict to a more specific conflict of interests the conflict is no longer a chronic one and the duration of the conflict moved towards a speeding up of solution efforts and achievements. The achievement of (temporary) solutions may influence the course of further windpower conflicts in the area and elsewhere.

4. Ranking of the conflicts

The conflicts are selected from a large number of conflicts identified in the study areas according to the methodological description of work package four (Hens *et al*, 2010). This selectivity implies priorities that cannot be "objectified" by a ranking. The criteria for ranking can be used in the description and classification of the conflicts, without further aspirations (see below, Table 7.4).

Criticality of the conflicts: All four conflicts studied are relevant for the long-term development of the study areas, disregarding whether they are resolved so far. They cover important issues for natural resource use, development, productive or consumptive use, and conservation or protection. Local actors are selectively involved in the conflicts. Although only

few local residents are directly involved as in the windpower conflict, the conflicts are important for many more in terms of significance for future economic development of the area.

Urgency: None of the conflicts identified requires urgent and short term resolution. No immediate or acute risks and dangers are included, although for the action agendas and interests of various stakeholders many conflicts appear to require quick solutions (especially economic interests connected with investments). Quick solutions are rarely possible with more complex conflicts that cannot be solved through one legal or political decision or plan. The conflicts about development of nature protection in Torsviken (Gothenburg area) and Falsterbo (Malmö area), and still more the urban sprawl conflict in Malmö include several “cleavages” and many conflicting interests, need to be resolved in several steps implying partial solutions.

Duration: The duration of the conflicts is influenced by several of their properties (e.g., whether it is a dispersed, diffuse, badly articulated conflict) and through prior conflicts and solutions achieved (e.g., whether there have been determining legal or court decisions, whether there are sufficient and clear regulations, whether there is a history of successful collaboration for finding solutions). Thus, duration is influenced by external and contextual factors. Furthermore, conflicts may be long-term processes by their general nature, but shorter processes in a specific local case of such a conflict as the establishment of new energy sources like windpower. Changing energy production systems and patterns of use is a longer process of decades.

Table 7.4. *Ranking of conflicts (Sources: Böhler et al. 2011).*

	Criticality	Urgency	Duration
<i>Explanations</i>	<i>Criticality of the conflict:</i>	<i>High, moderate or partial urgency:</i>	<i>Acute or chronic in terms of duration:</i>
	<i>To which extent the conflict is critical to long-term development of the region/area? To which extent the conflict is an important event to local people?</i>	<i>To which extent the conflict needs to be resolved immediately? Is there a deadline involved?</i>	<i>Whether the conflict is a short-term (acute) or a long-term (chronic) event?</i>
Malmö region Urban sprawl	Critical for the whole region, so far important mainly for planners & managers, but with effects on local people to be expected.	Moderate overall urgency, but partially high in connection with new plans, concentration- and urban railway projects.	Chronic with acute events in relation to concrete plans and development projects.
Vellinge Falsterbo	Critical for municipality and cultural heritage and biodiversity on a national/international scale, important for all kinds of stakeholders.	Conflicts between new recreational uses and conservation interests are urgent to resolve, presently in the water resolved through nature reserves. Climate change raises unsolved aspects for the near future. Some of them need to be addressed within a few years, others within decades.	Chronic with acute events in relation to new uses/problems.

Torsviken Göteborg	Critical for Gothenburg in terms of industrial development and “green” energy production; critical case on the national/ international level due to the possible violations of the Natura-2000 directives; mainly important for the industrial and “green” NGOs stakeholders, less for local residents. The government steps in sometimes, but is not directly involved	No urgency to resolve the conflict; the deadlines are only involved as a part of the municipal planning procedure but don’t have to be followed strictly. The conflict process basically develops independently from the municipal planning time frames.	Chronic with acute events in relation to the actors’ plans and suggestions for the exploitation of the area.
Kungsbacka Windpower	Critical both with regard to long term development and with regard to local inhabitants	No urgency to resolve the conflict	Chronic; although partially solved the conflict will continue around further wind-power establishment

5. Conclusions

Comparison of the conflicts. The four conflicts include two or more of the important themes of the SECOA project (see Table 7.5).

Table 7.5. SECOA-Themes (Sources: own analysis, see also Böhler et al, 2011).

Case	Development vs. Env. protection	Preservation of nature/biodiversity	Human mobility & resources	Climate change
Malmö region Urban sprawl	X		X	
Vellinge Falsterbo	X	X	X	X
Torsviken Göteborg	X	X	Side issue, but present in the overall picture	Side issue, but present in the overall picture (wind power)
Kungsbacka Wind power	X	X		(X)

Typology of the conflicts. Using the conflict typology proposed for work package 4 the four conflicts can be classified as follows (Table 7.6).

Table 7.6. Typology of conflicts according to literature (Sources: Böhler et al, 2011).

Case	Manifestation over time	Underlying causes	Stage of development	Scale
Dimensions	Chronic Anticipated Hushed or deferred Hybrid form (Cadoret, 2009)	Access, changing resource quality / availability, authority over resource, values, information processing & availability, and legal / policy related causes (Chandrasekharan, 1996)	Conflict formation Manifestation Endurance Management Transformation. (Rupesinghe, 1995)	Intra micro-micro Inter micro-micro conflicts Micro-macro conflicts (Warner, 2000)
Malmö	Hybrid: chronic conflict,	Multiple causes. Most	Transformed conflict	All: multi level conflict over

Case	Manifestation over time	Underlying causes	Stage of development	Scale
region Urban sprawl	anticipated and managed by spatial planning (not hushed)	prominent: competition, change in resource quality & availability, value conflicts, side-effects of municipal policy	that has gone through several rounds, in formation/manifestation phase of a new round.	several administrative levels implying local conflicts as well micro-macro (triggers, side effects).
Vellinge Falsterbo	Hybrid: chronic conflict in area attractive for many, elements of anticipation and deferring (not hushed)	Multiple causes. Most prominent are: access, change in quality & availability, mutual disturbance & competition over resource, value conflicts, side-effects of differing municipal policies	Transformed conflict that has gone through several rounds. Due to climate change in formation/manifestation phase of a new round.	All: multi level conflict over several administrative levels implying local conflicts as well (triggers, side effects).
Torsviken Göteborg	Hybrid: chronic conflict in an environmentally sensitive area, not hushed, anticipated by and visible in municipal planning process	Multiple causes; most prominent are: competition, change in resource quality, disturbance, value conflicts, Natura-2000 policy	Several rounds; presently at endurance stage parallel to conflict management and conflict formation as new issues emerge	All: multi-level conflict, involves several administrative levels, national & international interests. Main arena for conflict local.
Kungs-backa Windpower	Chronic	Multiple causes. Most prominent: change in quality & amenity of landscape, mutual disturbance & competition over resource, value conflicts	Conflict transformation	All: multi-level conflict, involves several admin. levels, national and international interests. Main arena for conflict local

Conclusions – development of a comparative conflict analysis framework. An inclusive comparative framework for environmental conflict analysis cannot be developed from the conflict examples, but needs to be structured in broader frameworks for purposes of in-depth analysis and comparison: frameworks of the kind of conflict typologies and conceptual models for conflict analysis that help to synthesize earlier environmental conflict research and the new research done in SECOA. The four conflicts analysed in the metropolitan areas of Malmö and Gothenburg give some hints of how to develop such an inclusive framework for the analysis of environmental and coastal conflicts. It needs to take up the perspectives of climate change adaptation and sustainable development and resource management; it needs to be a multi-scale framework; it needs to be a framework that directs analytical interests to the interaction of urban and rural development problems and processes; it needs to be matched with newly emerging resource management strategies as adaptive management and adaptive governance.

The four environmental conflicts analysed show in exemplary ways the difficulties of developing an integrated framework that includes conflict mitigation, adaptation to climate change and strategies for sustainable resource management. The complexity of the conflicts

with the many issues and stakeholders involved is connected with manifold and changing interests in coastal development connected to settlement, recreation, and in urban areas also industrial and economic development. National level priorities exercise pressure to keep the coast clear or limit certain forms of resource use to allow access to beaches for everyone. Alternative forms of land use (as in the development/conservation conflicts in Torsviken or Falsterbo) may be directed towards other land and when extreme weather situations happen more often along the coast, and the scenic quality of coastal landscapes may be revalued in terms of residential decisions.

So far the management and mitigation of the four conflicts happened mainly in various types of planning at municipal, regional and national levels. In these planning contexts some successes of directly or indirectly, partially or temporarily resolving the conflicts have been achieved. But, according to Birkmann et al (2010, mentioned in the introduction), such planning is not sufficient for second generation of strategies required for urban climate change adaptation – it is not sufficient for strategies of sustainable development either as is indicated in the present debates about adaptive management and adaptive governance.

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ABSTRACT: Four conflicts of resource use have been analysed in the Swedish study areas of the SECOA-project. In the Malmö area we studied (1) a conflict about urban sprawl and settlement and (2) one about land use for nature protection, agricultural production or settlement in the surrounding of the city (Falsterbo peninsula). In the Gothenburg area we studied (3) a conflict about nature protection and economic development in the outer parts of the city (Torsviken, with similarities to the Falsterbo conflict in the Malmö area) and (4) a conflict about windpower location in the outer ring community of Kungsbacka. All four conflicts are relevant for the long-term development of the study areas, independent of solutions achieved so far. They cover important issues for natural resource management, for development, productive or consumptive resource use, conservation or protection. Dilemmas of sustainable development and climate change adaptation become visible: the environmental conflicts need to be solved on the way towards coastal and urban sustainable development. But the resolution of the conflicts is – except to some degree for the Falsterbo conflict – not yet integrated with strategies for climate adaptation and transition management for sustainability.

KEYWORDS: global changes, coastal areas, environmental conflicts, Malmö, Falsterbo-Peninsula, Gothenburg

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CHAPTER 8.

**Environmental Conflicts in Coastal Metropolitan
Cities in India: Case Studies of Mumbai and
Chennai Metropolitan Regions**

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1. Introduction

In a country like India where there is a misappropriation between available land resources and ever-growing population, overexploitation and the misuse of the resources of every kind is happening at an alarming rate. Due to the heavy population pressure there is always demand for land and the issue arises due to people's failure to recognize and accept several ecologically sensitive environments as resources. In general, last few decades have witnessed shrinking of the wetlands, reclamation of ravines, destruction of forests and mangroves wherever they are present. Especially in the urban cities there has been rapid economic development in the past few decades, leading to dramatic changes in the land use and occupational patterns all over the country. An example can be cited from Mumbai Metropolitan Region (MMR) which has an area of 4,355 km² with population figure of 20 million; it is the most densely populated metro city in the country. In a situation like this, a tussle between the nature and human interest is unavoidable.

The main objective of this chapter is to highlight and analyze the nature of the conflicts through the investigation of three case studies which represent unique cases of struggle of survival of some ecologically sensitive areas against the human pressure, which is a very common scenario in the country.

The first case study involves heavy encroachment in a National Park called the Sanjay Gandhi National Park (SGNP), which is a miraculously preserved green oasis right in the centre of Mumbai megacity. In the last few decades there has been massive loss of area of this Park to the illegal constructions and slums. The second case study involves a conflict between local residents vs. government/forest department concerning the shrinkage of a small natural wetland called Pallikaranai Marshland (PML) in the Chennai Metropolitan Region. PML has lost 90% of its area just within the time span of 2-3 decades through garbage dumping and illegal constructions. The third case study deals with massive destruction of mangrove forests in Mumbai largely because of reclamation for housing, slums, sewage treatment and garbage dumps. In all the three cases, the legal measures have not been able to bring about a complete halt to these destructive activities and conflict is continuing.

2. Methodology

The study is based on the collection and analysis of available material that includes the media reports and research articles as well as writ petitions and the final High Court judgment reports for all the three case studies. In addition, investigations were also carried out in the field. Interview of the stakeholders such as the local tribes who are residing within the SGNP and the officers who are in charge of the Park administration have also been incorporated in the study. Dr. Sharad Chaphekar, Hon Director, Environmental Conservation, Indian Institute of Environmental Medicine, Mumbai and Dr. Shanhar Katoley, former Adviser to Maharashtra Pollution Control Board, Mumbai provided the first hand accounts of the various legal steps that had been taken to protect the Park and mangrove forests. For PML, formation was obtained from reports prepared by and NGO.

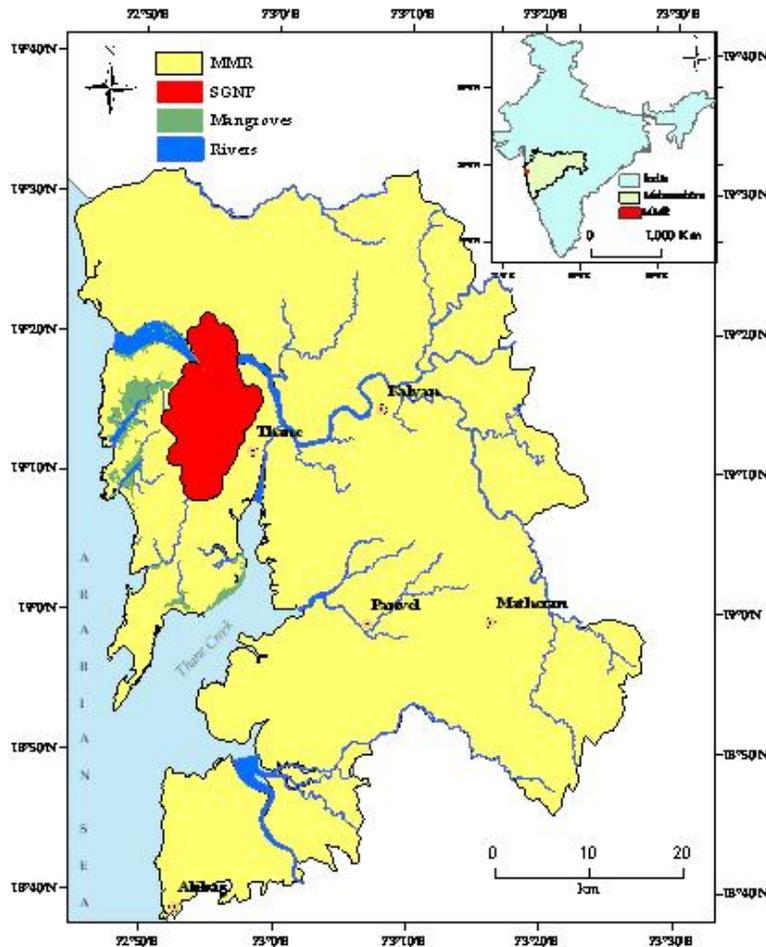
The maps of SGNP, PML and mangroves were obtained for different sources. These included topographical maps, satellite images and various articles and reports. For the AHP ranking the boundary maps were digitized and layers were created for each parameter scores. GPS points taken at different spots and the GoogleEarth Image were taken as reference points.

3. Analysis of the conflict cases

3.1 Case Study I -Heavy encroachment in the Sanjay Gandhi National Park - Mumbai

Mumbai is **the** largest city in India and nearly half of the population lives in slums and occupies only 8% of the land (UNCHS, 2001). Mumbai has a very low ratio of green spaces per inhabitant and the Sanjay Gandhi National Park (SNGP) is the only exception. It is a miraculously preserved green oasis in the centre of Mumbai Megacity (Figure 8.1). The SNGP enjoys a unique status of the only Park within a metropolitan area perhaps in the whole world. It is one of the most visited Parks in the world, with 2 million visitors annually. The Park terrain is undulating with great panoramic views of hills, valleys, lakes and open patches.

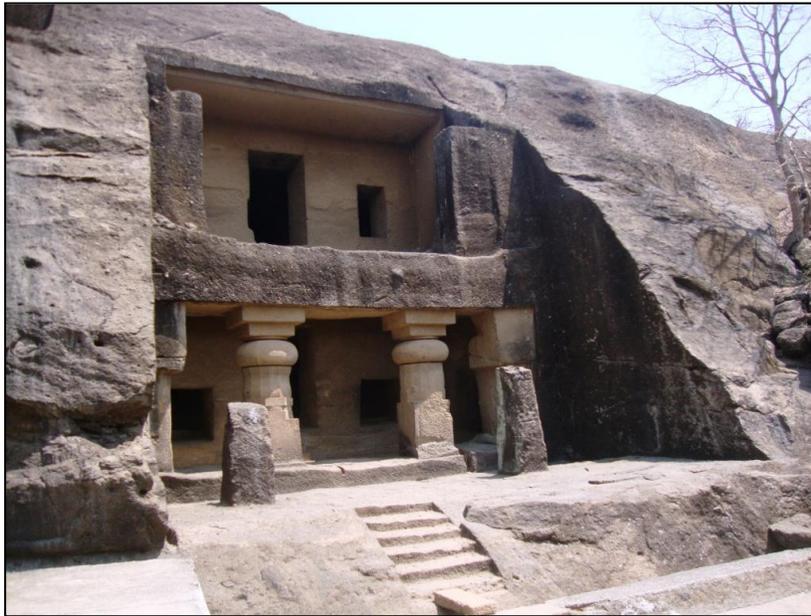
Figure 8.1. Location of Sanjay Gandhi National Park (SGNP) in the Mumbai Metropolitan Region.



The relief ranges between ~ 30 to ~ 470 m above mean sea level. Bordered by eastern and western suburbs of Mumbai, the SGNP is Mumbai's lung, as it were soaking in the plumes that its 0.3 million vehicles emit every day. The total area of this Park is 104 km²; out of which only a small portion is open to public. The remaining area is a protected forest. Under this vast green cover, nearly 1000 species of flowering plants, 36 species of reptiles and 36 species of mammals, 9 species of amphibians 150 species of butterflies, 269 species of birds, besides a large variety of fishes, insects and other life forms survive in harmony. The Park has also many endangered species of plants and animals. This Park sustains a sizable population of big cats like panthers and leopards. It can also boast of a small population of one of the rarest cats (the rusty-spotted cat) found in India. Tigers were once resident here but the last one was shot in the late 1920s. A diversity of flora, ranging from deciduous trees to dense mangroves, proves the area's

capability to support a rich ecological diversity. The Park also contains the 2,000-year-old Kanheri Caves, a complex of 104 Buddhist caves carved out of a hillside (Figure 8.2). Apart from its aesthetic and environmental value, the Park provides drinking water to the city. Nearly 10% of the water supply is provided by two freshwater lakes situated inside the Park, namely Tulsi and Vihar. The forests surrounding these lakes acts as a sponge that harnesses the rainwater and keep the lakes filled with water round the year.

Figure 8.2. The ca 2000 year old Kanheri Caves located within the Sanjay Gandhi National Park.



3.1.1 History of the Park

This forest has a history dating back to the 4th century BCE. The seaports at Sopara (Nalasopara) and Kalyan near Mumbai were used to trade with Greece and the Middle East. The trade route connecting the trade centers and these seaports passed through this forest. The rock-cut caves of Kanheri are ancient Buddhist settlements dating back to the 1st century and they are on this route and also served as rest houses for travellers.

The word Kanheri is originated from Sanskrit word "*Krishnagiri*" means, "*Black Mountain*". The forest constituted the state property under the Maratha Empire in the 18th century. After the Forest Department came into existence in 1945, the Park known as "*Krishnagiri National Park*" was surveyed and brought under proper management. The Park area was just 20 km². By 1975 additional area was transferred to the Forest Department and the

Park of present size materialized. An independent unit of Forest Department called "Borivali National Park Sub-division" was created and "*Krishnagiri National Park*" was renamed as "*Borivali National Park*". The Park was given the status of "National Park" in 1982 and renamed as "*Sanjay Gandhi National Park*". The final notification as a nature Park and forest reserve came into effect in January 1996. The wild animals and their habitat within the Parkland are protected under the Indian Forest Act (1927) and the Wildlife Protection Act (1972) revised in 1991.

3.1.2 Tourism

The SGNP is one of the most visited national Parks in Asia. Around 2 million visitors visit this Park annually. Collection at the gates in November 2004 touched INR 10 million (~ USD 0.2 million).

The *Krishnagiri Upavan* (KU) is an area of ~ 5.5 km² reserved as an easily accessible public recreation zone inside the Park. The remaining core area has restricted access. KU consists of a mini-zoo, a crocodile park and a lion-and-tiger safari. A narrow gauge train travels around the tourist zone showcasing parts of the rich biodiversity. There are boating facilities and two watchtowers are available for panoramic views of the Park. Many visitors also travel to the Kanheri Caves (Figure 8.2), especially on an auspicious day in August. Nature trails and treks are also popular. Rock climbing enthusiasts often come to the Park.

Many rock faces around the SGNP and the Kanheri Caves offer a great opportunity for rock climbers. There are just a handful of national parks within city limits in the world. The city's two main sources of drinking water - the Vihar and Tulsi lakes - are within the Park. Nowhere else in the urban sprawl is the tenuous link between nature and man so crucially demonstrated as in the dependence of Mumbai's 12 million people on water from these lakes.

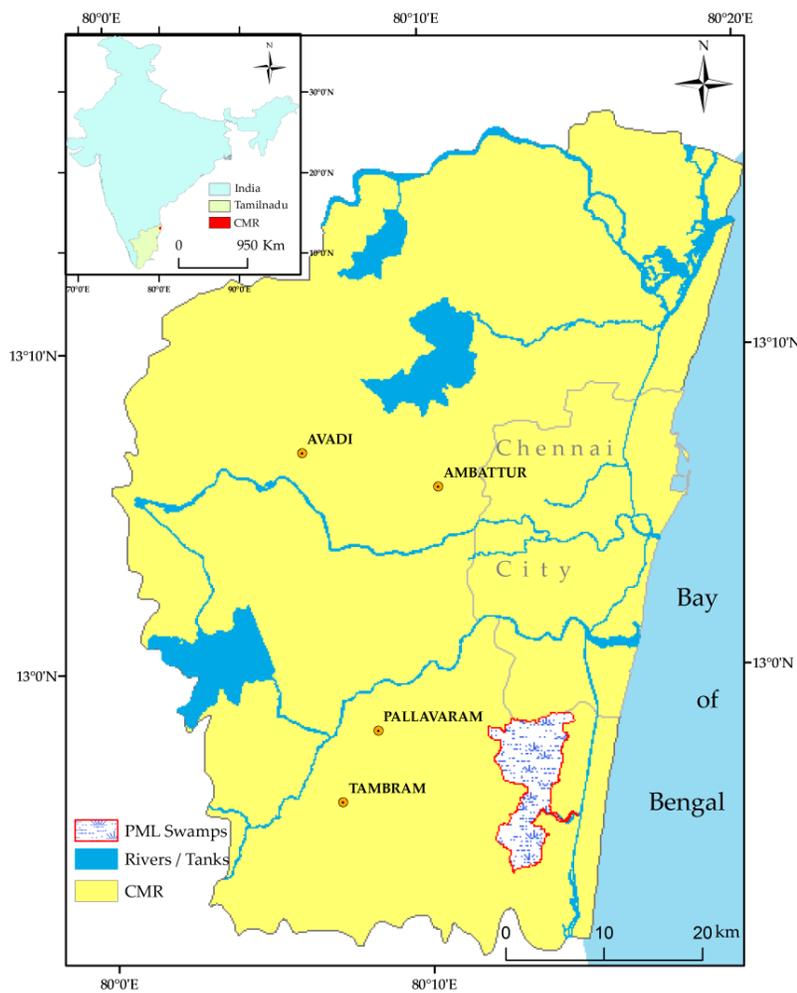
3.2 Case Study II - "Pallikaranai Marshland at the brink of collapse"

It represents another case of conflict between local residents vs. government/forest department. Pallikaranai Marshland (PML) is one of the few major ecological hotspots in the Chennai Metropolitan Region (Figure 8.3). Wetlands are a critical element of national and global ecosystems and economies and are important for their biodiversity and conservation. Despite a growing understanding of their many values and functions, urban wetlands remain one of the

most threatened resources in India. They continue to be regarded as wastelands even now and therefore their destruction continues without much concern. The state of Tamil Nadu has three major wetland areas — Point Calimere; Kaliveli and Pallikaranai Marsh and the above mentioned Pallikaranai Marshland (PML). PML is the largest natural rain water harvesting system in the CMR. Pallikaranai used to store large quantities of storm water, even while allowing excesses water to flow into the sea.

It came into existence as a salt marsh created by the backwaters of Bay of Bengal. With the construction of Buckingham canal in 1876, the inflow of sea water was virtually stopped, thereafter the copious inflow of rain water turned the swamp into a freshwater body. PML is a few meters above the sea level and consists of black mud in which many water plants grow.

Figure 8.3. Location of Pallikaranai Marshland in Chennai Metropolitan Region.



The marshland served two important functions – flood control in the hinterland areas, and groundwater recharge. The inflow of storm water during the northeast monsoon over hundreds of years has made the marsh a unique mix of freshwater (in the north) and brackish-estuarine water in the south. The partly saline and largely freshwater marshland is characterized by a variety of aquatic grass species and waterlogged areas (Figure 8.4). The marsh is home to many species of fish, frog, reptiles (including the rare skink *Lygsoma albopunctata* a recent addition to Tamil Nadu's reptilian fauna), birds and mammals (Table 8.1). The most common species include Little Grebe (~700) and Black-winged Stilt (~150). According to Raj et al. (2010), the PML is also home to nearly threatened bird species such as Spot-billed Pelican *Pelecanus philippensis* and Black-headed Ibis *Threskiornis melanocephalus*.

Figure 8.4. Rich biodiversity of Pallikaranai Marshland.



Table 8.1. Species distribution of flora and fauna in Pallikaranai Marsh. Source: Shaktivel et al. (2010).

Sr. No	Plant/Animal group	Number of species
1	Plants	114
2	Butterflies	7
3	Crustaceans (crabs and prawns)	5
4	Molluscs (snails and clams)	9
5	Fishes	46
6	Amphibians (Frogs and toads)	10
7	Reptiles	21
8	Birds	115
9	Mammals	10
Total		337

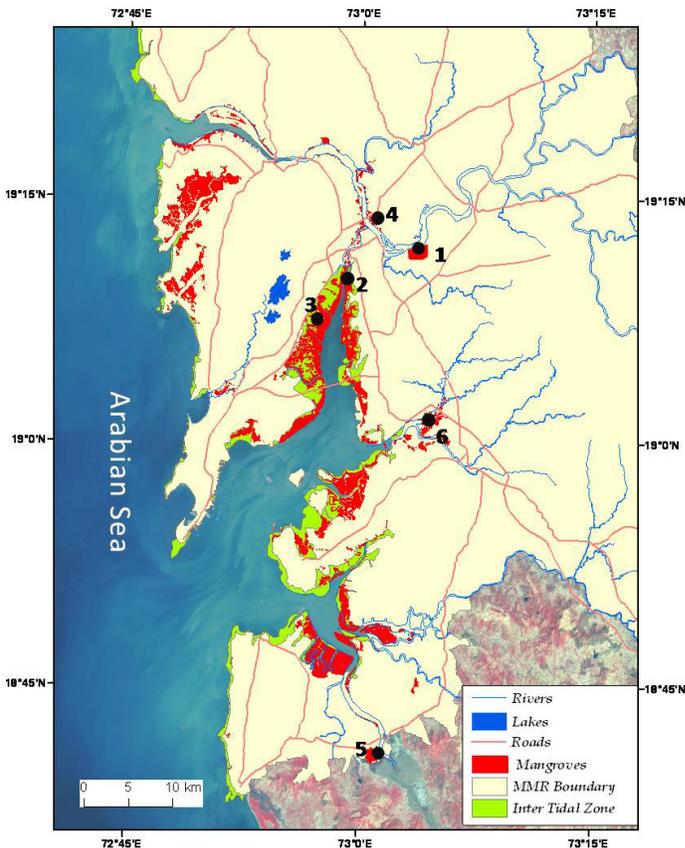
Though the PML has no legal protective status, it is considered biologically significant by the Tamil Nadu scientific community and it is included in the All India Bird Survey, as a water fowls habitat, home to a variety of birds, reptiles and amphibians. Besides the biodiversity richness (Figure 8.4), the PML has immense ecosystem service value. It is the main outlet of the storm water that drains Madipakkam, Velachery, Taramani and the neighbouring suburbs. It has been a source of drinking water to people in the immediate neighborhood, and has sustained agriculture for many centuries before degradation sets in with Chennai's increasing profile as a metropolis.

3.3 Case Study III - Massive destruction of mangrove forests in Mumbai

Mumbai's historical records indicate that there were several islands around Mumbai in the late 17th century. However, the Britishers, who were controlling the area at that time, recognized the importance of these islands for commercial purpose. They deforested the fringing mangroves and reclaimed these islands into one continuous landmass, which later came to be known as "Greater Bombay" (now Greater Mumbai). The term "mangrove" usually refers to a tidally influenced wetland complex, consisting of mangrove forests, tidal flats, salt flats and other associated habitats within the intertidal zone of tropical and subtropical latitudes. The intertidal wetland is composed of a mosaic of interacting components linked by flows of water, sediments, nutrients, organic matter and animal populations that move among its component elements. Traditionally, local communities in mangrove ecosystems collected

fuel wood, harvested fish and other natural resources. For much of history many people have regarded mangroves as wastelands, but the scale of human impact on mangroves has increased dramatically in recent years.

Figure 8.5. Map showing the distribution of mangroves in Mumbai Metropolitan Region. Numbers 1 to 6 indicate the sectors depicted in Figure 8.13 (1-6).



Many coastal areas have come under intense pressure from rapid urban and industrial development, compounded by a lack of governance or power among environmental institutions. Mangroves have been overexploited or converted to various other forms of land use, including agriculture, aquaculture, salt ponds, terrestrial forestry, urban and industrial development and for the construction of roads and embankments. Mumbai is one of the best examples for the mangrove destruction due to urbanization. All the seven islands of Mumbai were reclaimed and linked to a continuous land mass after destroying mostly mangrove forests.

Since then the development and subsequently population pressure rapidly increased and being the coastal area, it took the toll of mangrove land. During the process of deforestation

and reclamation, a few mangrove patches are still left in the heart of the city, which proves that today's megacity had a luxuriant past of mangrove forests (Fig 5). Mumbai has gone through many cycles of mangrove deforestation and land reclamation and during this time the mangrove cover of Mumbai has been brought to less than one third of its original amount. However, large continuous areas of mangrove cover are still seen today in parts of Mumbai, especially along Thane Creek.

By trapping silt, mangroves maintain the integrity of Mumbai's shoreline. This is a vital service to the city of Mumbai as it is very prone to erosion, having been built on reclaimed land that is surrounded by the sea on all three sides. The *Koli* fishermen community in Mumbai worships mangroves because they know that these are breeding and nursery grounds for the marine organisms on which their nourishment and economic wellbeing depends. Around 20 out of the 35 species of true mangroves found in India have been identified along the Maharashtra coast and 15 species of these are found in Mumbai. Because of the high salinity of the soil, something like 60 per cent of Mumbai mangroves comprise of *Avicennia marina*. This specie also tolerates pollution including heavy metals such as lead, mercury and chromium, all found in significant concentrations in the Mithi River, in Greater Mumbai and elsewhere.

4. Overview of users in the case studies

4.1 Case I - Sanjay Gandhi National Park

Over the period of years, there has been encroachment on this lifeline from various quarters, such as slum shanties, stone quarries, housing colonies and a flourishing timber mafia etc. Several factors were at play to initiate and accelerate the pressure placed on the Park, the most prominent being its location between two of the fastest growing cities in the country, namely, Greater Mumbai and Thane (Figure 8.1). Whereas the population of Greater Mumbai increased from 5.9 to 11.9 million between 1971 and 2001, the population of Thane increased from 0.2 to 1.2 million between the same periods. Thane remains one of the fastest growing neighborhoods, reflecting the mounting importance of the suburbs, which house more than 40% of the Mumbai population in 2001 (Zerah, 2007). With the ongoing changing pattern of population location, the Park has now become embedded in the middle of dense populated urban settlements. This has become the prime factor behind the encroachment within the peripheries of the Park (Figure 8.6).

Table 8.2. Encroachment status in SGNP in January 1995. Source: Jadhav (1995).

Land use/cover category	Area in ha	% area
Agriculture	35.13	4.68
Settlements and Huts	511.65	68.09
Quarrying	111.49	14.84
Agriculture + Settlement	98.17	13.06
Total area of encroachment	751.44	100.00

Encroachment came from both migrating as well as a residing population that engaged in environmentally destructive activities such as tree felling. The encroachment initially began in 1970s and by the mid-1980s the growth became rapid. After 1990 there was steep rise in the number of hutments and land encroachment had already taken place, mainly by the hutments (Table 8.2).

Figure 8.6a. Nagars/padas encroaching SGNP (Source: http://www.mumbaikarsforsgnp.com/docs/preliminary_study_on_the_diet_composition_of_the_leopard.pdf).



Figure 8.6b. High-rise buildings, another form of illegal dwelling on the margins of the SGNP.



The problem was neglected for many years and politicians and slum lords did not lose this opportunity to grab the situation for their benefits. Slum lords tied with local politicians and got hold of poor migrants and “sold” patches of land to them with assurances of permanency. These politicians saw a huge opportunity for a vote bank for the State election in November 1994 from these people and hence protected and even created new illegal settlements in the Park. This undoubtedly resulted in massive deforestation, wildlife loss and the degradation of the quality of the lakes. Commercial enterprises, including equally commercial ‘shrines’ mushroomed; khair treewood was illegally felled to feed the Gutka (a tobacco product) Industry. By 1995, there were 0.4 million illegal squatters within SGNP. The encroachments, including quarries, covered an area of over 700 ha. By mid-1995, 27 ha of forest were lost to 800,000 new settlers.

The situation became seriously threatening as the time passed and NGOs concerned with the environmental dimension of sustainability such as the Bombay Natural History Society and the Bombay Environmental Action Group (BEAG) came forward and filed a Public Interest Litigation (PIL) in 1995 against the Government of Maharashtra and others in order to protect the Park. To pinpoint the exact number of encroachments, the SGNP authorities had taken the help of Space Application Centre (SAC) which has mapped forest encroachments through remote sensing images of the whole national Park (Jadhav, 1995). This map was used as evidence in the High court. Figure 8.6a and b provide glimpses of encroachment in the Park.

The first High Court order came on 15th January 1997 with the verdict for the State Government to stop further encroachment on the Park. Following that Court gave various interim orders with the specific orders of activities that need to be banned in the Park. The interim order of 17th July 1999 mentioned the removal of the illegal structures and relocation of the inhabitants with certain compensation amounts. Tribal members claiming to have been living in the park for generations contested the court orders. Tribals and adivasis cannot be equated with slum-dwellers, unauthorized occupants and trespassers. The final judgment was given on 15th September 2003 with the Tribal Petition Order that cases could be reconsidered if the government classified some of the families as tribal members.

Mumbai High Court (MHC) defined those who came after 1995 as illegal occupants and there was order of immediate demolition of their houses. There was strong resistance from the residents and they challenged various court orders on the basis of right to stay and by presenting property titles. The following months saw large numbers of petition being filed against the court orders. The Court dismissed all the claims stating that a fair deal was made for resettling the inhabitants. The protest came from 2500 tribes as well who had been living here for generations. The Econet (an NGO) report acknowledges the presence of these tribes but the Deputy Conservator of the Forest denied their presence. Hence, on this strength court dismissed their case. So, only 30% of the occupants have been relocated till date. The Park is still facing problems of encroachment despite the MHC asking authorities to clear the Park of all inhabitants more than a decade ago. The biggest problem in removing the encroachment is the patronage they receive from local politicians. An exclusive study of SGNP was conducted by Vaquier (2010) and he opined that when evictions are deemed necessary, the proposed options should not only provide ownership and basic services but also immediately provide social infrastructure (a gap in education or healthcare could potentially have permanent implications on poverty) as well as commercial tenements. The Forest Department and non-governmental organizations (NGOs) that work for wildlife protection set about implementing the court ruling. However, their attempts at evicting the encroachers met with resistance from human rights activists.

4.1.1 Man-Animal Conflict

In 2005 with extensive media coverage the Park once again revived the interest of public with the outbreaks of numerous leopard/panther attacks that took place in the summer of 2004 and the beginning of 2005. Shrinking habitat has forced these cats to stray from the Park and enter nearby neighborhoods. From 1998 to 2005, the total number of people injured by leopard

was 42 and over 100 people were killed during this period. The state administration announced steps to tackle the leopard/panther problem, first by installing micro-chips and solar fencing to stop the wild cats from encroaching the city limits. However, as the city's boundaries crept further in, the leopard's habitat shrank and prey dwindled. At least 37 straying leopards were caught in 2004. Plans are afoot to release them in the wild with electromagnetic chips so that they could be tracked and permanently locked up if they attacked people again. Until the Park is fenced and the adivasis are properly resettled, the fear of more such attacks linger.

4.2 Case II - Pallikaranai Marshland

The PML extended over 5500 ha about 30 years back. A portion of it has been classified as wasteland since 1970. According to a study by Tamil Nadu Pollution Control Board (TNPCB) as well as a committee constituted by the Madras High Court, what is left now of this marshland is a pathetic 10% of the original extent. It is partly because of the administrative fragmentation of the marsh area into multiple Panchayats and partly because the area was torn up by urban residential, transport and commercial development. Roads, construction of Mass Rapid Transit System (MRTS), mushrooming IT industry, dump sites of both Chennai and Alandur Municipal Corporations have been responsible for reducing the size of the marshland.

Table 8.3. Analysis of change in the area and perimeter of the Pallikaranai Marsh since 2003. Source: (Chandramohan and Bharati, 2009).

Segment of marsh	Year	Area (ha)	Perimeter	Edge Development
Garbage dump	2003	50.25	5.785	2.30
	2005	57.54	6.046	2.24
Area impacted by garbage/sewage	2003	58.75	-	-
	2005	132.25	-	-
Northern Segment	2003	227.0	12.11	2.26
	2005	150.0	7.6	1.74
Southern Segment	2003	284.0	9.32	1.56
	2005	279.0	11.8	1.99
Total	2003	620.0	c.13.0	-
	2005	620.0	c.13.0	-

Chennai City generates about 3500 tons of garbage/day. This “municipal solid waste or MSW” comprises of the organic waste, plastic, packaging waste, paper, metal, glass, construction debris and other components like ash, sand and grit. On the Eastern side of the Tambaram-Velachery Road there is a dumping yard exclusively for Alandur Municipal Corporation. On the Northern side of the Pallavaram Road there is another dumping yard for Chennai Municipal Corporation (CMC). Though the CMC is responsible for garbage collection and disposal (Figure 8.7); in March 2000, the Corporation privatized garbage collection in certain parts of the city. It signed a 7-year contract with Chennai Environment Sciences Onyx (CES-Onyx) to collect MSW from three of Chennai’s 10 zones. CES-Onyx is a subsidiary of the French Multinational Vivendi – a global giant in municipal and industrial waste management. Change in the area and perimeter of the Pallikaranai Marsh since 2003 is demonstrated in Table 8.3.

Figure 8.7. (a) Garbage dumping ground on the northern side of PML. (b) Multistoried structures on the area of PML.



Everyday the CMC and CES- Onyx dump the garbage collected from around the city and the metro water dumps raw sewage in Perungudi, in the ecologically sensitive PML. Groundwater in several pockets around the marshlands is now contaminated. The rich organic content of the MSW degrades over time to release highly acid and toxic leachate. Dark pools of foul smelling streams are common in the area around the garbage dump. Mass kills of frogs, fish and sometimes water birds has also been reported. Garbage dumping and burning is causing air pollution and is a serious health threat to local residents.

4.2.1 Beginning of the conflict

Around the mid-1990s, the Tambaram-Velachery Highway was re-laid and the area has been blessed with "enviable development". However, in proportion to this "development", the marsh is losing its value as a well-balanced ecosystem. Constructions, sanctioned and otherwise, have stripped the swamp of a large extent of land and squeezed the fauna and flora into 743 ha. Out of this, 213 ha are with the Chennai Corporation. Legally it is allowed to use 30 ha to dump garbage. Instead, it is using 180 ha to throw 3500 tons of garbage everyday. The Municipality has appropriated 180 ha of the marsh for dumping and incinerating garbage. If garbage is not bad enough, nearly 40 MLD of domestic sewerage is being drained into the wetlands everyday. Perungudi Sewerage Treatment Plant (STP) is located in the northeast.

Various central government buildings are constructed in the PML after landfilling. The construction of Mass Rapid Transit System (MRTS) has taken up a marshland area of ~93 ha. The National Institute of Ocean Technology (NIOT) and the Central Wind Energy Technology (C-Wet) is also located in the PML (Table 8.4). The boom of IT industry captured the margins of the wetland. All these construction activities depleted the total area of PML. Apart from this, illegal structures are eating into the wetland. Landfill is another upstream source of contamination. Ideally a landfill should not be located up gradient of any drinking water source. But PML was once water supplying source that have been destroyed by landfilling. The slum households for MRTS project were allotted resettlement areas by land filling. This new settlement known as "*Mylai Balaji Nagar*" occupies ~ 4 ha. A private hospital has been constructed over a large area. Almost all houses, commercial establishments in between radial road and Madipakkam Road are constructed mainly by landfilling.

Table 8.4. *The encroachments in the Pallikaranai Marshland Source: Shaktivel et al. (2010).*

Sr. No	Land Allotment	Area in ha
1	Metropolitan Rapid Transport System (MRTS)	92.4
2	Film Employees Federation of South India	34.4
3	Ashram Latha Rajanikanth Trust	5.0
4	Tamil Nadu Agricultural Marketing Board	12.1
5	Dr. Ambedkar Law University	8.1
6	Judicial Academy	6.0
7	MMRD Road 200' width	13.6
8	IIT, Chennai	17.8
9	National Institute of Ocean Technology (NIOT)	20.3
10	Government Free Pattas	2.0
11	Land Allotted for Ex-Servicemen	61.7
	Total	273.6

The wetland was once a habitat of numerous birdwatchers. Over the years, many of them have turned their back on the deteriorating marsh. Poachers (*narikoravas*) and local weekend hunters (*shikaris*) seem to be working overtime to denude the wetland of its bird life. The tiny stints and sandpipers are also targeted. These poachers set up clandestine roadside markets for the day.

Garbage burnt is another serious environmental issue in Pallikaranai Marshland area. At the Keelkattalai junction of Medavakkam Main Road and Pallavaram Thoraipakkam Radial Road, garbage is dumped on a water channel below a bridge and burnt throughout the day. Thick layers of black, obnoxious and toxic fumes continue to envelop the residential areas located around the dumping yards. As early as September, 2005, air sample from a burning garbage heap was taken as a part of Community Environmental Monitoring and analysed in Columbia Analytical Services in Simi Valley. A total of 27 chemicals were found in the sample. Out of these, 15 chemicals exceed the health-based standards set by UEPAs, 3 chemicals (Butadiene, Benzene, Chloromethane) are known to cause cancer. Butadiene, Benzene and Chloromethane were 10^2 to 10^3 times higher than the safe levels. Most of the chemicals target the central nervous system and the respiratory system. This is significant, given the large residential population in the area.

Conversion of marshland for various developmental activities has drastically reduced its storage capacity. Recent floods in South Chennai are caused by this. The old storm water

canal to the sea was blocked by encroachments and the fencing of the area adjacent to the dump yard. With the fast expansion of the city towards South some of the sensitive stretches like IT corridor face untold misery during floods. Residents complaint water logging was a problem earlier also, but the retention time had increased alarmingly now during monsoon.

4.2.2 Efforts to save the wetland

In recent times, local residents, NGOs and naturalists are taking concerted efforts to save the Pallikaranai Marshland. Their demands are (a) Withdraw the remaining area from the Corporation's control, (b) Declare the entire remaining area a sanctuary for wetland birds, (c) Reclaim alienated areas and carry out afforestation (d) Shift garbage dump to some other location (e) Include the PML in the National Wetlands Conservation Program and (f) Construct a sewage treatment plant at Velachery. As a response to a Public Interest Litigation (PIL) by bodies, legal measures have been taken and the 317 hectares land in Pallikaranai was declared reserved land in 2007 and the process is now on to declare it as a reserved forest area. The project also aims at providing alternate employment opportunities to poor people who live near the marshy land and those who had been affected by the tsunami in 2004. The High Court in April 2008 directed the Chennai Corporation to establish an integrated waste management facility, remove all encroachments from the marshland and stop the four municipalities – Pallavaram, Madipakkam, Kottivakkam and Valasaravakkam – from dumping garbage in the marshland area. However, in spite of the public protests and court order, the Chennai Corporation continues to dump garbage daily, and burn it.

4.3 Case III - Mangrove destruction in Mumbai

In the early 1990s, a vast stretch of mangroves existed in Mumbai, largely in the Thane Creek, Mahim, Versova, Gorai and Ghodbunder, with sporadic patches in places such as Bandra, Malabar Hill and Colaba. Mumbai has probably lost 40% of all its mangroves in the past decade or so, largely because of reclamation for housing, slums, sewage treatment and garbage dumps. Rapid developments like housing, industrialization, pollution and increasing population of Mumbai has resulted into degradation of mangroves. Between 1997 and 1998 about 3,400 m² of mangrove in Malad, a north Mumbai suburb, was reduced to 1,400 m². Gigantic malls came up on the 2,000 m² that had been filled in rapidly by dumping debris. During the earlier years of development, there was no law of a substantive nature, which would serve as a deterrent to the destruction of mangroves.

Table 8.5. The changes in the area under mangroves in Greater Mumbai. Source: Vijay et al (2005).

Year	Mangroves Classes		Total Area (km ²)
	Sparse Mangroves (km ²)	Dense Mangroves (km ²)	
1990	75.08 (80.78 %)	17.86 (19.22 %)	92.94 (100%)
1996	43.44 (64.92 %)	23.47 (35.08 %)	66.91 (100%)
2001	30.80 (54.61 %)	25.60 (45.39 %)	56.40 (100%)

In recent decades, multi-storey buildings and thousands of unauthorized slums have sprung up, which blatantly violate coastal regulations. The biggest culprits are the government agencies such as the Mumbai Metropolitan and Regional Development Authority (MMRDA), Maharashtra Housing and Area Development Authority (MHADA) and City Industrial Development Corporation (CIDCO), which have been reclaiming mangroves for their various projects. Slum dwellers living near mangrove swamps depend mainly on mangrove firewood which is free and good. At a number of places, like Versova, Bandra-Kurla Complex, Millat Nagar, Mumbra, Andheri and Charkop, there have been blatant violations of the Coastal Regulation Zone (CRZ). Table 8.5 depicts the changes in the area under mangroves in Greater Mumbai.

4.3.1 Moves from the NGOs

The first campaign to save mangroves was initiated by Debi Goenka at the Rewas Jetty in the Raigad district in 1983. A large tract of mangroves (about 100 hectares) was then being destroyed for industrialisation by reclaiming this “wasteland”. ‘Save Mangroves’ campaign was then taken up by the Bombay Environmental Action Group (BEAG), which filed various petitions in the Bombay High Court and the Supreme Court of India to protect this important and vulnerable ecosystem in our country. The Conservation Action Trust (CAT) takes this legacy ahead and spearheads the mangrove conservation programme in Mumbai and the State of Maharashtra.

4.3.2 Legal Steps

All mangroves are protected under Coastal Regulation Zone (CRZ) 1. They are protected legally under the following Acts in Mumbai:

- Maharashtra Tree Act of 1975
- Forest Conservation Act 1980
- Environment Protection Act 1986
- Coastal Regulatory Zone Notification of 1991 and 2011.

Further, in the year 1991 the Coastal Regulation Zone (CRZ) Notification was set in place under the stringent provisions contained in the Environment Protection Act 1986. Under provisions of this CRZ Notification, the areas, which were occupied by mangroves, were classified as being in CRZ-I. This classification made the place very restrictive. In such areas, only those activities, which were related to ports and harbours and those allied with them, were permitted to be constructed. All other activities were banned. Any violation of these would not only lead to the undoing of the construction but also that could lead to penal consequences for imprisonment of up to 5 years, as provided for under section 15 of the Environment Protection Act, 1986.

In 2005, Bombay High court banned and froze destruction of Mangroves in Maharashtra and construction within 50 m of CRZ area. Mangroves Society of India (MSI) and Conservation Action Trust (CAT) are two major organizations who strongly protest against destruction of mangroves in Mumbai city. The court has also directed to notify mangrove areas as protected forests. The Bombay High Court issued an important ruling which restricts no-forest activities in mangrove areas along the state's coast. A division bench ruled that its directive would hold irrespective of whether the government had notified a mangrove plot as "protected forests" or not. However, blatant disregard of the law and destruction of mangroves are happening all around Mumbai.

4.3.3 Mangrove Conservation Centers

The Soonabai Pirojsha Godrej Marine Ecology Centre (SPG) has taken several measures to protect these mangroves as a part of environmental and social responsibility. One of the major objectives of the centre is conservation of the marine diversity (mangrove ecosystem)

through research, education/awareness building and regular monitoring. Simultaneously, centre is engaged in the propagation of various species of Mangroves, developing theme parks on medicinal plants and rare endemic plant species, palms amongst others.

The Western bank of the Thane Creek is the single largest mangrove belt in Mumbai. A substantial tract of mangrove land is adjoining the Godrej & Boyce Township, Pirojshanagar, in Vikhroli a suburb of Mumbai. The mangrove flora of Pirojshanagar is well diversified. There are 16 species of mangroves and mangrove associates. The faunal composition in the area is also equally diverse. Vast area under mangroves has been conserved by SPG Marine Ecology Centre. Well diversified and well protected, these are the last- quality mangroves in the city. The vast expanse of these mangroves serves as a second lung of the city only after the Sanjay Gandhi National Park which is under immense environmental pressures.

5. Ranking of the Conflicts

Conflicts between groups emerge for a variety of reasons. A conflict often occurs when there is a 'perception' that one group is gaining (in economic terms, maximising their utility) at the expense of another. Of the three typology of natural resource conflicts proposed by Warner (2000), all the three conflicts fall under the third category of micro-macro conflicts, as it involves conflict between State Forest Department, environmental problems and contradictory resource needs. In the third context the conflict is between the mangroves and the human. Instead of realising the ecosystems provided by the mangroves as the resource, the land occupied by them have been rated as more valuable. The conflict arises out of non-acceptance of the value of this natural resource. This is only partly due to the lack of knowledge, but largely due to the greed of short term gain. This typology includes elements that are not directly related to immediate stakeholders in the resource. Based on the conflict dynamics proposed by Cadoret (2009), all the three conflicts can be classified under *Chronic conflicts*. Chandrasekharan (1996) classified conflicts into six categories, - (a) conflicts over access, (b) conflicts due to change in resource quality and availability, (c) conflicts regarding authority over resource, (d) conflicts that are value based, (e) conflicts associated with information processing and availability, (f) conflicts occurring for legal/policy reasons. Applying his concepts into the present context, it will be the

second type of conflict which involves conflicts due to change in resource quality and availability.

The legal battle which has been fought for over a decade over the issue of encroachment has almost come to an end with the Supreme Court dismissed all the petitions filed against the encroachers in SGNP. The only hurdle at the moment is whether it will be possible to relocate all the encroachers and how long it will take for the Government to completely resolve the issue. In case of PML, 317 acres of the wetland have been declared as reserved forest in the year 2007. The demands for cessation of the wetland being used as the dump yard and to remove the sewage treatment plant are still going on. After years of neglect, awareness is arisen amongst several people now. Five different stages of conflict are described by Rupesinghe (1995) and the present conflict of Pallikaranai Marshland falls under the 'Management Stage', while Sanjay Gandhi National Park has reached the 'Transformation Stage'

White *et al* (2009) uses the term 'biodiversity conflict' to refer to those conflicts that involve natural resources related to specific habitat or species, including wildlife and invasive or introduced species, but also draw on literature that addresses conflicts over natural resources and other environmental conflicts in a wider sense. So, natural resource management typically deals with conflicting interest of various stakeholders since they use the same resources for different purposes (Reed *et al*, 2009). It often means that one party can achieve its goals only at the expense of the other party.

Indiscriminate destruction of mangroves has been legally put to an end after the HC Order in Mumbai. In addition to it, 'as per the high court order dated 27.01.1010, no 'non forest activity' is allowed in the mangrove areas. However, illegal clearance of the mangrove forest, as well as attempts to kill the mangrove plants by blocking the natural inflow of water etc. are still in practice in many places. In this conflict we can include the natural ecosystems of the mangroves as stakeholder following the definition by Starik (1995) that "*Any naturally occurring entity that affects or is affected by organizational performance.*" "*Any naturally occurring entity*" gives us the possibility to include more than just people (Freeman, 1984). Therefore the natural environment (mangrove ecosystem) itself should be seen as a (primary) stakeholder (Haigh *et al*, 2009; Starik, 1995) in this conflict.

The conflict in mangrove areas is also in the 'Conflict Transformation Stage'. This can be considered the implementation stage of the conflict resolution. This stage includes new institutional development. In the case of natural resource conflicts, it is possible at this stage to

implement projects or programmes that assist in better addressing the natural resource conflict (Rupesinghe, 1995).

5.1 Conflict Management

At this stage it is relevant to identify conflict hotspots which will help to provide the decision makers with a more rational, objective and unbiased approach to spatial decision making. Two different methodologies have been adopted for the three case studies. In case of SGNP and PML, multicriteria decision analysis (MCDA) and geographical information systems (GIS) were adopted for zonation of the conflicting areas where as due to the patchy nature of occurrence of the mangroves, the most seriously affected areas have been identified from the comparison of the satellite images.

The methodology for conflict analysis employed by Tuda *et al* (2007) has been adopted here for both SGNP and PML. First, the conflicting stakeholder values causing conflict were determined. These values are structured hierarchically into objectives and attributes using the Analytical Hierarchy Process (AHP) (Saaty, 1980; 2008). Second, GIS is applied to demarcate the conflict areas.

AHP is used to structure the problem and to incorporate the conflicting stakeholder values into a formal procedure (Saaty, 1980, 2008; Malczewski, 1999). The basic steps of constructing and examining an AHP model are used: (1) decomposing the problem into a hierarchical structure, (2) performing judgments to establish priorities for the elements of the hierarchy, (3) synthesizing the model, and (4) performing a sensitivity analysis (Tuda *et al*, 2007).

The problem was constructed in a hierarchical structure consisting of goal, objectives and attributes for SGNP (Figure 8.8) and PML (Figure 8.9). After constructing the AHP hierarchy, weights of relative importance were assigned to individual objectives and attributes in each level of the hierarchy. The pairwise comparison technique is applied in assigning the weights (Saaty, 1980).

The GIS phase involved representing each attribute as a map layer in the GIS database. Different habitat maps were developed using 5.8-m resolution IRS LISS IV images, while the stakeholder activity maps were developed from reports of NGOs and Government organizations and discussions with NGOs and Government Officials.

Figure 8.8. Analytical Hierarchy Process (AHP) – the structure of conflict analysis for SGNP showing goal, objectives and attributes.

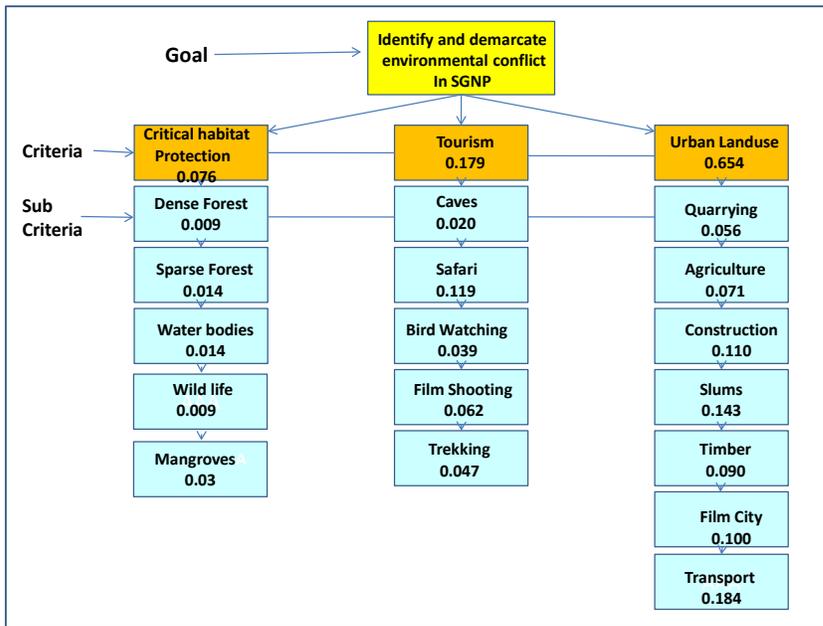
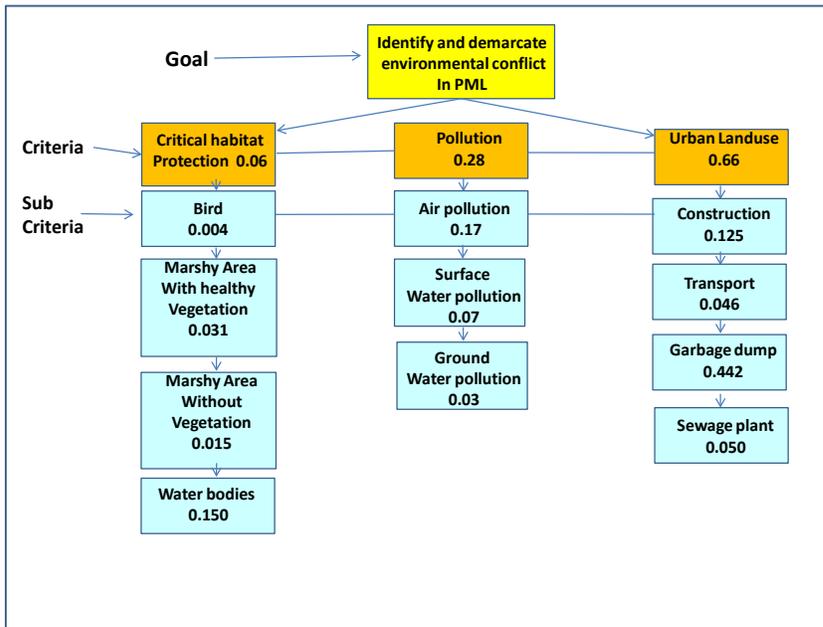


Figure 8.9. Analytical Hierarchy Process (AHP) – the structure of conflict analysis for PML showing goal, objectives and attributes.



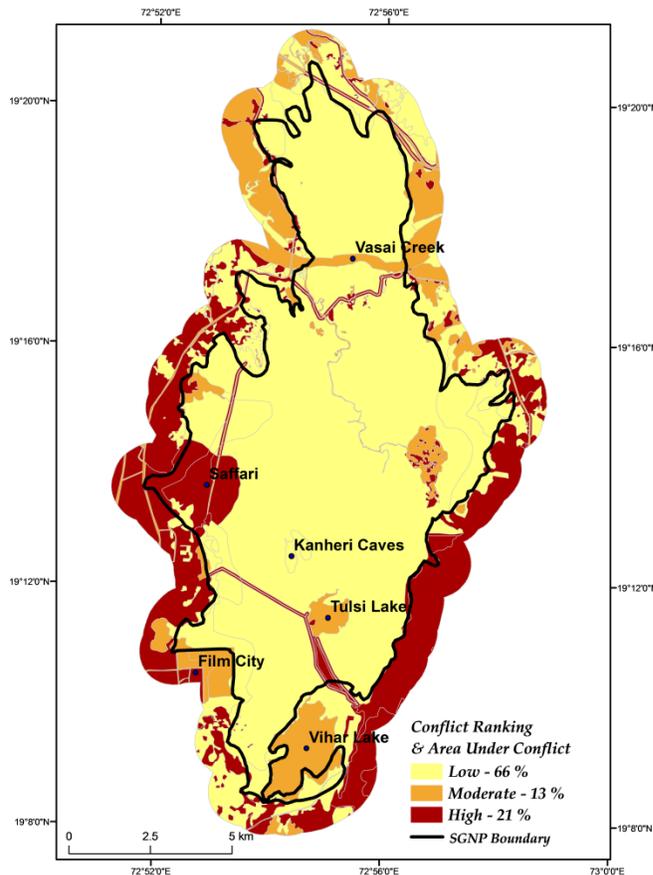
A buffer zone of 1-km in width was defined around the Park in case of SGNP. The attribute weights derived in Phase 1 were then added to respective attribute map layers in GIS to determine the coefficient of conflict of each attribute. The coefficient serves as a rating of the effectiveness of each attribute in achieving the goal. The resulting map layers were combined linearly to obtain the overall conflict ratings. Three levels of criticality were defined as low, moderate and high.

5.2 Spatial coverage of conflict

5.2.1 SGNP

The results of conflict analysis (Figure 8.10) show spatial coverage for different levels of conflict. The analysis reveals that 21% of study area is under the high level of conflict. The zones of high conflict are confined to the eastern and western margins of the Park. In a reserved National Park, 21% illegal occupation of land with high level of conflict clearly is a matter of concern.

Figure 8.10. Map showing the conflict zones in and around Sanjay Gandhi National Park.



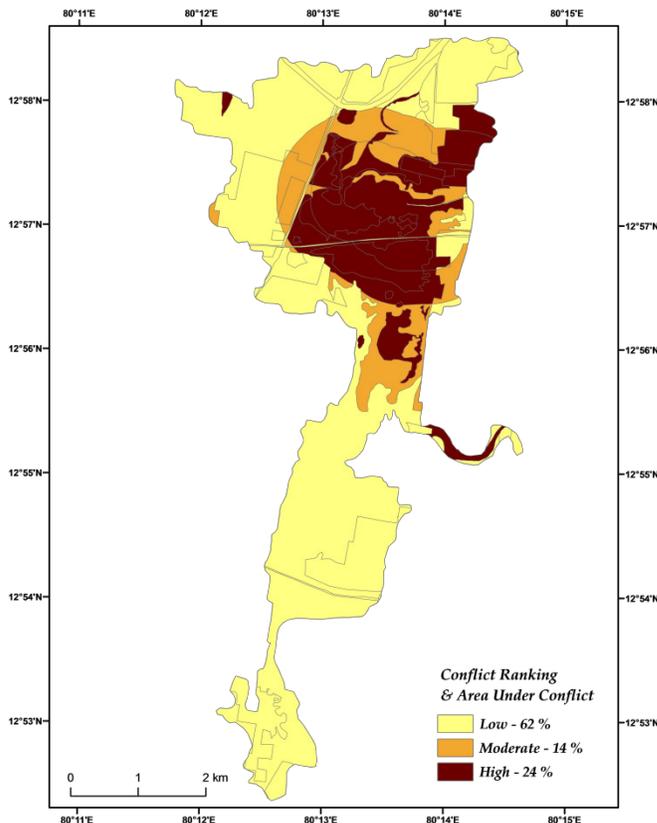
The boundary of the SGNP is shown with black outline in Figure 8.10. The total peripheral length of the park is 91 km, out of that 56 km (61%) is low conflict zone and 19 km (21%) of the boundary is under high conflicting zone.

Low levels of conflict occur in the central part of the SGNP where there is thick coverage of protected forest. This is understandable so because encroachments creep from the peripheral boundaries of the Park and is steadily spreading inward and also they are easily accessible in the form of open land and sparse forest. Along the water bodies and the film city the conflict is medium. The two fresh water lakes such as Vihar and Tulsi are in the midst of thick forest hence no permanent activities are developed around here. However, due to their scenic beauty they attract a large number of tourists. Trekkers and bird watchers swarm these places.

5.2.2 PML

Figure 8.11 indicates the conflict zones in and around Pallikarnai Marshland. In this site 24% of study area is under the high level of conflict.

Figure 8.11. Map showing the conflict zones in an around PML.



The zones of high conflict are confined to the north-central part of the marshland. It encompasses the areas in and around the dump yard, and Perugundi Sewage Plant. There is an expansive open water body in this part, which is covered with water hyacinth and shows high level of pollution. The water is polluted mainly from two sources, such as, the garbage dumps and the effluents from Sewage Treatment Plants. Air pollution is due to the garbage burning. There is also lot of encroachment in this part. Hence all the conflicting factors are concentrated in this part of the marshland. The entire peripheral boundary zones exhibit low conflict areas in the analysis. This zone occupies 42% of the area.

5.2.3 Mangrove destruction in Mumbai

In case of the third case study, the identification of such conflicting zones is achieved by carrying out satellite image analysis. For that, for the entire Mumbai, IRS-PAN 5.8 m resolution image (2 scenes) and LISS III image of 23 m resolution (one scene) were merged to generate product image, for the year 1997. For the year 2008, 16 scenes of LISS IV of 5.8 m resolution were used and supervised classifications were conducted employing Maximum Likelihood Classifier. Spot data for the year 1990 for Greater Mumbai analyzed by Vijay et al (2005) also has been incorporated. From the classified images, the affected areas have been separately clipped and their areas were calculated. GoogleEarth image and few GPS points have been referred during the classification.

According to Vijay et al (2005) study, the total areas under mangroves were 169 km² in 1997 for MMR. In 2008, it has been reduced to 157 km², the total loss being 12 km² in 11 years as can be seen in Figure 8.12. In Greater Mumbai, there was 94 km² of the area under mangroves in 1990, which has been reduced to 54 km² in 2008 (Figure 8.12). A good 38 km² of mangrove forest has been lost within just a decade. Most of the seriously affected sectors are along Thane Creek. It is clearly seen in the images depicted in Fig. 13 that MMR have lost large patches of mangroves to buildings and slums. The seriously affected sectors are Mira Bhayander and Dahisar mangroves.

Figure 8.12. Area under mangroves in 1997 and 2008 in MMR (upper panel), Area under mangroves in 1990 and 2008 in Greater Mumbai (lower panel). Data source: Vijay et al (2005).

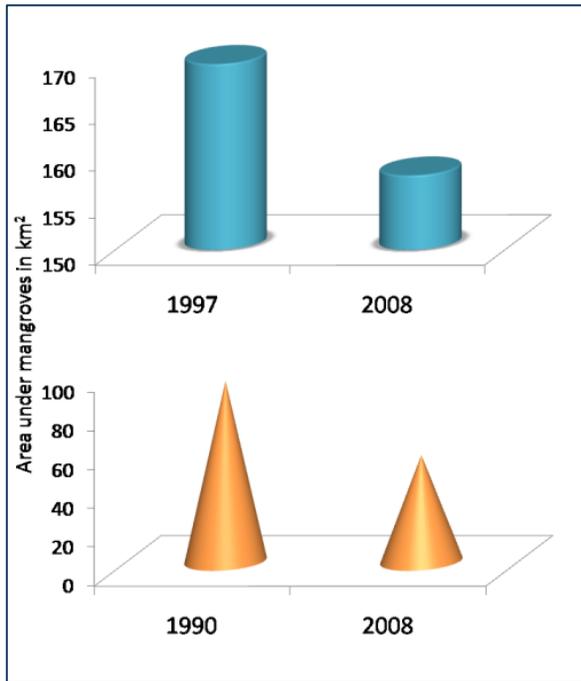
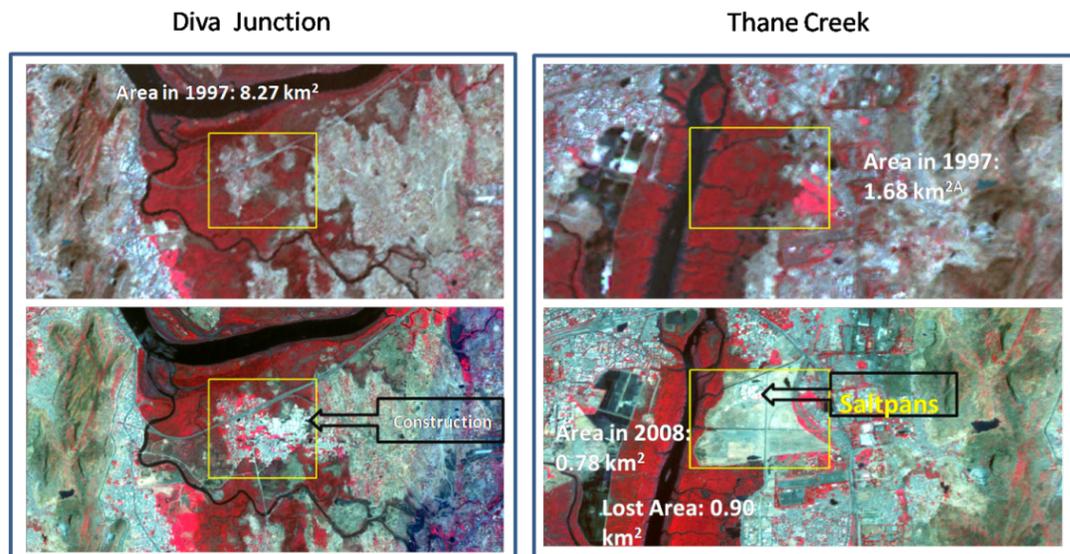
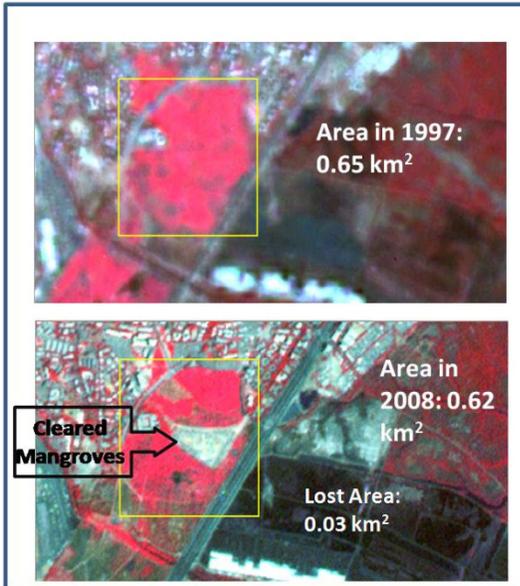


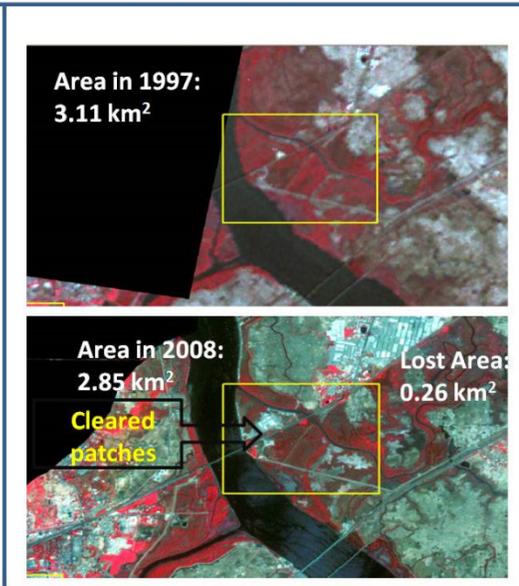
Figure 8.13. Satellite images depicting few sites from where mangroves have been cleared. Location of these sectors are marked in Figure 8.5. (LISS-III+Pan merged 1997 and LISS-IV 2008).



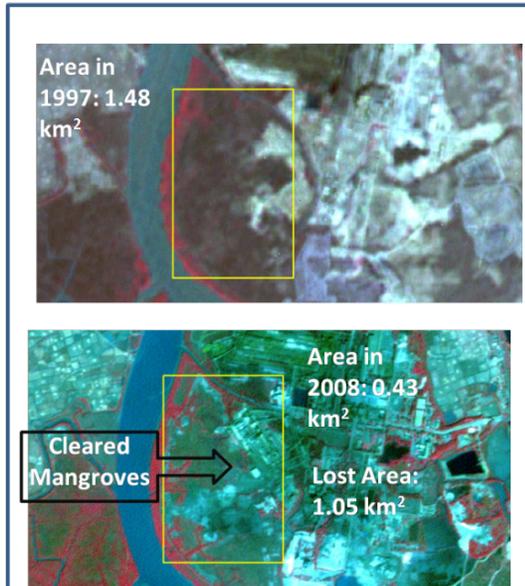
Near Deshmukh Wadi, Thane Creek



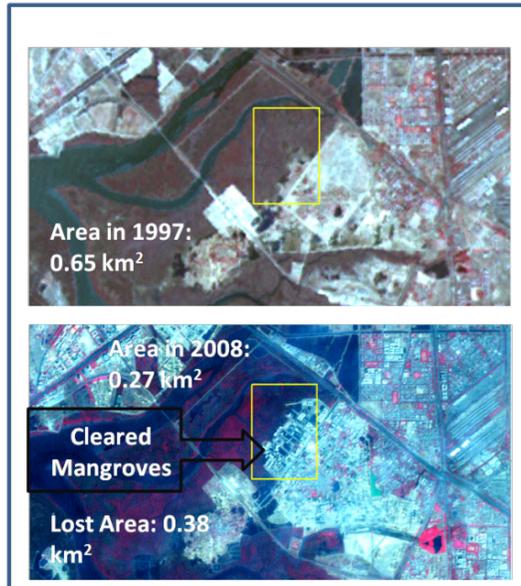
Kasheli West Close to Ulhas River Bridge



Close to Vashi (Sinter Plant)



Kopare Close to Sion-Panvel Expressway



6. Conclusion

6.1 Sanjay Gandhi National Park

It is a vivid example of conflict over the resources. The parties involve involuntary stakeholders in the form of SGNP and its flora and fauna and illegal encroachers. If we follow the definition of Starik (1995) and Freeman (1984) for stakeholders, it is “*Any naturally occurring entity that affects or is affected by organizational performance.*” This gives us the flexibility to include more than just people (Freeman, 1984). Some even argue that the natural environment itself should be seen as a (primary) stakeholder (Starik, 1995; Haigh *et al.*, 2009). The stakeholders, especially in an urban coastal setting, are varied. Besides the economic, ecologic and social values at stake in these areas, there are the less tangible concepts like the right to a clean environment, the protection that wetlands and dunes offer in case of floods, or doesn't the exploitation of this site put a strain on future development or discoveries. So the presence of a human spokesman cannot always be guaranteed in the case of natural resources management. The local fauna and flora also has a right to be a stakeholder in conflict analysis over resources. The leopard attacks in SGNP are a clear representation of conflict over resources. In the conflict, the role of NGOs was to act as spokesman for the protection of the inhabitants. There can be seen clear pictures of the role of politicians to act on their own interest over the issue. After the final court verdict, the question remained “whose voice was heard?” It brought out the dubious stand of the court while defining who were really considered responsible for the environmental degradation. The view that poor represent a threat to the environment sustainability as it focussed on squatter settlements rather than number of large bungalows built in the Park (Zerah, 2007).

6.2 Pallikaranai Marshland

After years of neglect, the floods of 2002 that inundated all the residential areas adjoining the marsh changed the overall perspective of residents in South Chennai and protection of the marsh became peoples' agenda and the forum 'Save Pallikaranai Marsh Forum' was formed. Following this, nature lovers, environmentalists and civic groups have been pressing for protecting the area. In April 2007, 317 ha of the marsh were finally declared a Reserved Forest, which is considered as the first positive response from the Government. This may reduce the conflict sores from the core areas in the following years.

The present conflict represents a unique case having a strong social relevance, where there is competition for space between people and natural habitats. In India, land is

undoubtedly the most important resource and with the increase in population all over the country especially in the city areas, the demand for land for various uses is also increasing out of proportion. According to the general view over the decades, a vast stretch of marshland not fit for any economic use is a 'wasteland'. If it can be made to serve any use whether in the form of dumping ground or agricultural areas or construction sites by land filling, it was considered a far better option.

6.3 Mangrove Destruction in Mumbai

In addition to land reclamation by industrial houses, developers, builders and non-point sources of industrial and domestic waste discharges that pollute the mangrove forests in Mumbai, every year, over 1000 tons of mangrove wood is cut for fuel wood and to meet other timber demands. We need to protect the mangroves since mangroves are buffers between the land and sea and hence they protect the land from erosion. They are land builders and harbour a variety of life forms like invertebrates, fish, amphibians, reptiles, birds and even mammals like tigers. Mangroves are the main source of income generation for shoreline communities like fisher folk. In the wake of gradual climate change and rising sea levels, the rapid development, which is evident from the disappearing of the dense mangrove forest and other trees along the Vasai and Thane Creek, may spell disaster for the rather under-prepared city in the near future. The main culprit in the destruction of mangroves is Man. To achieve supremacy over nature, human beings have destroyed this magnificent ecosystem almost irreparably. Floods in Mumbai on July 2005, and the disaster that followed demonstrated the consequence of tampering with the ecology of fragile ecosystems like mangroves. During flood, the areas with mangrove land could absorb all the rainwater and areas where the mangrove zone had been reclaimed suffered severe flooding. Protection of the mangrove ecosystem is possible only through the participation of the local community and by building up pressure groups for ensuring management of this ecosystem and strict implementation of the legal provisions by the Government. Thereby, integrity of habitats critical for spawning, juveniles and feeding and for biodiversity, apart from ecological sustainability and community-sustainability could be maintained.

Resource conflicts primarily arise due to the scarcity and multifunctional nature of resources. Resource conflicts are an inevitable part of the rapidly expanding urban agglomerations such as Mumbai and Chennai. Conflicts over land, water and forests are common. Forest resources (including mangrove forests) are the most contentious issue, given their varied uses. Encroachments (authorized and unauthorized), dumping of solid waste,

poaching of wildlife, etc. have led to severe conflicts among multiple users. Three case studies have been presented in the chapter that focuses on the conflicts in the two coastal cities of India, such as Mumbai and Chennai. Two case studies have been selected from Mumbai and one from Chennai (Table 8.6).

A social scenario strongly emerges out from these conflicts, such as that all the three cases involve problems of encroachment and tussle between Government/ Forest department and local residents. In India, majority of the conflicts arise out of land acquisition problems, which is true for any country with heavy population pressure. Sanjay Gandhi National Park is a wooded area within the heart of the city which is the lungs of the city, presently facing the threat of encroachment from the building mafias and slum lords. Pallikarnai Marshland is a natural marshland which is shrinking in its size dramatically in the past two decades. Likewise once a luxurious cover of mangroves have been reduced to only restricted patches now in Mumbai as we have lost them to the builders and slums. Table 8.6 gives the summary of the findings of the three case studies.

Table 8.6. *The three case studies included in this report.*

Name	Area	Status	Nature of encroachment	Conflict zone	Present Scenario
Sanjay Gandhi National Park (SGNP)	103 km ²	Reserved Forest	Buildings Slums Quarries	Low (66%) Moderate (13%) High (21%)	High Court Order to evacuate all the settlements from the park. 60% have been relocated so far, tribals are resisting the court order.
Pallikarnai Marshland (PML)	5500 ha before 30 years, presently 500 ha	Wetland	Garbage dumps, Sewage treatment plant, Government buildings	Low (62%) Moderate (14%) High (24%)	317 ha declared as protected area, Garbage dumping and burning, causing pollution
Mangroves in Mumbai	157 km ² (MMR) 56 km ² (Greater Mumbai)	Protected, in CRZ-1	Slums, buildings. Sewage treatment, Garbage dump	Maximum encroachment, Dahisar, Mira Bhayandar. Thane Creek	In spite of court order, mangrove reclamation steadily continues

In spite of the similarity in the three cases, we can see clear differences in the approaches of the intruders. Arguments such as “should we *waste* acres of unused marshland when we are struggling for space for survival, etc.” come up during the investigation. However reasoning like ‘trees, animals, birds and reptiles are the rightful owners of these places and they have the right to live in peace’ does not simply work. To conclude, it can be said that these environmental conflicts cannot be solved purely by an authoritative approach, as it involves trade offs between differing objectives. There is a need of awareness about importance of these

resources among the people of the country. Resident's associations should come together to spread this awareness. Legislative measures remain as the famous saying '*protected on paper, plundered in practice*' if there is no public support. They must realize that the destruction of SGNP which is the lung of Mumbai or dumping of garbage in the marshland of Pallikaranai or rapid destruction of mangroves along the coast of Mumbai will have far-reaching effects on the city against the short term benefits. Objectivity and fairness is difficult to attain when stakes are high and the relationship among the actors unequal (Zarah, 2007). What is necessary is the participation of the equal footage from all stake holders involved in all the three conflicts. To conclude, an extract from Ostrom (2000) could be cited here, such as, "When the benefits of organizing are commonly understood by participants to be very high, appropriators lacking many of the attributes conducive to the development of self-governing institutions may be able to overcome their liabilities and still develop effective agreements. The crucial factor is not whether all attributes are favorable but the relative size of the expected benefits and costs they generate as perceived by participants. All of these variables affect the expected benefits and costs of appropriators.

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ABSTRACT: The first case study presented in this chapter is Sanjay Gandhi National Park (SGNP), which is the largest national Park within the urban sprawl of Mumbai. Illegal quarrying and heavy encroachment are threatening the Park. Mumbai High Court ordered the removal of all the encroachments but failed to achieve the desired results. The second case study; Pallikaranai Marshland (PML) is partly saline and largely freshwater marshland in Chennai. The marshland is facing massive environmental problems, such as, fragmentation and reclamation of marshland for urban development, garbage dump, disposal of partially treated sewage and loss of habitat due to reclamation and garbage dump. The Madras (Chennai) High Court directed the Chennai Corporation to establish an integrated waste management facility, remove all encroachments for the marshland and stop the municipalities from dumping garbage in the marshland area but the legal verdicts have not been able to put a complete halt to the abuse and the degradation continues. The third case study involves mangrove preservation in Mumbai. Rapid developments like housing, industrialization, pollution and phenomenal increase in population has resulted into degradation of the mangroves, leaving behind a patchy picture of mangroves, struggling to survive or mutely facing the mortality due to human greed.

All the three case studies have one thing in common; environmental abuse, legal protection following intervention from NGOs and finally to be unable to completely put an end to the situation. These conflicts can be classified under chronic conflicts based on the conflict dynamics proposed by Cadoret (2009), and are in the transformation stage as per Rupesinghe's (1995) classification.

KEYWORDS: global changes, coastal areas, environmental conflicts, Mumbai, Chennai

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CHAPTER 9.

Assessing Environmental Conflicts in Vietnam: Case Studies of Hai Phong and Nha Trang City

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1. Introduction

Coastal zone is an intensively used environment with strong pressures exerted by socio-economic activities such as tourism, aquaculture, urbanization and housing development, port development, industry and agriculture. However, the developments steered by different sectors without an over-all integrated approach, policy and planning framework is leading to conflicts between development [in the broadest sense] and environmental protection, especially in developing countries. In Viet Nam, the two case studies of Hai Phong and Nha Trang demonstrates the presence of several conflicts in the coastal zone like conflict between port development and aquaculture, between local people and government in the selection of the solid waste dumping site, conflict between fishery development and tourism, conflict between development of new port Lach Huyen (Hai Phong) and biodiversity protection, pollution from industrial development, conflict in using land resources of industry and agriculture, and so on. For conflict mitigation and resolution, understanding conflicts through accurate identification and finding their underlying causes are a pre-requisite. There are long-term conflicts that are difficult to settle, such as conflict between development and environment protection. But there are some conflicts, such as conflict between local people in Trang Cat (Hai Phong) and local government in the selection of solid waste dumping site, which can be settled if the parties involved adopt a participatory approach to find solutions. In the two case studies of Viet Nam, we found about ten main environmental conflicts (seven for Hai Phong and three for Nha Trang), but we have focused on 3 outstanding environmental conflicts: in the port and industrializing city of Hai Phong there is the conflict between port development (including widening of Hai Phong port and building of new port - Lach Huyen) and biodiversity protection; conflict between industrial development and environmental protection in Hai Phong; and between tourism development and environmental protection in Cat Ba Island (Hai Phong) and Nha Trang. These three conflicts were chosen because they have big impacted to society, not only in the present but also in the future. The over-arching theme that characterizes these conflicts is that of 'economic development versus environmental protection'.

Followed by outlining the methodology adopted in the next section, detailed analyses of the conflicts are presented in section III. The analyses of these conflicts mainly focus on the nature of conflicts, the parties involved in the social construction of the conflicts, their typological classification and the ranking of conflicts. Based on these analyses, the conclusions are presented in the last section.

2. Methodology

Methodology used for the analyses of the conflicts includes:

- Data collection: Key documents on natural resources and economic-social aspects of the two case studies for the three conflicts have been collected. The data collection is mainly based on the Year Books of Hai Phong and Nha Trang cities of the last ten years and related environmental reports. Some recent projects done by IMER have also provided valuable data. These projects are related to port management, environmental carrying capacity and environmental protection.
- Conflict identification: conflicts have been identified using the Environmental Conflict Resources Notebook (1992). Firstly, a series of conflicts in two case studies were identified from newspapers, environmental reports (annex 1). After that, they were provided to IMER's coordinator for discussion and selection which are indeed outstanding conflicts. And finally, the outstanding conflicts are chosen.
- Conflict analysis: Conflicts are analyzed using Michel *et al* (1997), Torell (1997) and the methodological guidelines provided by WP 4 Leader of the SECOA project. The analysis of conflicts between economic development and environment protection in two case studies of Viet Nam is mainly based on environmental issues and pressures caused by economic developments. The stakeholder involvement in each conflict is analyzed by their interests, goals, position and roles in that conflict. The classification of conflicts into typology follows Cadoret (2009), Chandrasekharan (1996) and Rupesinghe (1995). The ranking of conflicts is based on 3 levels: critically, urgency and duration following the methodological guideline.

3. Conflict Analysis

3.1 Conflict between port developments with biodiversity protection in HaiPhong

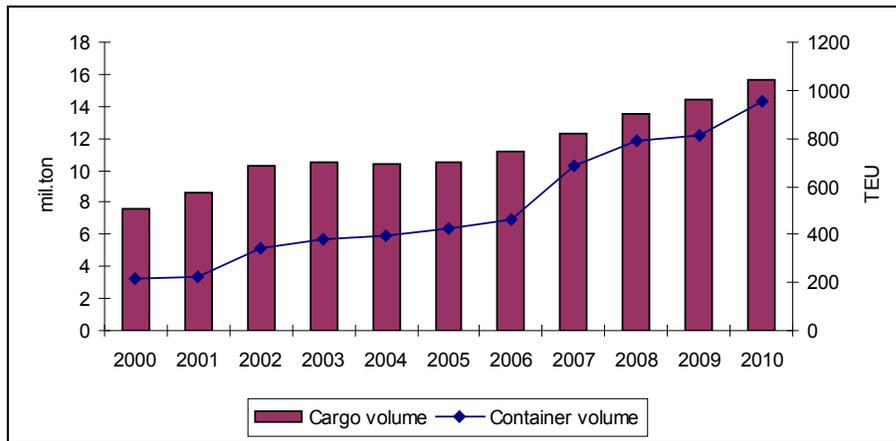
3.1.1 Nature of the conflict

The ports of Hai Phong belong to the northern port group in Vietnam, which include 29 harbors at different levels on Cam and Bach Dang Rivers and Nam Trieu River mouth (Hai Phong Maritime Administration, 2007).

Hai Phong Port was built more than 100 years ago. This is one of the most important ports of the country and it is port that has relationship to many countries in the world. At the moment, Hai Phong has 22 port companies with total quay length of over 5,000m, in which there are 3 ports that have capacity to receive 10,000 DWT ship and quay numbers 4, 5, 6 of Hoang Dieu port were allowed to receive 40,000 DWT ship; 8 ports have capacity to receive 5,000 – 7,000 DWT ships; the left ports can receive ships below 5,000 DWT. Within Hai Phong Port system, there are 10 liquid ports (oil, petroleum, liquefied gas, etc.) and 5 container quays (Hoang Dieu, Doan Xa, Transvina, Chua Ve and Viconship is going to be used). There are about 150 ship owners with an approximately 500 operating ones in Haiphong City. In addition, there are about 80 companies running in the sector of maritime service including: Ship Agent; Ship cleaning; Ship guiding; Ocean transportation Agent; Ship intermediary; Ship supplying; Goods controlling; on site ship repairing; On site good loading and unloading.

With its potential, Hai Phong port actually is the biggest port in the Northern Vietnam that has been under increasing pressure for cargo handling. Figure 9.1 expresses the increasing number of cargo handled in the port of Hai Phong.

Figure 9.1. *The increase of cargo handling through the Hai Phong port in last ten years (Hai Phong Maritime Administration, 2007; Hai Phong People's Committee, 2008).*



With the role of a big port in the North of Viet Nam, Hai Phong port needs to be upgraded and widened. In the master plan for seaport development for 2010 - 2020, the port of Hai Phong would be upgraded and improved in two phases. Phase 1 has been completed with a total investment of \$US40 million. Phase 2 includes the enlargement of the container terminal at Chua Ve (359 m of quay to be built) for ships of 10,000 DWT, a new 7.2 m deep shipping

channel at Lach Huyen, dredging of Ha Nam Canal, Cam and Bach Dang River shipping channels to 5.5 m depth (completed in 2006), with a total investment of \$US 126 million. A new project for the construction of a military harbour in south Do Son has been submitted to the government for approval.

From 1999 to 2004, Prime Minister of Viet Nam had issues series of Decisions for the improvement of the general plan of Vietnam seaport systems, the improvement of detail plan for the northern port group to 2010 and the orientation to 2020. On 25 August 2004, by the Decision number 2561/QĐ – BGTVT of the Minister of Transportation Ministry of Viet Nam, the project of the gateway seaport of Lach Huyen in Hai Phong City was given permission to invest and to conduct a feasibility study. The gateway seaport of Lach Huyen was designed to have a capacity to handle 35 million tons of goods per year by 2020 and includes the following main components (Table 9.1).

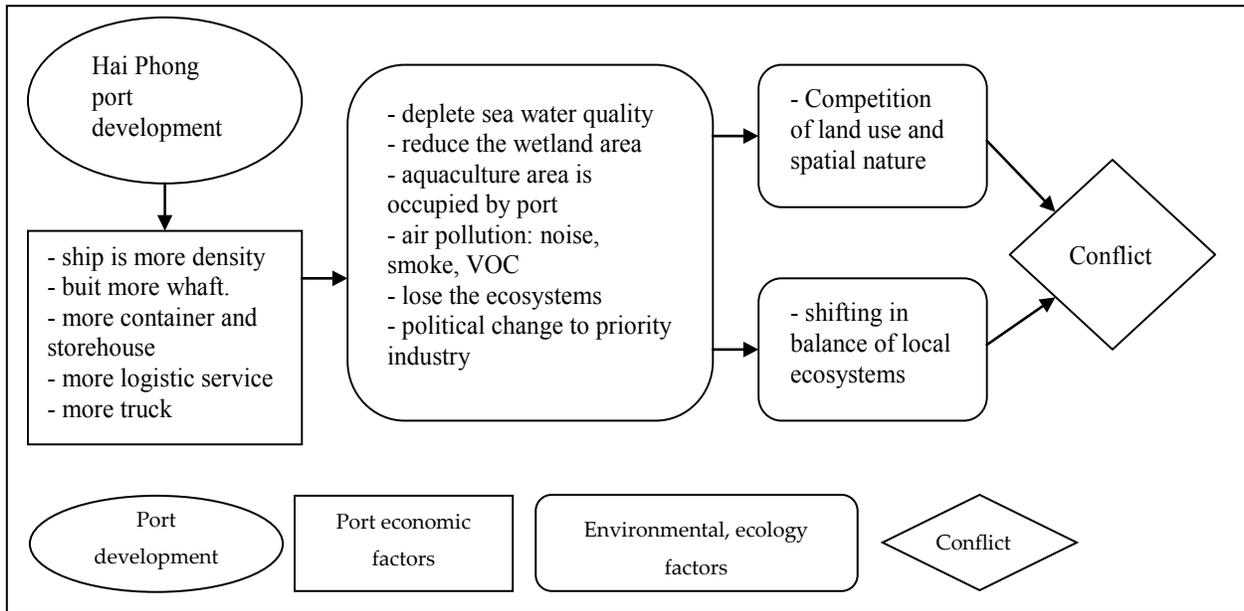
Table 9.1. Characteristics of the new deep sea port Lach Huyen (Hai Phong).

Total quay lengths	8,280 m
Cargo handling through the port by 2020	35 million tons
Type of goods	Containers, separated cargo, groceries and packages, oil, petroleum, LPG, bitumen, etc.
Biggest ship enter the port	50,000 DWT

The port of Lach Huyen is also planned for repairing and building ships of 100,000 DWT. In addition, the development of specialized industrial zones is also considered, such as, cement production, thermal power, iron and steel refining, etc. The project of Lach Huyen gateway seaport is composed of two stages: first stage from 2007 to 2015 and second stage from 2015 to 2020.

The upgradation of the old ports and building the new deep-sea port Lach Huyen has been impacting seriously the biodiversity and environment. The maritime traffic has affected on Cat Ba biosphere reserve area by depleting seawater quality, air pollution and has triggered land competition. The economy is structurally changing with impacts on the residents and local ecosystems. There are some environmental issues appearing in this area (Figure 9.2).

Figure 9.2. Flow chat of conflict of Hai Phong port development and environment.



Some environmental issues arisen in the development of Hai Phong port (including new port Lach Huyen) are identified below.

3.1.1.1 Fauna, flora and ecosystems

because of the port development, the river branches will change morphologically and this may influence the natural habitat negatively, and the new (basic) morphological features of the ecosystem will directly impact on the fauna and flora. The changes in the water quality will have serious effects on a range of ecosystems. The continuous and long-term discharge of untreated wastewater will cause impacts on aquatic environment by increasing the organic, chemical and metal content in water due to accumulated effects. The operation of ships/boats on the river will disturb habitats of aquatic organisms as well. Also contaminant uptake and accumulation in fish and shellfish may be a result of the port development. Furthermore, serious effects on the flora and fauna are expected, and some species may be lost due to air and soil quality changes. But it is also possible that invasive species will find the changed conditions in a specific area favourable, and have a negative effect on the endemic fauna and flora. Endangered species may be more susceptible to the environmental change in the area and impacts on these species need to be carefully considered.

3.1.1.2 Changing balance of local ecosystems

Hai Phong seaport system is very important not only to the Hai Phong area, but also to other Northern provinces in Vietnam. It is a gateway connecting the Northern provinces to the other provinces of Viet Nam and other countries in the world. Recently, it has maintained a very

fast rate of development. The infrastructure system of the ports is continuously being improved and repaired. Also the completion of a new channel from Lach Huyen through Ha Nam Canal to ports has significantly promoted the development of maritime activities in the region, marking an optimistic renovation of Hai Phong seaports' construction and development on the way to become a modern seaport system. Therefore, the effects of the seaports development on the environment and biodiversity are considerable and need to be investigated.

3.1.1.3 Competition of land use and natural space

Using the GIS overlay method to assess land use/cover changes, structural and quantitative changes of land use/cover are shown clearly [Figures 3-5]. During 1994-2000 and 2000-2005, land use/cover in Hai Phong area has considerable changes. In Phu Long, Dinh Vu, Quang Yen, Thuy Nguyen, Do Son, land use/cover types were changed more than those in other areas. The dense mangroves outside aquaculture ponds was about 1,549.9 ha in 1994, and about 2,025.79 ha in 2000, increasing by 475.89 ha (30.7%). It was the result of the conversion of 9.6 ha of river-lake-sea, 30.12 ha of tidal flat without plants, 109.2 ha of water surface of aquaculture ponds, 7.96 ha of two rice crops, 124.52 ha of mangroves inside aquaculture ponds and 11.32 ha of sparse mangroves outside aquaculture ponds from 1994 to 2000 (Nguyen Van Thao, 2008). It is also apparent that the area of tidal flat without plants has decreased by 216.41 ha (5.12%) (From about 4,227.23 ha in 1994 to about 4,010.82 ha in 2000). Of this, only 3,427.64 ha of tidal flat without plants remained, others about 334.6 ha dense mangroves outside aquaculture ponds were converted with 118.48 ha to water surface of aquaculture ponds, 25.04 ha to bare land. Also, 15.28 ha of dense mangroves were converted to ground-filling for construction, 12.24 ha to limestone exploiting area, 59.56 ha to mangroves inside aquaculture ponds, 2.44 ha to grassplot, 18.04 ha to sparse mangroves outside aquaculture ponds and 221.56 ha to river, lake, sea (Nguyen Van Thao, 2008).

3.1.1.4 New harbour construction(Land transformation)

In order to meet the growing demands of goods exchange through the Hai Phong seaport system, together with the upgrading of loading and unloading of goods and equipment and human resources, the construction of new quays is important and unavoidable. However, in order to have a large area to construct new harbors, such as Lach Huyen (with a total area up to 80 ha) and Dinh Vu (383 ha), a similar area of natural ecosystems will be destroyed. Therefore, the impact of this destruction on biodiversity and ecosystems is clearly very large and significant.

3.1.1.5 Dredging and landfill

The old and traditional Hai Phong ports are almost located along the Cam and Bach Dang Rivers. Because of the characteristics of these rivers, the shipping channels with a total length of

42.8 km and depth ranging from 5.7 to 7.8 m (www.haiphongport.com.vn) are swallowing annually and need to be dredged frequently to ensure their designed depth. These activities not only waste a lot of economic and labor resources but also destroy the environment. Dredged materials are normally disposed into deeper places offshore Cat Ba Island or onto the banks of Ruot Lon and Nam Rivers (Bui Van Vuong *et al*, 2007). According to Hai Phong Port Administration, from 2001 to 2006, each year, port of Hai Phong dredged near 3 million m³ of dredging materials, it did not include 14.5 million m³ of dredging materials in 2004-2005 of Lach Huyen and Ha Nam channels. As a result, the sediment negatively affects the nearby ecosystems and biodiversity in both the source and the sediment destinations. However, the research in the effects of this activity on the biodiversity and ecosystem health is limited and needs to be studied further.

3.1.1.6 Air pollution caused by the operation of ports

Ships and traffics, factories and machines discharge pollutants such as CO_x, SO₂, NO_x, particulate matter, etc. into the environment and this result in increase of air pollution and affect directly to human health of nearby residents. In addition, noise and vibration are often considered as minor environmental threats. However, recently noise and vibration pollutions have become environmental issues because of the growing concerns about the impacts on human health, such as, hearing loss, sleep disturbance, annoyance, etc. Port development is main reason for increase of noise in the area (Tran Dinh Lan *et al*, 2009).

3.1.1.7 Water Pollution

Port development is totally dependent on the accessibility to the sea and the river systems. On the other hand, the water systems are influenced enormously by port-related activities. Port and industrial activities cause a large (negative) impact on the water quality of the river, estuarine and marine systems. It is therefore essential to scrutinise the actual water quality situation (as a baseline reference point) and the evolution of water quality in these environments.

3.1.1.8 Soil and sediment quality

As already mentioned, building ports will require sediment dredging in the coastal areas. Any port development will require an increase in both port infrastructure and shipping traffic; deeper access channels, river works, terminal plants, land reclamation, etc. Thus the soil and sediment quality can be negatively impacted in a range of ways through port development.

All environmental issues listed above indicate that the conflict between port development and biodiversity protection is quite critical and it need to be interested by port managers and other related organizations. Building the Lach Huyen deep-seaport will destroy a huge area of estuarine ecosystem, including the Cat Ba Biosphere Reserve Area.

Figure 9.3. Landuse/cover in Haiphong Port Group area in 1994 (Tran Dinh Lan et al, 2009).

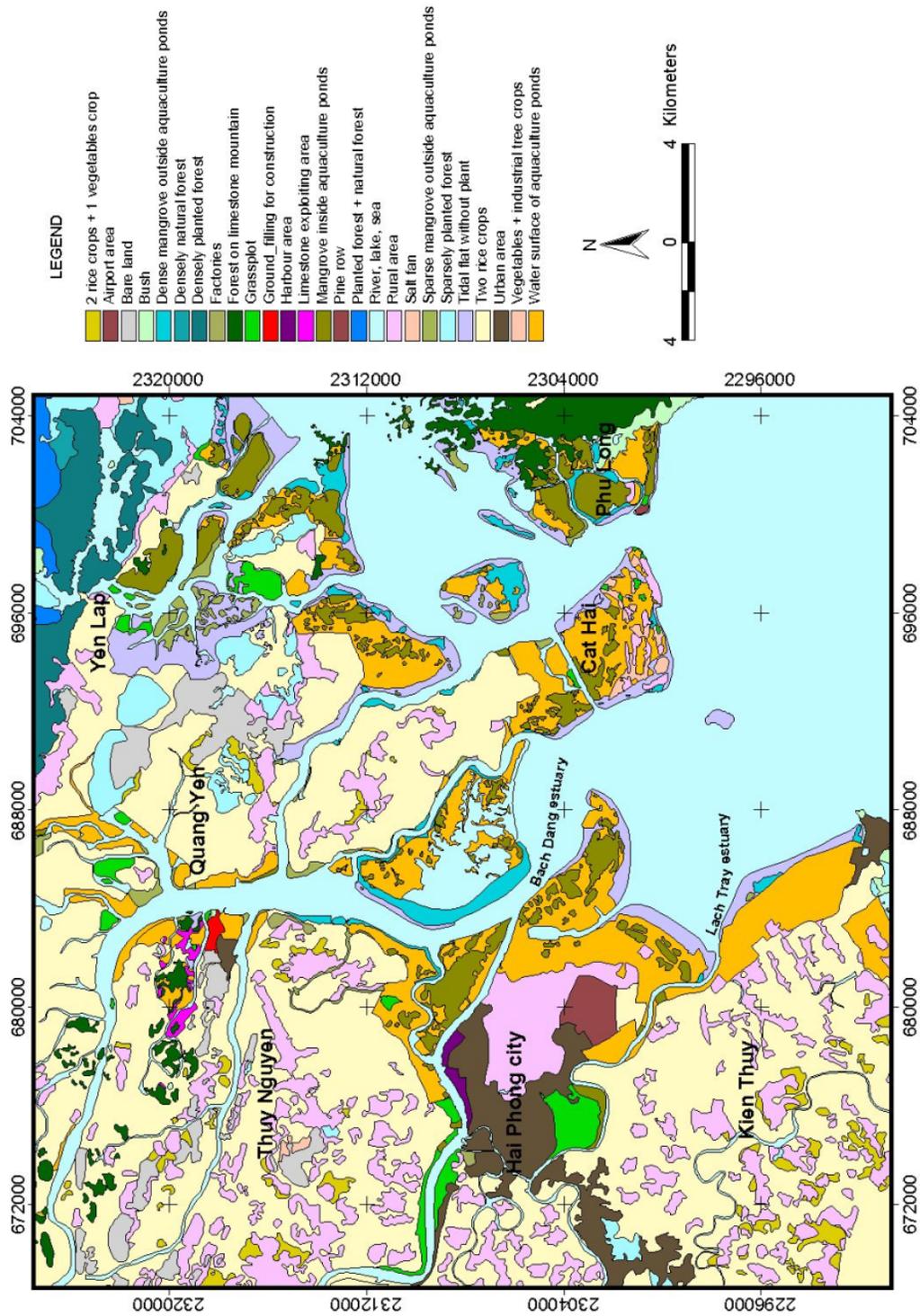


Figure 9.4. Landuse/cover in Haiphong Port Group area in 2000 (Tran Dinh Lan et al, 2009).

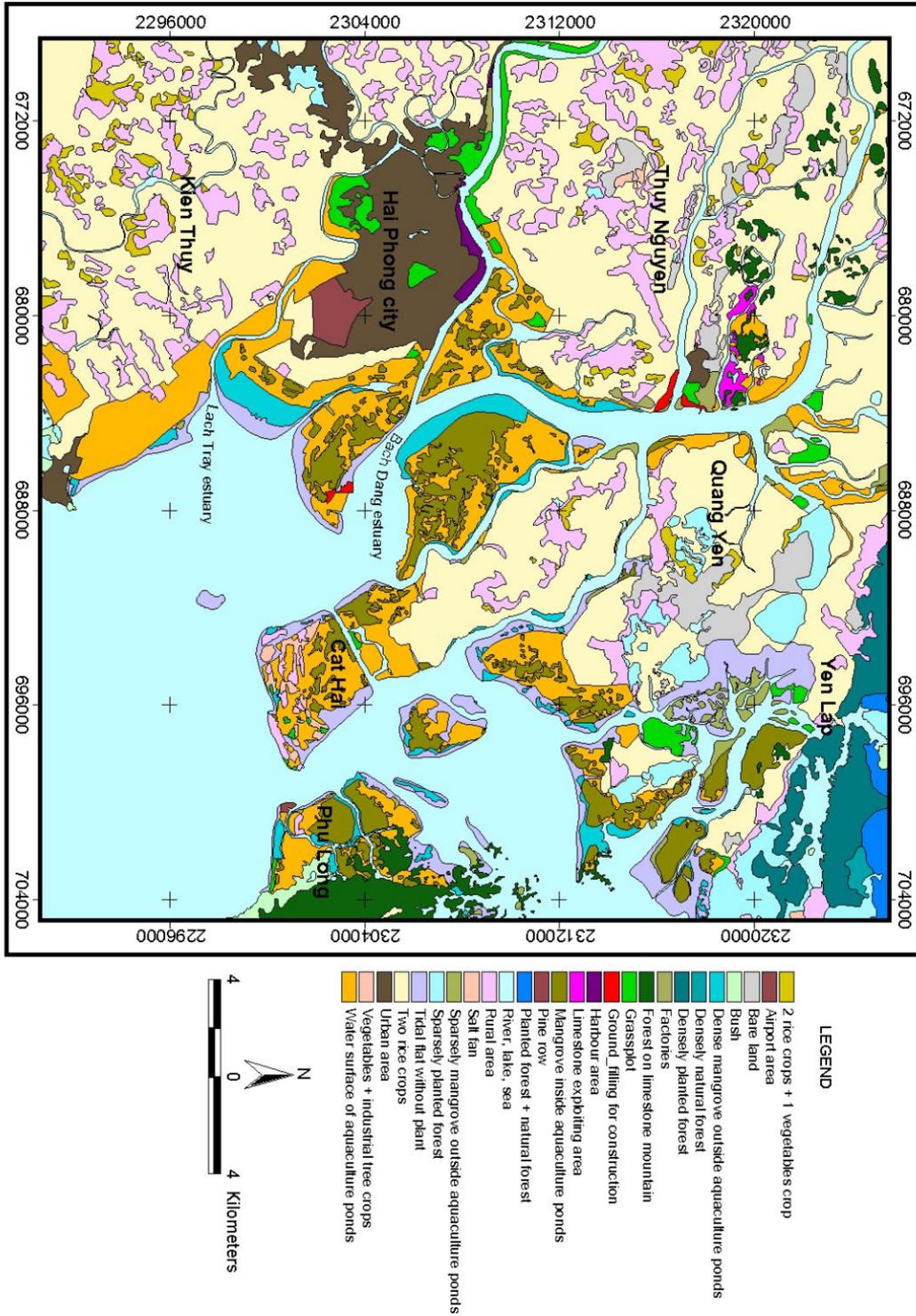
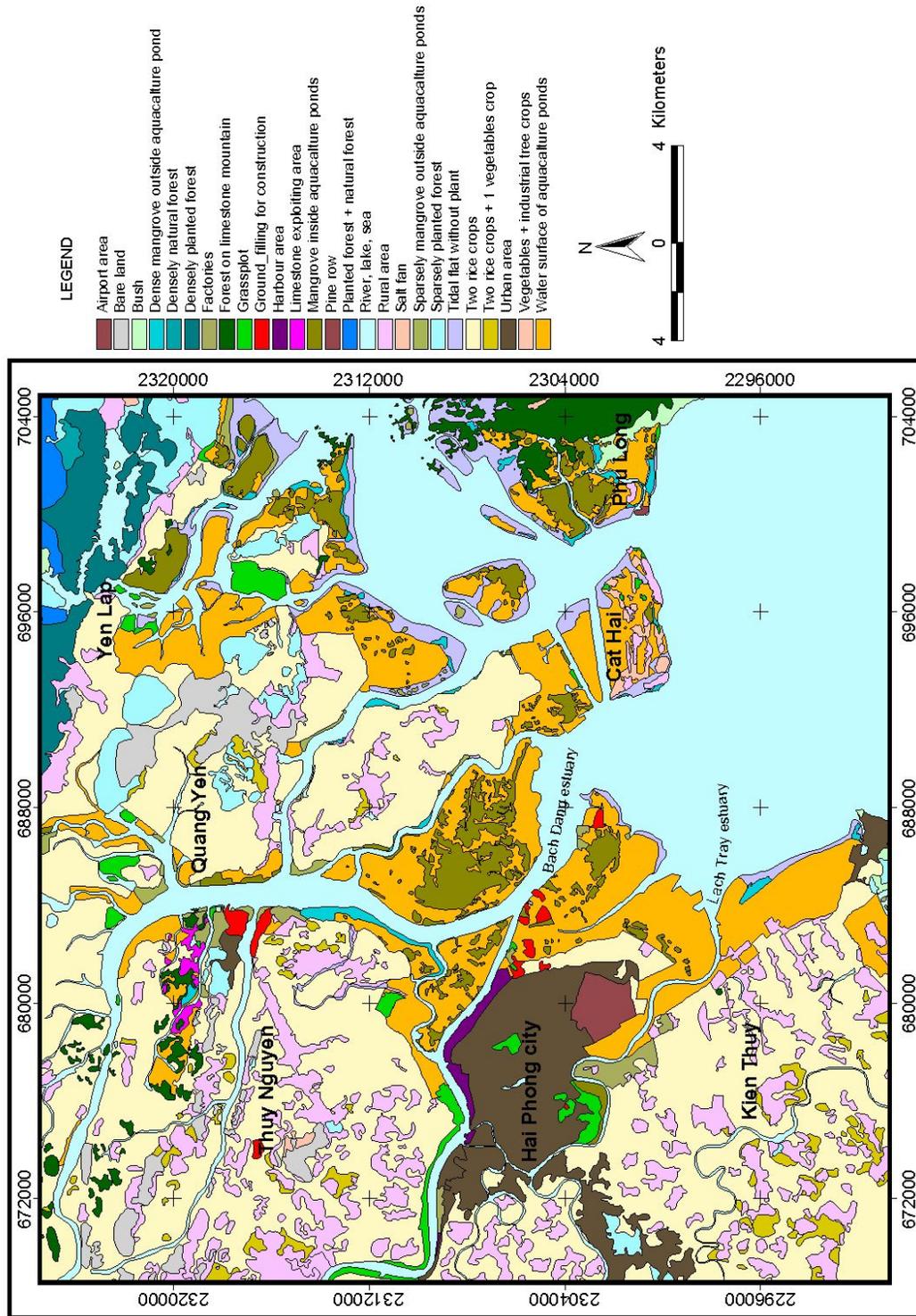


Figure 9.5. Land use/cover in Haiphong Port Group area in 2005 (Tran Dinh Lan et al, 2009).



3.1.2 Parties involved in the conflict

Several types of economic activities are present in the study area described in the assessment, such as fisheries, aquaculture, agriculture, tourism and port-related economic activities. The future expansion of ports may lead to potential conflicts among the different sectors and their stakeholders. The groups of stakeholders in the decision making process of port developments are identified as follows: 1-authority; 2-Local community; 3-Scientist and researchers; 4-Local societal group.

Authority: People's Committee of Hai Phong (Department of Natural Resources and Environment, Department of Fisheries, Department of Agriculture and Rural Development, Department of Tourism...); People's Committee of the Districts in the study area, including Hong Bang, Ngo Quyen, Le Chan, Hai An, Cat Hai, Thuy Nguyen, An Duong, and Do Son; Hai Phong Maritime Administration. The authorities here also include port managers, port administration, and port companies. The goal of this group is the development of port by building infrastructure; widen channels... in order to receive more ships, more goods through the port. This group plays a very important role in the development of port, especially in the context of Hai Phong city. Because port of Hai Phong is main and traditional industry, it creates many jobs for the people in the city. If the port is widened and improved, it will attract more employees to come contributing to the reduction of unemployment rate of the city. Therefore, the power of this group is very strong. During the operation and development of the port, the environmental issues are considered only marginally. The air, water and soil pollution from port were mentioned in environmental reports but not too much in detail. They even think that the waste from port is not so serious if compare to other industries. Therefore, the budget allocated for environmental protection from port is low.

Local community: Local communities in the area consist of people working or living in or near the port development areas. As a consequence of the port developments, local people may benefit from new transport infrastructure (highways and railways), wastewater treatment infrastructure, telecommunication, electricity supply, gas and oil supply. They are thus significantly affected by the port plans. The development and expansion of port systems in the area may lead to the following adverse social impacts like: reduction of food production (fish and shellfish) due to loss of mangroves and shrimp farming areas; degradation of water quality affected by wastewater discharges and pollution (cf. oil spills); resettlement to other places in

order to create vacant lands for port construction and associated developments (cf. industrial zones); cultural displacement as a result of new living conditions.

Scientists and researchers: People who belong to this group of stakeholders are scientists and environmentalists, working in the field of environmental management and protection. The main interests of this group are: promotion of environmental protection; and providing environmental services such as surveying the natural conditions prior to the construction of new port additions, e.g. detailed EIAs, topographic measurements, environmental monitoring, etc.

Local societal groups: These stakeholders are represented by local unions or association (youth, women, farmers...), local and international NGOs (environmental and others). The main interest of this group is promotion of social and economic development and environmental protection.

In the case of conflict between port development and biodiversity protection in Hai Phong city, the authority group is the most important group who decide the development of the port. Other stakeholder groups are secondary.

3.1.3 Typological classification

Classification of conflict into typology is difficult work. Cadoret (2009) labels the conflict by manifestation over time as Chronic, Anticipation, Hushed or Deferred and Hybrid. Chandrasekharan (1996), shows an idea of what the underlying cause is: conflicts over access; conflicts due to change in resource quality and availability; conflicts regarding authority over resource; conflicts that are value based; conflicts associated with information processing and availability; and conflicts occurring for legal / policy reasons. Besides, Rupesinghe (1995) distinguishes the conflicts by stages as formation, manifestation, endurance, management, and transformation.

In this case, we can see that the conflict between port development and biodiversity protection is critical. It related to use of natural resources. The conflict is chronic because the port development had been approved and the lost of biodiversity of the coastal area of Hai Phong is happening. The conflict is long term conflict (duration).

The conflict can be classified into typologies as follow:

- Following Cadoret (2009), it is a chronic conflict (the reason is mentioned above), which contains the element of an anticipation conflict as well, because of the future impacts of the port development.
- Following Chandrasekharan (1966), the underlying reason of this conflict is the change in resources quality and availability. The biodiversity of the coastal zone of Hai Phong will be lost.
- Following Rupesinghe (1995), it is a conflict at 'formation' stage.

3.1.4 Current trends of the conflict

Hai Phong port development authority has responsibility to manage and protect the adjacent environment. The environmental quality is damaged and the area of nature is replaced by quays, storehouse and logistic services. The construction and operation of ports in Hai Phong causes mainly impacts on the adjacent environments like oil spill, ship incidents. Some actions should be done to harmonize the conflicts: The port should apply the environmental management system according to ISO 14001 or PERS; Co-operation with local authorities, local residents and local agencies; The port should develop a cleaner production strategy to minimize waste; Control and management of the quality of the ships that enter the port and the process of loading goods; Protecting natural ecosystems such as mangroves, seagrass, seaweed and coral reefs; Minimizing water contamination by reusing the water resources; Monitoring regularly the environmental quality in each port and company, controlling the emission exhausts.

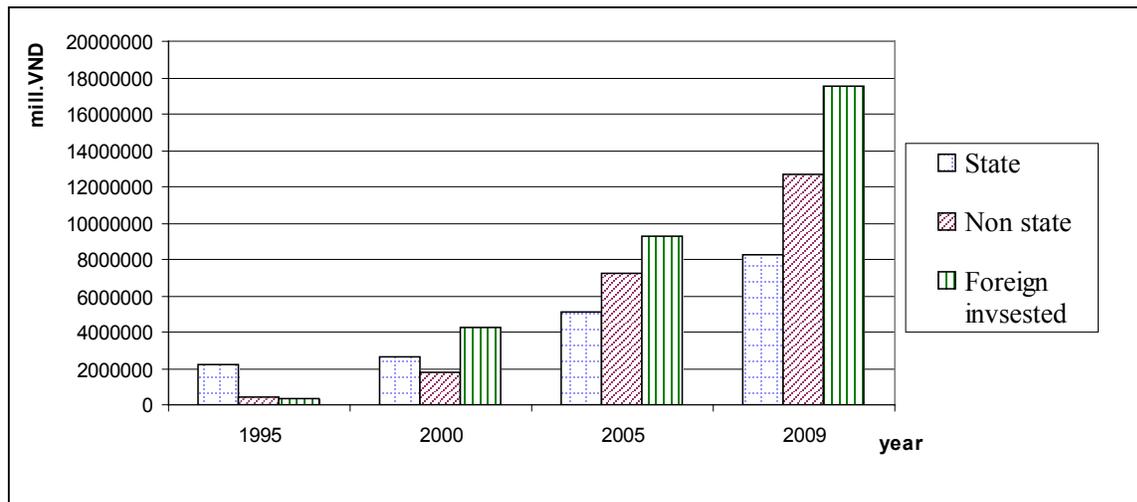
As classification above, by building the new deep seaport Lach Huyen, the conflict is in formation stage. However, this conflict is more increased and attracted much concerns from society. Issues of dredging of channel, discharge of dredging materials ect are interested by public opinions (*Dantri Newspaper, April 25, 2012; Website of Vietnam Seaport Association, 2012, www.vnbusiness.vn accessed on April 16, 2012*). In the near future, there will be more arising issues and the conflict will be changed in to another stage.

3.2 The conflict between industry zone and environmental protection in Hai Phong

3.2.1 Nature of the conflict

Beside a port city, Hai Phong is also an industrial city. Gross output of industry of Hai Phong city has a high development rate. In the 1996 to 2000 period, the average rate of increase was 23.65%, and from 2001 to 2005 a slower rate increase occurred (19.91%). Figure 9.6 presents the increase of industrial output value in Hai Phong from 1995 to 2009.

Figure 9.6. *The trend of constituent economic parts to industrial output value.*



All industrial fields have a trend to increasing output value. The gross output of industry in 2005 increased by 2.48 times in comparison with 2000's one. Foreign invested industry made the highest contribution to the whole industrial value of the city. The gross output of Hai Phong's industry in 2006 was 15,799.3 billion VND, increasing 12.5% from that of 2005 (Statistical Yearbook of Hai Phong, 2010).

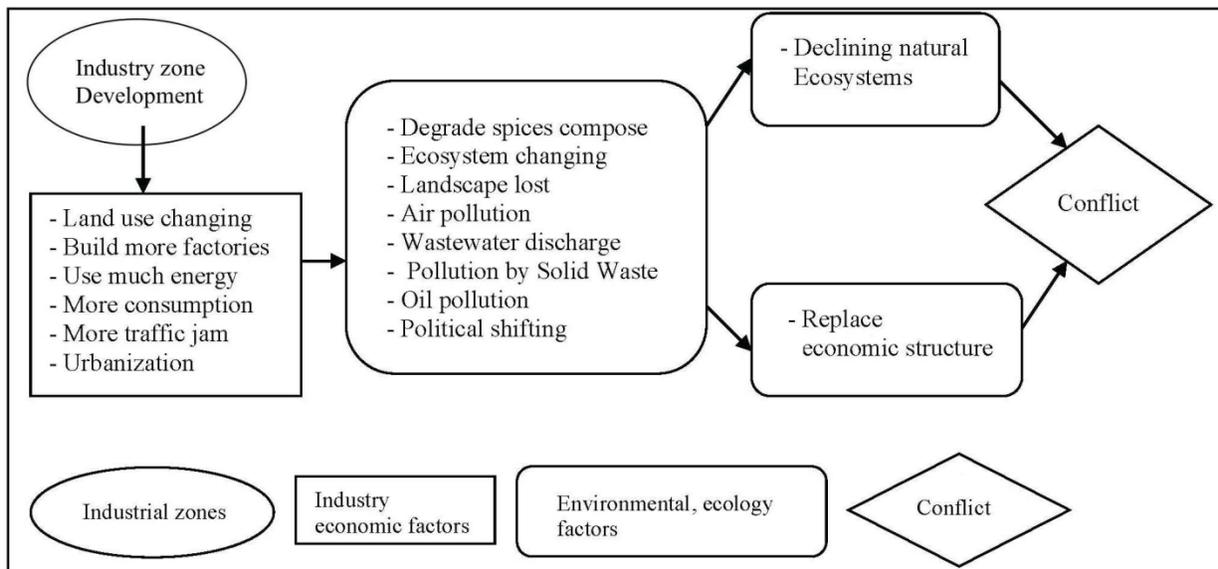
Up to now (2009), Hai Phong has 12,912 industrial establishments, most of which are concentrated in the urban areas and Thuy Nguyen rural district. In Hai Phong, there exist three big industrial zones that were established according to Prime Minister's decision. Those are Nomura (153 ha), Dinh Vu (164 ha) and Do Son (150 ha) industrial zones. Other industrial zones with smaller areas were established according to the Hai Phong People Committee's decisions. Hai Phong industry has developed mainly in the south of the city. Many districts have good manufacturing conditions to attract many kinds of factories, such as Hong Bang, with machinery and shipping, and steel construction; Le Chan with small and quiet factories to produce furniture; Ngo Quyen with frozen fishery; and, Kien An concentrated on small

machinery, motors, footwear and clothes..., An Duong rural districts for chemicals and machinery in Nomura industrial zone; Thuy Nguyen with cements, colored metals, shipping and repaired shipping...; and, Cat Hai and Do Son with fish sauce and tourism. Other districts have smaller factories.

The economic structure of Hai Phong city is changed toward industrialization from 26.8% of industrial density in 1995 to 36.58% in 2005. The Resolution No. 32 of Political Bureau of Communist Party had proposed Hai Phong city to become an industrialized and modern city in 2020. It means that the industrial density will be increased by more than 40% in 2020. As such, according to the Decision 1448/QD-TTg on September 16th, 2009 of Prime Minister on approval of Master Plan of Hai Phong city to 2025, vision to 2050, Hai Phong will have 16 industrial zones. The development rate of industry will be 19% per year in period 2010 – 2020 with the main products such as Shipyard mechanism, engine mechanism, metallurgy, chemicals, construction materials, textile, leather, agriculture-forest-aquaculture processing...

The development of industry in Hai Phong currently and in the future has caused pressures to environment and led to environmental pollution. On the other hand, the capacity for managing and controlling pollution is very limited in Hai Phong city. Therefore, the more the industry develops, the more polluted the environment will get. Figure 9.7 shows the influences of industrial development on environment.

Figure 9.7. Flow chat of conflict of industrial development and environment protection in Hai Phong city.



Some environmental issues related to industrial development in Hai Phong city are listed below.

3.2.1.1 Air Pollution in Hai Phong city

The exhausted fumes from factories such as cement, construction manufactures, metallurgy... was discharged to the air and it causes the increasing concentration of toxic gases, green house gas and leading to acid rain. At the moment, there are 4 industrial zones in Hai Phong operating; however, the exhausted fumes problem from these is concerned by media. Until 2025, the number of industrial zones will be 4 times more and it indispensable leads the increasing of industrial fumes. The treatment of exhausted fumes from factories is regulated strictly by law, but the control this is very difficult.

3.2.1.2 Pressure on underground water and coastal water:

The development of industry in Hai Phong will attract a big number of labors from other provinces of Viet Nam to come for work, leading the increasing amount of domestic wastewater. In addition, industrial wastewater contains many toxic substances such as phenol, cyanide, heavy metals, persistent organic pollutant, suspended solid... Estimated to 2020, the pollution load of industrial wastewater will be increased from 1.2 – 11.2 times for different substances (Cao Thi Thu Trang *et al*, 2010). According to environmental plan to 2020 (DONRE of Hai Phong, 2006), city will have public drainage system based on sub-areas and build domestic wastewater treatment stations (6 stations with capacity 127,000m³/day) and industrial wastewater treatment stations (for 8 industrial zones with capacity 114,640 – 129,160m³/day). The environmental plan also indicates that to 2020, 100% of wastewater at industrial zones will be collected and treated. If the environmental plan is succeeded, the pressure of industrial development would be reduced remarkable. Otherwise, if the domestic and industrial wastewater is not treated strictly (like the present), the environmental degradation would happen, especially ground and surface water around industrial zones.

3.2.1.3 The increasing of hazard waste

Hazard waste is pressuring to environment of Hai Phong city. According to the latest data (Environment Protection Agency of Hai Phong city, 2009), the operation of industrial enterprises in Hai Phong city each year generates about 778 tons of hazardous waste, persistent waste. Of these, approximately 415 tons were recycled and sold, the remainder is treated, but

only about 10% of this treated by proper process. Among 778 tons, wastes from footwear manufacturing industry are dominant (246 tons, covering 31.6%), followed by wastes from oil residue and clothes contain oil (208 tons, - 26.7%), then wastes of cement roofing containing asbestos (200 tons, - up to 26%). The remaining are other wastes such as slag containing PbO, PbO₂, solvents, paints and liquid powder, containers contain contaminants, plastic contaminated with toxic, mud from lakes, etc. Especially, the most dangerous wastes are those collected and buried mixing with domestic wastes, generating high risk to soil and water pollution. Although making many efforts for collection and treatment of hazardous wastes, Hai Phong still has not enough its capacity for full management of this wastes with few private collectors of oil sludge, oil residue, chemicals, and electronics wastes from the city and some other provinces. It is estimated that only 10% of hazardous wastes is treated with proper processes in Hai Phong. Calculation on relatively, with the development rate of industry is 19%/year in 2011-2020 period, the hazardous waste would be higher 3 – 6 times compare to now. As planned to 2020, hazardous wastes in Hai Phong city will be treated in Hoanh Bo district, Quang Ninh Province with 80% of hazardous waste is treated (according to Master plan of Hai Phong city to 2020).

3.2.1.4 Narrow of agriculture land area and mangrove forest

Agriculture land area of the city is reduced more and more because of industrial development. According to Year Books of Hai Phong, from 2000 to 2009, with the expand and development of 4 industrial zones, the agriculture land area in Hai Phong reduced near 13%; and about 35.98 ha of mangrove forest were lost because of industrial development from 1994 – 2000 (Nguyen Van Thao *et al*, 2003). In next ten years, agriculture land area will be reduced significantly.

Pressures of industrial operations on environment in Hai Phong are very high while waste treatment systems of the city are not prepared well. Some issues related to human health and water contamination because of industrial operations were occurred. But in the future, with the strong development of industry in Hai Phong, the degradation of environment would be very seriously and the local government has to think about that. The more development of industry implemented, the more increasing of environmental pollution. Which one will be chosen by local government: development of industry or protection of environment? That is nature of the conflict.

3.2.1.5 Particles involved in the conflict

There are many stakeholders in industry sector development and environment protection. They include:

The groups of decision making: People Committee of Hai Phong city, People Committee of districts, Management Board of Industrial Zones, enterprises 's owners, investors, Department of Invest and Planning, Department of Industry... This group also include of environmentalists who working in Department of Natural Resources and Environment, Department of Science and Technology. The conflict may be arisen within this group because according Environmental Law of Viet Nam, each industrial project needs to have Environmental Impact Assessment (EIA) report but this report is belittled, even ignored. The goal of city is to reach to high rate of industry development and the Management Board of Industrial Zones, enterprises's owners, investors have responsibility to realize this goal. Beside, environmentalists with their function, have right to give ideas to protect environment, but in the developing country like Viet Nam, their opinion are often ignored.

The group of local communities: residents, workers and other social services. Nowadays, with the development of communication and media, their awareness on environment is improved. They are more concern on public health and environment for future generation, and they even struggle for that in some factories and some areas. This influences partly to local government and industrial zones but not much. The basic issues related to treatment of wastewater, hazard waste and exhausted fumes are not settled as well.

The groups of local societal organization: young union, association (women, farmer...), international NGOs. The role of this group is weak and influenced by Management Board of Industrial Zones and local government.

3.2.2 Typological classification

According to the classification of conflict as Cadoret (2009), Chandrasekharan (1966), Rupesinghe (1995) that have been mentioned above, we ranks and classifies the conflict as follow: For ranking, in this case, we can see that the conflict between industrial development and environmental protection is critical. It related to human health and future generation. The conflict is also duration because it will last to next tens years. The conflict is low urgency because at the moment, the impact of industrial development is not seen clearly.

The conflict can be classified into typologies as follow:

- As Cadoret (2009) it is chronic because the development of industry will last to 2025 and the consequence from that could be observed in the future. The conflict is also anticipation because it can be seen what is happen in the future to environment.
- As Chandrasekharan (1966), the development of industry related to mineral resources, so it will change the quality and availability of natural resources. The conflict also is legal reason because the law in Viet Nam is not strong enough to protection of environment.
- As Rupesinghe (1995), it is conflict formation.

3.2.3 Current trend of the conflict

The conflict between industrial development and environment protection in Hai Phong is not reach to peak, but it will reach to peak in next ten years. The local government also has some efforts to harmonize the conflict. The environmental monitoring program around industrial areas had been established and expanded and in operation. EIA reports of industrial operation are done more frequently. The local government will close the factory if find the signal of environmental pollution. However, with the high number of the enterprises in the city, it is very difficult to control the wastes discharged from industry. The conflict will be increased by time because environmental pollution from industry cannot be settled with the current infrastructure and management.

3.3 Conflict between tourism development and environmental protection in Cat Ba (Hai Phong) and Nha Trang

3.3.1 Nature of the conflict

In Hai Phong, there are two famous tourist areas Do Son beach and Cat Ba Island. The conflict between tourism development and environmental protection arise strongly in Cat Ba Island since Cat Ba Island confirmed World Biosphere Reserve Area in 2004 by UNESCO. Tourists come to Cat ba Island to visit Cat Ba National Park, Cat Ba bay, Lan Ha bay, and many beautiful beaches... The number of tourists visiting Cat Ba is increased day by day and it also speeds up infrastructures serving for tourism. The statistic data shown that, in 2003, the number of tourists visited Cat Ba was 250,000 people, but in 2006, this number was double, and in 2007

it was 729,000 turns and 2010 it was more than 1.1 million people (Hai Phong Security Newspaper, dated 30 March, 2011). The inhabitants of the Island are only about 15,000 people so the rate of tourist/habitant is 36. Averagely, the number of tourist increases 140% compare to previous year, but the number of hotels is a bit increased, only increasing on number of room, bed with the maximum of 110%.

Nha Trang is famous site of Viet Nam with long beach and beautiful landscapes. Nha Trang bay is considered one of the most beautiful bays in the world. Recently year, the number of tourist visiting Nha Trang increased about 120%/year and in 2008, Nha Trang received 1.5 million tourists. The population of the city was 319,101 people in 2009 in which the population stay in the coastal area was 68,886. So the rate of tourist/population is 21.3. The face of Nha Trang bay is changed fast because of the investment of high grade resorts, entertainment areas for tourists.

The “hot” development of tourism in Cat Ba Island (Hai Phong) and Nha Trang city of Viet Nam has caused problems on environment and ecology.

The increasing amount of domestic wastewater: According to calculation, the amount of wastewater from tourists in Cat Ba Island will increase 1.3 times in 2010 and 4 times in 2020 compare to that in 2007, respectively. Meanwhile, the capacity of domestic wastewater in the Island was 1400m³/day, equivalent to 67% of wastewater amount treated (in 2007). Therefore, with the fast increasing of tourists and labor serving tourism, the possibility of water pollution is unavoidable, not including wastewater from ship and boat on bay.

In Nha Trang, the amount of wastewater from tourists will increase 1.2 times and most of the hotels located on the coastal streets such as Tran Phu, Hung Vuong, Tran Hung Dao... and island areas. At the island areas, most of the wastewater of restaurants and hotels is discharged into the bay without treatment. For domestic wastewater in the city, it also concentrated in the sewage and discharged into the bay. At the moment, the city does not have concentrated wastewater treatment station. The city is planning to 2025 to build 2 wastewater treatment stations: one in the Northern part with the capacity 14,000m³/day and one in the southern part with the capacity 40,000m³/day; and to 2030 the capacity of these stations will be increased to 1.5 times. But now, all domestic wastewater from the city is not treated but discharged directly to the bay and the increasing number of tourists means that the increasing of wastewater polluted bay.

The increasing of solid waste: the statistic data shown that each tourist in Cat ba Island discharges 1kg solid waste /person/day. The solid waste arisen from tourists in Cat Ba Island in

2010 will increase 1.58 times in 2010 and 3.1 times in 2020 compare to that in 2007. The capacity of garbage collecting in the Island was only 70%, meanwhile at the moment, the dumping sites in Cat Ba is overloaded. The Government had planned to build a new dumping site Ang Cha Cha with area of 6.5ha to bury solid waste of the Island, but now, the construction of this dumping site is not yet implemented. So the pollution of solid waste in the Island is more and more seriously.

In Nha Trang, the collection of solid waste is quite good. However, dumping sites there are also overloaded and they are under construction. The Ru Ri dumping site (or called Nha Trang dumping site) operated since 1998. It is 6 ha large and now it is overloaded. The leaking water and wastes from the dumping site polluted seriously land, air and groundwater in the area. The city had planned to build a new dumping site Luong Hoa with the area of 47 ha in Luong Hoa, Vinh Luong Commune with the usage time is 20 – 30 years. However, the new dumping site is not yet operated. According statistic data, solid waste arisen factor of people in Nha Trang in 2009 was 0.72kg/person/day. With the increasing of tourists while infrastructure for environmental protection is not yet ready will contribute to increasing of risk for environment pollution.

Destroy mountain and encroach sea to build resorts, hotels: the “hot” development of tourism in Cat Ba Island had leading destroy of mountain and fill up the sea to build houses, roads, and flower – gardens. The Mong Mot Thang Tu street 1 km long and Nui Ngoc Street located behind Ngoc Mountain are used for hotels. At the moment (2010), Cat Ba Island has 112 hotels and mini-hotels with nearly 2,000 rooms, more than 4,050 beds; more than 30 restaurants with 7 floating restaurants (website of Viet Nam Tourism Agency). However, these hotels and restaurants do not satisfy demand of tourists, especially at the high season period, this why the number of hotels and restaurants is increased incessant. Due to the demand for serving tourism, the mountain in Nui Ngoc Street is pierced to build houses and hotels. The Cai Gia Urban Zone sea-encroachment project nearby is implemented quickly. Violent construction there has changed in geology, landscape and environment and lost the beautiful bay in Cat Ba.

The land-level, sea-encroachment happens strongly in Nha Trang bay. Many surface water areas in bay were lost due to destroy of mountain, fill-up sea... to extent area for building high-grade resorts. Each resort project has size from tens to hundreds ha, including surface water and land. Sea-encroachment also lost areas of mangroves, coral reefs, seagrass... and affected to water and sediment quality in the bay. According to Vietbao (dated 4 April, 2006), in the Rusalka project at Bai Tien (belong to Ving Hoa Ward, located in the north of Nha Trang

bay), beside of water surface and beach assigned, 23,000 m² of seawater surface had been encroached without license. In addition, more than 30 ha of seawater surface at Duong De area also driven in a stake and level up to build resident area. The Song Lo area located in the South of Nha Trang bay also encroached. There, beside of 170 ha area was assigned for Tourism and Entertainment Song Lo Project, there are 30,000 m² seawater surfaces were lost and about 20,000 m² more were encroached. At the detour of Nui Chut in the south of Cau Da, 56 ha of seawater of Nha Trang bay located near Tac River (Quan Truong) had been fill up completely to build Phu Quy Resident Area (near 80 ha) with 12,000 habitants. These works had affected to environment around residents because of pollution. Moreover, according to Nha Trang Port Administration, the encroached area located near the tidal current, far from dredging channel and quay of Nha Trang Port about 300 – 1,000 m, so it can lead to risk for alluvium of channel. Encroach situation is not only occur in coastal area but also in islands that belong to Nha Trang Marine Protected Area. A huge marine ecology area at Dam Gia (belong to Hon Tre) had been destroy due to pouring land directly into the sea by project owners leading whole seagrass, coral reef and other communities were buried. This situation was also occurred in Hon Tam Island to build hotels and man-made beach, quay...

Encroach, fill up the sea mainly happen in tourist area and it has big impacted to ecology environment such as destroy habitat, mangrove forest, causing alluvium, increase water turbidity, change of current... All local managers and project owners know it clearly, but due to the “hot” tourism development in the sort term, they ignored environmental consequences later.

Tourist boats cause oil pollution and destroy coral reefs: in Cat Ba, there are 211 coral species distributed in the south-western of the Island. The areas where abundant coral reefs are Anh Tham, Cat Dua, Mui Hong, Bai Trai Dao (in the southeastern of the Island), Dau Be – Hang Trai, Long Chau islands. The popular depth to reef is 5 – 6 m, maximum not over 10 m. Coral reefs are habitat of phytoplankton, zooplankton, algae, annelids, mollusks, crustaceans, echinoderms, fishes and marine reptiles and mammals. At present, Cat Ba Island has 63 tourist boats, however, it attracts to 200 tourist boats from Ha Long to Cat Ba – Do Son leading to increase amount of wastewater and oil waste cause oil pollution to the sea.

For Nha Trang bay, coral reefs distribution covers most of the islands, with maximum depth of 15m. The total area of coral reefs in Nha Trang Bay is about 200ha. There are 350 coral species. In comparing to other places, Nha Trang Bay is one of the most abundant locations in

term of number of coral species and genera in Vietnam. In Nha Trang, there were 242 tourist boats in 2008. It also causes problems to coral reefs.

Diving tours for tourist to see coral reefs are quite increased in recent years, especially in Nha Trang. It had big impacted to ecological environment, especially coral reefs. Anchors of boats can destroy reefs, therefore, in the framework of operations of Hon Mun Marine Protected Area (Nha Trang), a guideline manual for install anchor buoys in Marine Protected Areas in order to minimum damage caused from boats had been produced and delivered to people.

Water supply challenges: in summer season, water supply in tourist areas and islands is a big problem for managers. In Cat Ba Island, the statistic data shown that, in the time of high season, each day people in Cat Ba consume thousands m³ of water while the supply capacity is only 1,300m³/day. This amount of water only satisfies demand of tourist and residents in normal days, but in the weekend, it is not enough. In 2010, the total demand of water supply of the Island was 1.2 million m³ while the capacity was 800 – 900 m³. Therefore, the lack of water supply is unavoidable. At the moment, the Government of Cat Ba is planning to make project to build water reservoir at Phu Long Commune. In another hand, the project for building water reservoir in Tran Chau Commune is approved and being implemented. The water reservoir project in Xuan Dam is also in planning. As design, when 3 reservoirs are completed, the capacity can be reached to 1 million m³ of water/year and together current water supply system, the lack of fresh water to 2020 in Cat Ba will be settled (Hai Phong Newspaper, Jun 4th 2010).

In summary, conflict between tourism development and environmental protection at two case studies Hai Phong (Cat Ba Island) and Nha Trang is quite high whereas the number of tourists is increasing, the water quality and marine biodiversity in Cat Ba and Nha Trang bays is being declined and shown degraded.

3.3.2. Parties involved in the conflict

Related to conflict between tourism development and environmental protection at two case studies Hai Phong (Cat Ba Island) and Nha Trang, the stakeholders there can be divided into 4 groups (Torell, 1997): development group, conservation group, primitive production group and modern group. The detailed of each stakeholder group will be analyzed below:

Development group: this group includes People Committee of Cat Ba District, People Committee of Hai Phong city, People Committee of Nha Trang city, People Committee of Khanh Hoa Province, Department of Culture, Sport and Tourism of Hai Phong and Nha Trang, Ministry of Culture, Sport and Tourism of Viet Nam. The goals of this group are to increase

number of tourists and turnover, also contribute to economic growth, eliminate hunger and reduce poverty, ensure for social security, conserve and prove cultural values, protect environment and national security. In two case studies of Viet Nam, in past time, the diffusion of Viet Nam image in general and Cat Ba, Nha Trang in particular is well done. This had attracted a big number of tourists to Ca Ba and Nha Trang. However, due to not be prepared enough on infrastructure for serving tourists leading the overload of tourists in high season and cause environmental pollution and this remained bad impressions for tourists. That is why 85% of foreign tourists did not intend to come back Viet Nam (Vietbao, 14/6/2004). The development group play a role to orientate and propose strategy solutions for the development of tourist sectors, but this group had not right forecast of develop rate of tourist sectors or they know that but do not pay attention to service quality as well as environmental protection. It can be said that, tourism development in Cat Ba and Nha Trang at present is “hot” development, not sustainability.

Conservation group: this group are environmentalists such as Management Board of Cat Ba National Park, Management Board of World Biosphere Reserve Area in Cat Ba, Management Board of Hon Mun Marine Protected Area (Nha Trang), Environmental Associations of Hai Phong and Nha Trang, Environment Protection Agency of Hai Phong and Khanh Hoa, Department of Natural and Resources of Nha Trang and Cat Hai, Institutes, World Wildlife Fund (WWF), Fauna and Flora International (FFI)... The goal of conservation group is to develop sustainable tourism. This means that the conservation group has responsibility to induce development group to concern on ecological environment, such as building efficient wastewater treatment stations, building sanitary dumping sites, control the discharge of tourist boats on sea, not encourage for destroy mountain and encroach sea leading change of landscape, and protect environment, raising awareness on environment protection. As such, some works are not belong to conservation group (building wastewater treatment stations) but this group as critic role will help the work implemented efficiently; some works the conservation involves directly such as Environmental Impact Assessment projects or propaganda for environment protection. Things observed in Cat Ba and Nha Trang in past time is the weak opinion of conservation group in front of development and other groups. Therefore, a series of encroach projects had been approved and implemented while environmental projects (building wastewater treatment station, dumping sites) approved but slow implemented.

Primary group: at Cat Ba and Nha Trang, this group includes tourist boat owners, restaurant and hotel owners, and local residents who earn money from tourist development. Their goal is economy and their serving subject is tourist. So the high number of tourists means that their income will be high. They are less concerned with environmental protection. Therefore, if protection of environment is increased and limits are imposed on development activities, it will affect directly the livelihood of this group. This is also a weak point of conservation group. This is also weak point of conservation group. An example in Hon Mun Marine Protected Area (Nha Trang): in the efforts to protection of coral reefs, the prohibition of anchor in coral reef areas have been implemented in Hon Mun MPA, and instead of that, the conservation group has to guide local people in proper way to ensure exploiting of sea diving activities. If the conservation group do not give guideline for anchoring, it is very difficult to execute this prohibition. Government guidelines and policies play an important role, therefore, before enforcing guidelines and policies, it is necessary to consider the benefits of this group.

Modern group: in Cat Ba and Nha Trang tourist areas, the modern group is infrastructure building companies, investors of high-grade resort projects, investors of wastewater treatment plant projects, investors of building dumping sites... The advantage of this group is budget and technical so it gets the support of development and primary groups. The activities of this group directly damage natural resources and environment for example destroy mangrove forest, destroy mountain, fill sand up to make beach, encroach the sea to build hotels.. The goals of this group are to serve tourists (partially, such as hotels, restaurants) and get benefit from tourist service. However, this group less concern to aspects likes environment quality, natural beautiful beaches and landscape. Due to their goal is benefit coming from invest of high – grade resort, they will strictly exploit capacity of the resort and not spend money for invest and reproduce of environment.

3.3.3 Typological classification

Classification of conflict as Cadoret (2009), Chandrasekharan (1966), Rupesinghe (1995) are presented as follow:

For ranking, we can see that the conflict between tourism development and environmental protection is critical. If the conflict is not settled, the bad image of Viet Nam will be kept in tourists and it can affect back to the tourism development strategy of Viet Nam. So, it is urgency because it was seen clearly by media.

The conflict can be classification into typologies as follow:

- As Cadoret (2009) it is chronic.
- As Chandrasekharan (1966), the conflict is the change in environment quality.
- As Rupesinghe (1995), it is conflict endurance because the local government can not settle it until environmental protection project completed.

3.3.4 The trend of the conflict

The conflict between tourism development and environmental protection is more increased. As analyzed above, to ensure the rooms and restaurants for a big number of tourists, hotels and resorts will be built continuously. This means that mountain can be destroyed and sea can be encroached more. The government knows that but they can not give way to receive this big number of tourist with available infrastructure. On the other hand, they still call for tourist to come.

As the aspect of wastewater and solid waste, the government is proceeding to complete wastewater treatment and solid dumping sites, but it is long-term plan. In the future, this term need to be concerned more.

In general, all items arisen between tourism development and environmental protection are identified and analyzed, but to find the solutions for settle is difficult because the benefit of different stakeholders. In the case of Viet Nam, sustainable tourism development is the final goal, not only for conservation group. Therefore, it is necessary to have more discussion on how to get this goal.

4. Ranking of the Conflicts

The ranking of the conflicts was followed by Delphi ranking or an AHP ranking. This ranking based on three criteria:

- Criticality of the conflict: To which extent the conflict is critical to long-term development of the region/area? To which extent the conflict is an important event to local people?
- Urgency: To which extent the conflict needs to be resolved immediately? Is there a deadline involved?
- Duration: Whether the conflict is a short-term (acute) or a long-term (chronic) event?

Each criterion was supposed to be subdivided into indicators to allow assessment and rating following the Delphi methodological explanation for the process. The rating was suggested to be done on 5-point Likert-type.

The ranking of all conflicts here are presented in Table 9.2, in which all conflicts are critically and duration, and the last one also urgency.

Table 9.2. *Summary environment conflicts in Hai Phong and Nha Trang case studies.*

Conflict case	Theme			Typology				Ranking		
	ED vs EP	PNSB	HMR	By manifestation over time	By underlying cause	By Stage	By scale	Criticality	Urgency	Duration
Hai Phong port development	√	√		- Chronic - Anticipation	- Change in resources quality and availability	conflict formation		√		√
Industrial zone in Haiphong city	√	√		- Chronic - Anticipation	- Change the quality and availability of natural resources - Legal reason	conflict formation		√		√
Tourism development in Cat Ba (Hai Phong) and Nha Trang	√	√		- Chronic	Change in environment quality	conflict endurance		√	√	√

5. Conclusion

Three outstanding environmental conflicts had been identified in two case studies of Hai Phong and Nha Trang. They are conflict between port development (including widening of the Hai Phong port and building new port Lach Huyen) and biodiversity protection; between industrial development and environmental protection in Hai Phong; and between tourism development and environmental protection in Cat Ba Island (Hai Phong) and Nha Trang. All of them are conflicts between economic development and environment protection. For typology, these are chronic and related to the change of natural resources; the cases of Hai Phong port development and industrial development in Hai Phong city conflicts are also anticipation and at the stage of conflict formation; the conflict between tourism development and environment protection is at the stage of endurance. For ranking, all conflicts are critical, long-term and the last one is also urgent.

These are long-term conflicts and very difficult to settle. The local government is trying to find solutions to pursue economic development in a way that also includes environmental protection. However, the way to satisfy all stakeholders is difficult. Experiences from other countries in the same situation need to be adapted in Viet Nam to solve conflicts.

The analysis and assessment of environmental conflicts in this chapter provide a holistic picture of development projects and will contribute to comparative studies of conflicts in other parts of the world. The classification of conflict among other conflicts helps us in grouping conflicts and finds solutions for settlement. Although, there will be certain limits in solving conflict because of differences in institutional and policy frameworks in each country. Using the same solution for the same conflict in another context is, therefore, not a pragmatic way to settle conflicts.

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Annex 1: List of main environmental conflicts in two case studies of Hai Phong and Nha Trang

No.	Name of conflict	Case Study
1	Tourism development vs. protection of Cat Ba Biosphere Reserved Area	Hai Phong
2	Dam up of Dinh Vu dam for transport development (in general) vs. alluvial of channel of Hai Phong port	Hai Phong
3	Building Lach Huyen deep-seaport vs. protection of biodiversity and marine ecosystems	Hai Phong
4	Conflict between local people and Diaminophosphate (DAP) Company (Dinh Vu Economic Zone) on acid tanks	Hai Phong
5	Transportation of containers contain hazards wastes (at Hai Phong port) vs. environmental protection	Hai Phong
6	Development of fishery Vs. tourism development in Do Son	Hai Phong
7	Building international airport in Tien Lang vs. protection of ecosystems and local residents	Hai Phong
8	Development of tourism vs. protection of environment	Nha Trang
9	Usage of water resources vs. the increasing of service sectors	Nha Trang
10	Conservation of biodiversity and ecosystems in Nha Trang bay vs. development of tourism, aquaculture, and jobs of coastal people	Nha Trang

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ABSTRACT: This chapter provides analysis and assessment of three outstanding environmental conflicts in Hai Phong and Nha Trang cities in Vietnam. They are conflicts between port development (including widening of Hai Phong port and building new port Lach Huyen) and biodiversity protection; industrial development and environmental protection in Hai Phong; and between tourism development and environmental protection in Cat Ba Island (Hai Phong) and Nha Trang. Each conflict is analysed from four aspects including nature of the conflict, parties involved in the conflict, typological classification, and current trends of the conflict. These conflicts belong to the theme of economic development versus environmental protection. The conclusions drawn through ranking shows that all of them are critical except the one in Cat Ba Island and Nha Trang, which is also urgent.

KEYWORDS: global changes, coastal areas, environmental conflicts, Hai Phong, Nha Trang City

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CHAPTER 10.

Beyond Panacea: Towards a Strategic Assessment Framework for Environmental Conflicts

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1. Introduction

In-depth analyses of the twenty-six environmental conflict cases (chapters 2 till 9) from seventeen coastal metropolitan areas of eight different European and non-European countries have been presented in this volume. Framed by their meta-analyses (chapter 1), our underlying concern has been clearly to advance the assessment of environmental conflicts as a strategic approach for addressing and unfolding sustainable development in the coastal areas. In this regard, our main objective has been to develop diagnostic and analytical capabilities through developing an environmental conflict assessment framework that is based on an in-depth interdisciplinary understanding and analysis of the nature of these conflicts. As a way of formulating conclusions about these concern and objective, we first present our understanding of environmental conflicts that has been advanced as socio-ecological constructions that are complex adaptive systems. In a next step, we bring together the methodological insights unfolded through the meta-analyses of all the cases in sketching out a strategic framework for their assessment. This is followed by highlighting the diagnostic, analytical and strategic capacities of this framework towards the end of the conclusions.

2. Environmental conflicts and the need for going beyond panacea

In the course of this volume, we worked towards developing an understanding of environmental conflicts in coastal urban areas as complex socio-ecological constructions. This understanding is based on the premise that 'all humanly used resources are embedded in complex, social-ecological systems' (Ostrom, 2009, p. 420). Environmental conflicts arise from competing / conflicting use of the environment (space, land, sea, air and the resources embedded in them) by the society (groups, parties / stakeholders / users involved) that unfolds or contributes to some form (real, external or perceptual) of ecological impact / damage (e.g. climate change, pollution, erosion, scarcity, etc.). Their nature changes and evolves over time depending on the type and level of interactions between different (multiple) processes and scales of Socio-Ecological Systems (SES) involved (Ostrom et al., 2007). They become 'complex adaptive systems' (Ostrom, 1999) as many of the sub-conflicts, and their underlying processes, generate properties through interactions that are not easy to predict by analyzing the separate sub-conflicts.

¹ In developing this understanding, we have relied on taking an integrated view of the 'conflicts' and 'environmental' in the environmental conflicts research before assembling them as socio-ecological constructions.

Our understanding builds up on the two main observed perspectives underlying environmental conflicts conceptualization and research, namely, the (natural) resource conservation and management perspective (Acheson, 2006; Agrawal, 2003; Bruckmeier, 2005; Burke, 2001; Gleditsch, 2004; Green & Penning-Rowsell, 1999; Leal Filho et al., 2008; O'Connor, et al., 2010; Suman, 2001; WRDC 1992; and the broader research about ICZM); and a traditional 'security, conflicts and peace research', also popularized as the 'greening' of peace research (Bächler, 1999; Brown, 1989; Homer-Dixon, 1999; Libiszewski, 1992 and 1995; Mason et al., 2007; Pirages, 1991; Renner et al., 1991). From these perspectives, environmental conflicts research has spread widely across several disciplines (Burke, 2001; Deligiannis, 2010; Escobar, 2006a,b; Martinez-Alier, 2005; Martinez-Alier et al., 2010; Mason et al., 2007; Schnaiberg, A., 2007; Stepanova et al., 2013; Wittmer et al., 2006).² In this proliferating landscape of environmental conflict research, whether adhering to one or the other perspective and in different disciplines, several challenges and lessons have emerged that we have taken stock of. First, and foremost, is the over-arching lesson advocating the need for going beyond standardized or panacea approaches to understanding and addressing environmental conflicts in coastal areas (Ostrom et al., 2007; Striegnitz, 2006). Second, and closely related to the first, is the natural (pollution and the overuse of resources) and social (actors and their values, interests, capacities and resource use practices) sciences divide in ways of seeing and understanding environmental conflicts (Stepanova et al., 2013). Third is the science and policy divide, which roughly translates to scientific knowledge for conflict analysis and managerial experience in resource management and conflict resolution respectively (Portman et al., 2012; SPICOSA 2007-11). Fourth is the lack of attention for research on environmental conflicts in coastal research, which largely remains

¹ According to Elinor Ostrom (1999, pp. 520-21) Complex adaptive systems are composed of a large number of active elements whose rich patterns of interactions produce emergent properties that are not easy to predict by analyzing the separate parts of a system (Ostrom, 1999, p. 520-21).

² For an excellent review of these researches, see Stepanova, O. and Bruckmeier, K. (2013) The relevance of environmental conflict research for coastal management. A review of concepts, approaches and methods with a focus on Europe, in *Ocean & Coastal Management* 75, pp. 20-32.

focused on ICZM and natural resources management.³ Fifth, and transcending these various research strands and divides, is the SES perspective (Ostrom and others) that develops from a critical review of the analysis of “tragedy of the commons” by Hardin (1968). Sixth, and increasingly important, is the need for understanding the processual nature of environmental conflicts (Cadoret, 2009) for unfolding better assessment and resolution measures.

In addressing these challenges through a shared concern for going beyond panaceas (Ostrom et al., 2007; Striegnitz, 2006), our chapter on methodological developments outlines an approach based on interdisciplinary knowledge integration and multi-scalar analyses as central to advancing environmental conflict research. In particular, the process dimension (Cadoret, 2009) and the concept of ‘interactions’ within the framework of SES (Ostrom, 2007) and the Compram method (DeTombe, 2001) for addressing complex societal problems have played a central role in the development of our notion of environmental conflicts. Accordingly, we emphasise to focus on the interactions between environmental resources, their users and uses that triggers and shapes the evolution of environmental conflicts. Based on the in-depth analysis of twenty-six environmental conflict cases, we have observed that their nature changes and evolves over time depending on the type and level of interactions between different (multiple) processes and scales of Socio-Ecological Systems (SES) involved. As mentioned before, they become ‘complex adaptive systems’ (Ostrom, 1999) as many of the sub-conflicts, and their underlying processes, generate properties through interactions that are not easy to predict by analyzing the separate sub-conflicts.⁴ In addressing the methodological issues involved in the analysis of such conflicts, therefore, we proposed a multi-criteria mixed methodology and interdisciplinary approach based on a flexible combination of conceptual frames and typologies compiled from conflict research in different disciplines (De Tombe, Homer-Dixon, Ostrom, Martinez-Alier, Cadoret), methods in comparative studies of conflicts, and multi-scale analyses of coastal SES. This approach is implemented (and adjusted) in each particular context of the twenty-six conflict cases, which captures the dynamics of a wide

³ For example, several large scale European research projects, such as SUZOZOMA (1997-2004), FRAP (2003-06), SPICOSA (2007-11), INCOFISH, COASTMAN (2004-07).

⁴ According to Elinor Ostrom (1999, pp. 520-21) Complex adaptive systems are composed of a large number of active elements whose rich patterns of interactions produce emergent properties that are not easy to predict by analyzing the separate parts of a system (Ostrom, 1999, p. 520-21).

variety of socio-ecological interactions between stakeholders and resources that causes different types and levels of environmental degradation, and that their conflicting interactions change and continuously evolve the conflicts jeopardizing the sustainability of the coastal urban environment.

The in-depth analysis of the three environmental conflict cases in the Italian chapter emphasizes that they are chronic and critical for sustainable development and their resolution is indeed urgently needed. The Belgian chapter shows that decisions are made project by project, rather than through a comprehensive plan that includes a participatory approach. A more in depth analysis is needed in order to outline alternatives for a more sustainable future of urban coastal environments. The Portuguese chapter emphasizes the role of understanding temporal dynamics of conflicts for mitigation of future conflicts, and as a way of deriving policy options for sustainable development in the coastal areas. The British chapter shows that conflicts are complex and in a state of flux and can shift from one category to another. The Israeli chapter focuses on the shift from one paradigm to another (the coast as a backyard – the coast as a frontyard – the coast as a public domain) as a major source for environmental conflicts in coastal areas. The Swedish chapter argues that environmental conflict resolution within planning frameworks fails to be integrated with strategies for climate change adaptation and transition management for sustainability. The Indian chapter reveals several commonalities: environmental abuse that leads to legal protection following intervention of NGOs that is unable to fully solve the problems. These are chronic environmental conflicts at a phase of transformation. The Vietnamese chapter reveals that environmental conflicts are mostly critical and their resolution is urgent.

From a methodological perspective, the meta-analyses of all these environmental conflict cases presented in chapter one unfold certain conceptual insights. They facilitate constructing a broader imaginary of coastal urban areas as ‘dynamic’ and ‘hybrid’ in terms of their SESs. Constructing such an imaginary is a pragmatic way of conceptualizing the issues concerning their policy, planning, management, governance, and also highlighting the paradigmatic shifts within them. These insights also shed light on the different elements of the analytical structure of the conflict assessment framework – related to the identification, thematisation, coalition formation, typological classification and ranking – that are presented in the next section.

From the analysis of all the cases, the imaginary of the coastal urban areas that emerges is that of a dynamic place where growth, modernization and expansion of ports / harbours, industrial areas, tourism facilities, urban functions, power / energy generation, human mobility processes (and so on) consumes the natural resources in producing a (hybrid) space ('coastal space') that is contested by users and sectors. This contestation is about the ways of producing the coastal space, i.e. it is embedded in the very processes of the production of coastal space. These processes can neither be comprehended nor explained by imagining the (false) divide between 'nature' and 'society' or by attempting to 'purify' them into separate components (Latour, 1993), nor can the economic logic alone explain these processes. These processes are driven by competing interests and could be conceptualized as the *interactions* of the three natures or ecologies [and not nature and society alone]: the natural nature / ecology, the built form ecology and the world of socio-cultural relations that together constitute the complex life-world of SESs in the coastal areas. These interactions are conditioned by each particular context in different ways, hence the specificity of the context (the locale) in shaping those interactions. In these interactions, conflicts build up that are never static but always dynamic (in a flux) with both 'material' aspects (products and constructs) as well as immaterial aspects (discourse, images, arguments, etc.). It is this complexity that has inspired us to respond to the calls for going beyond panaceas through consolidating our analyses in the form of proposing a general framework for environmental conflict assessment.

3. Environmental Conflict Assessment Framework - CAF

Our intention through CAF is to facilitate an in-depth understanding and appraisal of environmental conflicts by focusing on their hybridity and dynamic change through interactions in a way that allows mediating, resolving and eventually avoiding them. In methodological terms, understanding a complex whole / system (e.g. environmental conflicts) requires knowledge about sub-systems with specific variables and how their component parts are related and interact. Moreover, understanding environmental conflicts in CAF as complex adaptive systems (i.e. dynamic) also imply unfolding the possible 'future' consequences of the environmental conflicts based on discerning their patterns in the past evolution.

Understanding, analyzing, assessing and proposing alternative solutions for environmental conflicts is therefore the combined ambition of our proposed framework, which we consider as a strategic approach for unfolding sustainable development in coastal urban areas. The framework assembles four core sub-systems (figure 10.1) - Resources; Users; Uses; and Governance – that operate within the settings (Socio-economic, Political, Cultural & Spatial) and systems (Related eco-systems – climate change patterns, pollution, etc.) of the coastal urban environment. Environmental conflicts emerge and evolve through the interactions between these core sub-systems. Within these interactions, certain interest and pressure groups emerge that together with the lateral processes of human mobility and the larger settings and systems of the coastal urban environment determines and shapes the extent, scale and dynamics of environmental conflict. A comprehensive set of sub-system variables have been identified (figure 10.2) that affect the dynamics of environmental conflicts. This is further complemented by a detailed diagnostic and analytical structure (figure 10.3) that culminates towards a synthesis for developing scenarios and alternative solutions for environmental conflict mediation and resolution.

Figure 10.1. Environmental conflict assessment framework with core sub-systems, settings and systems of a coastal urban environment.

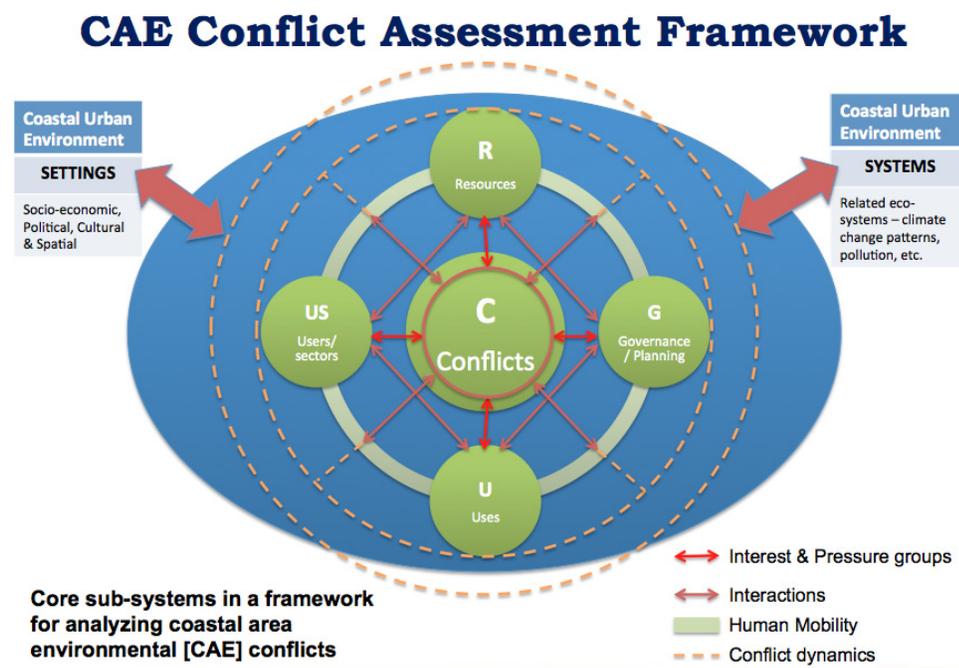


Figure 10.2. *Broad sets of variables for the four core sub-systems.*

R Resources	US Users	U Uses	G Governance
Physical/Natural resources - Coastal landscapes & ecosystems resources - Soil & land-use resources - Mineral resources - Water resources	Inhabitants/households	Ports and harbours (PH): ports [sea and also air] and harbours, their modernization / expansion, related industrial & mobility infrastructures	Institutional: Government & semi-govt. organizations [local, regional, national, EU / Int'l]
	Tourism sector		
	Industry, Trade & commerce		
Social & cultural resources	Agriculture	Urban growth and development (UGD): housing [and second homes], infrastructure, recreation, resorts / hotels, beaches, coastal defences	Legal: Property-rights & Legal systems
	Fishing fleets		
Archeological, heritage & historical resources	Energy producers	Energy generation (EG): Conventional [hydel, thermal, nuclear] & renewables [tidal, solar, wind, etc.]	Civil society: Nongovernmental organizations
	Ports & harbours		
Economy & employert	Environmental & Community groups	Natural environment and habitat (NEH): nature reserves, forests, national parks, bio-diversity zones and other protected areas.	Planning: Urban design & Planning systems
	Second-home owners		

3.1 Core sub-systems 1 & 2: Resources and Users

In the socio-ecological construction of environmental conflicts, the interaction of these two core sub-systems play a constitutive role: the natural / ecological ‘resources’ and the social / users (direct and indirect ‘entities’) that want to make use of them. The conflict problematic lies in the fact that multiple uses of resources are often excludable, which means that one use of a resource will exclude another use. A full SECOA volume (Khan et al., 2012) has been dedicated to develop profiles of these two core sub-systems based on the seventeen coastal case study areas.

About resources, our premise has been that ‘all humanly used resources are embedded in complex, social-ecological systems’ (Ostrom, 2009, p. 420). Generally speaking they are all actual and potential forms of value provided by nature. These are not limited to those traded on a market. They include raw materials such as minerals, biomass and biological resources; environmental media such as air, water and soil; flow resources such as wind, geothermal, tidal and solar energy; and space (land area). They can be used for production (e.g. oil, land, wood, etc.) or absorption (e.g. water, soil, air), some can be depleted (e.g. minerals, biomass, etc.), others are renewable (e.g. sunlight, wind, etc.). The availability of these resources in urban coastal areas depends on their location, their geomorphologic structure, their history, etc. In a

wider frame, ecosystems and especially ecosystem services can also be seen as natural resources. In our approach to CAF, we have organized resources into four broad sets of sub-system level variables (figure 10.2), namely physical and natural, social and cultural, and archaeological and historical, and economic and employment related resources (for details, see Khan et al., 2012).

Next to the resources (the cause of the conflict), the resource users (direct and indirect) - the actors / parties / stakeholders in a conflict – constitute the core sub-system that construct and legitimize environmental conflicts. They draw their agenda from the broader societal context, for example, sustainability – a good enough reason to trigger their motivations, draw interests, develop interactions, and within them, generate conflicts. However, most relevant here is to transcend the false divide between ‘nature’ and ‘society’.⁵ It is in the complex blending of nature and society as a hybrid SES within which interactions among actors co-define each other, as well as, legitimize conflicts. Not only their ‘interactions’ become ‘variables’ in legitimizing the conflict, but also their interactions produce ‘internal variables’ that are conditioned by contextual forces of the settings (economic, social, political, cultural). The ways of identifying and determining them - crucially important for conflict assessment – begins with identifying the actors with a stake in the environmental conflict i.e. ‘stakeholders’, for which a detailed methodology is outlined in section 1.3 of chapter 1. They can be distinguished into two groups: stakeholders in environmental decision making (Client groups; Industry; The general public; Politicians; State agencies; Local agencies; Local councils; Business/traders; Media; Community activists; Fisheries/aquaculture; Farmers; and Tourism); and groups that cannot speak for themselves (Future generations; and the Natural environment). All of them are actors with a particular relationship with objects and environment. A more detailed overview of users discerned from the 26 conflict cases is provided in table-1.13. Finally, they have been organized into nine broad sets of sub-system level variables (figure 10.2), namely Inhabitants/households; Tourism sector; Industry, Trade & commerce; Agriculture; Fishing fleets; Energy producers; Ports & harbours; Environmental & Community groups; Second-home owners (for details, see Khan et al., 2012).

⁵ This divide is also reflected in the organisation of science and its division between natural sciences, dominated by a positivistic approach and leading to a technological practice, and the social and human sciences, with more paradigmatic controversy and leading to both managerial and political pragmatics. Blending the domains implies a revision of epistemologies.

3.2 Core sub-system 3: Uses

In the socio-ecological construction of environmental conflicts, multiple uses can be distinguished, such as Harvest, Production, Recreation, Commerce, Habitat, Livelihood, and Development (Hens et al., 2010). Based on these uses, a general set of variables was suggested (table 1.5) in order to develop a conflict matrix and facilitate the comparability of different uses with respect to resources and users. In all the 26 conflict cases presented in this volume, a wide range of uses has emerged. Based on their meta-analysis, we have observed that the dynamics of the conflicts, as well as their material and immaterial aspects, are produced by and revolve around the following *four main intertwined categories of uses* that play a crucial role in the life-worlds of coastal urban environment.

- **Ports and harbours:** Ports are a distinctive use in coastal urban areas that most often is the main basis upon which those settlements are created and provides the economic base for their functioning. Their physical scale, and related infrastructure, is in some cases even bigger than the cities they surround. In the cases analysed, the coastal urban areas conjures a world of ports (sea and also air) and harbours that are being modernized, upgraded, restructured, expanded and transformed. Their transformation hinges upon the link between global economic processes and local demands for economic development. The use of resources (human, natural and capital) by such transformations, which generates a series of conflicts, is thus not limited to the local context alone but part of a larger process of global modernisation of trade and resulting flows.
- **Urban growth and development:** Closely intertwined to the first, the second category of uses is the one related to the growth and development of general urban functions, such as housing (and second homes), infrastructure, recreation, resorts / hotels, beaches, coastal defences and related urban amenities and facilities. Such uses of urban growth and development occur mainly due to increased demographic pressure, tourism and port related economic activities that generates increased human mobility.
- **Energy generation:** The intensity of the first two uses produces a greater demand for energy. Also, given their unique location and resources, coastal areas have become the hotbeds for renewable energy production. This includes not only off and on-shore renewable energy but also conventional types of power plants because of higher density of urban, economic, industrial and tourism functions in coastal urban areas. More

importantly, due to the immense importance given to the so-called ethically correct socio-political and economic position of renewable energy sector, the competition for land and sea use changes for renewables (tidal, solar, wind, etc.) is unfolding new generation of conflicts of uses.

- **Natural environment and habitat:** The fourth category of uses in coastal urban areas is the world of ecologically sensitive and fragile natural environments and habitat in the form of nature reserves, national parks, bio-diversity zones and other protected areas. They are the foundation upon which all the preceding uses function.

The environmental conflicts analyzed in this volume are within and across these categories of uses that range from access (denying public access to coast) to land-use (conflicting / competing changes), infrastructure / transportation, settlement pattern, coastal defences, bio-diversity maintenance and pollution associated conflicts. Most of them are critical as they relate to long term development of their respective area that have potentially major consequences for socio-economic and environmental systems at a number of different scales, ranging from the local to the national and, to some extent, international. They move and evolve along multiple scales and temporal dimensions, and involve multiple causes and users.

3.3 Core sub-system 4: Planning and Governance

In the analysis of the complex processes of the evolution of environmental conflicts, several *issues concerning their policy, planning, management and governance* have been observed. They form the fourth core sub-system of our CAF that is distinguished into four main categories: Institutional, Legal, Civil Society, Planning systems. The main issues within this core sub-system are highlighted below.

- **Changing coastal planning and policy paradigms:** The analysis of several cases reveals a paradigmatic shift towards considering coastal urban areas within the paradigm of 'public trust'. This is a multi-level shift from considering coastal urban areas in the 1960s as the city's backyard with transport corridors, waste dumping and a general disregard to the coast and its attributes. Later on the tourism lead development (mostly private, speculative) transforming the coastline to an urban front-yard unfolded the commodification and 'privatization of the coast', there-by limiting public access. The current trends reveals that the coastal planning and policies are being redirected towards environmental awareness, maintaining 'public access' eliminating public

exclusion and returning the coast to the public – ‘the public trust’ paradigm. Despite the fact that different aspects from the previous paradigms still appear in the coastal planning and policy arrangements, there is a marked shift to focus on the coast as public domain.

- **Sustainable urban development / sustainable-eco-tourism:** There is an increase in the general awareness about environmental issues in coastal urban areas, accompanied by an increasing focus on developing innovative strategies and solutions for sustainable / eco-tourism and sustainable urban development in general. Besides this general awareness, the environmental conflicts analysed also show dilemmas of sustainable urban development and climate change adaptation that may become more relevant in future. The coast is attractive for settlement, recreation, and in urban areas also for industrial and economic development (e.g. connected to harbours). National level priorities exercise pressure to keep the coast clear or limit certain forms of resource use to allow access to beaches for everyone. When extreme weather situations happen more often along the coast, the scenic quality of coastal landscapes may be re-valued in terms of residential decisions. The probability of mitigating potential effects of climate change may require resettlement and migration away from the coast. However, the arrival of new residents and the continuing sprawl continue to expand the urban coastal areas, which imply increased pressure on valuable agricultural and green hinterland, on natural habitat areas, and that within the city boundaries new forms of concentrated settlement are sought, e.g. brownfield re-developments. In this regard, alternative forms of land use and density models need to be examined for developing solutions.
- **Shift from dominant hierarchy system towards multi-level / horizontal governance:** This shift is characterised by changes in governance networks associated with the environmental conflicts and the emergence of a new mode of regulation that consists of four main elements: Growing role of NGOs in environmental conflicts and shaping public policies towards recentralization, environmental and social justice; Judicial activism limits the power of the state, but enhances regulatory policies through precedent-setting court rulings; Strengthening of bureaucratic “gatekeepers” – legal advisers, finance bureaucrats, planners; Whilst policy making is done within the horizontal structure combining all of the above with the government, the central state has retained a major although changing role in the decision-making process. These shifts are embedded in political and ideological debates.

- **Distribution of cost-burdens associated with environmental conflict resolution:** Unclear and (sometimes) unavailable mechanisms of sharing cost-burdens for compensating those who are negatively affected by the decisions results in the dragging of the environmental conflict for years. Few examples of mechanism available include the provision of alternative land / transfer of development rights, the distribution of cost by the central / federal / state government through the treasury. Mechanisms such as 'the polluter pays the bill' have proven, in most cases, un-successful. The cost-burden question is at the heart of many environmental conflict resolutions, which demands innovative solutions.
- **Lack of mediating structures / coordinating bodies:** Discernable from the analysis of several environmental conflict cases, the interactions and relations between the different "camps" (social, environment and economy) are poorly developed. The formal mediating structures, providing space for different parties to talk to each other and interact are complex and not transparent for private local residents. The procedures do exist, allowing for local residents and other not-economical motivated users to bring in their personal perception and desires into the planning and decision making process. But these procedures require an active attitude and active search for information about "What is going on? What are the plans about? And how can I bring in my personal needs and concerns?" This attitude and capacity is widely missing within the "camp" of the non-economical motivated users. Another aspect that qualifies the need for mediating structures is the way the proponents and opponents try to influence the conflict: the proponents stick to the legal procedure of formal announcements of plans, mandatory environmental and societal impact reports, rather than discussions with all parties involved. The opponents react on the published plans and reports, rather than pro-act and anticipate plans. Their reactions express themselves in a variety of actions, ranging from lobbying, trying to raise their voice through political and judicial forums, publishing and spreading written information by means of flyers, brochures or websites and organizing demonstrations. In the same vein, there is also a need for coordinating bodies to address conflicting national, regional and local interests. The environmental conflicts are shifted between institutions that do not have clear mandates to decide or establish value-based priorities. Some institutions can represent national interests only when political priorities are established. The regional collaboration organs often have no mandate to establish a regional plan or responsibility for spatial planning. Similarly, the

water management authorities also quite often do not have a political forum. There is a need to look at the modalities of establishing regional level institution for co-ordination and political decision making both for larger scale issues such as settlement structure and infrastructural planning, but also for establishing priorities in relation to national-level interest claims, or for coordinating the use of municipal territorial waters.

- **Conflicting perception of decision-making, lack of communication and information:** In several environmental conflict cases, the local residents feel a lack of communication with government authorities. In some of the cases, the local residents perceive decisions being taken by the government as authoritarian, while the government perceives their behaviour and decision making procedures as open and democratic. They feel not heard by the government and decisions seem to be carried out (sooner or later), independent from the (local) public opinion. Moreover, the results from the questionnaires in several case studies show that even parties from the same coalition “camp” have very different expectations about the consequences of the different projects. Their opinions differ about the scale, importance and impact of the different projects. This might be an indicator for an unbalanced supply of information: only if all parties lead the discussion based on the same objective information, compromises or alternative solutions can be developed. The different alternatives for each project have to be analysed in an objective and comparable way, based on the same parameters for future scenarios.
- **Modal split:** Most of the environmental conflict cases are about harbour-port / infrastructure i.e. mobility related and with choices for the modal split for the transport of goods and people (transport by road, railway and/or waterway). They are also the most critical for their broader urban environmental and social implications. In particular, they have important impacts on the future modal split, and in this way, all conflict cases in each case study area / context are related to each other. However, decisions about the modal split are made case-wise and not within the framework of an overarching mobility plan for the coastal areas. The existing mobility plans usually does not contain a vision and clear objectives for the future desirable modal split, leaving the decision making process for conflict cases unguided and not concerted.

4. Diagnostic and analytical aspects of the environmental CAF

The application of the environmental conflict assessment framework (CAF) in the analysis of diverse cases has also unfolded several issues concerning the different aspects of its diagnostic and analytical capabilities. These issues need to be reflected upon and addressed for enhancing and further developing these capabilities and comparative potential of the CAF.

- **Nature of the conflict and the issue of thematic overlapping:** This concerns the diagnostic aspects of the CAF that facilitates identifying and defining the environmental conflict. There is a unanimity of opinion about the nature of conflicts in most cases analysed that environmental conflicts are conditioned and shaped by specific and particular contextual forces i.e. the importance of the role of the 'local context' demands 'local solutions'. Second, environmental conflicts in most cases in coastal urban areas are multi-dimensional, multi-scalar, multi-user and trans-generational. Third, each environmental conflict has sub-conflicts that are at different stages of evolution. Moreover, the sub-conflicts may not necessarily belong to the main conflict in terms of theme. This brings us to the main issue observed in all the environmental conflict cases: the thematic overlapping. This issue closely relates to the identification of conflicts. There is a need to relate the selected conflict to this larger set of conflicts and also to the sub-conflicts in thematic terms. The thematic overlapping needs to be ranked based on the significance of each theme in the environmental conflict. Even if a conflict belongs to a clear-cut theme, the same theme may lead to the introduction of other themes, which play a significant role in the conflict shaping and outcome. Moreover, the thematic ranking of each case needs to be related to the four main categories of the core sub-system of uses outlined above.

Figure 10.3. Schematic overview of the diagnostic and analytical structure for Environmental Conflict Assessment Framework.

Assessment STRUCTURE	Identifying / Defining the Conflict		Analysing the Conflict		Ranking the Conflict	
	THEMATIC Classification	NATURE of the Conflict	ACTORS / Parties involved & Coalitions emerged	TYPOLOGICAL classification	Current TRENDS	RANKING criteria
Research METHODS	SES framework, the Compram method, conflict matrix, focus groups, interviews and snow ball sampling		4R, Q- methodology, Social Network Analysis [SNA] / Discourse Analysis [DA]	Cadoret [2009], Chandrasekharan (1996) and Rupesinghe (1995), Warner (2000), Bruckmeier (2002, 2005), (Schmidtz, 2002)	Compram, interviews, Delphi or AHP	Delphi / AHP / Spatial AHP
CONTENT	Urban / Economic development Vs. Environmental protection Preservation of natural sites and biodiversity Human mobility and contrast of resources use 	Context - local [socio-economic, political & cultural contexts] and historical Critical events Mediation efforts Interventions Causes [structural, proximate or triggering]	Interests Goals Positions Capacities Relationships Salience	By Manifestation / Dynamics By underlying Cause / Reason / Substance By Stage By Scale By Ethics / Roots By Forms of Behaviour By Physical Existence	Measures taken [and their results] Measures proposed Measures possible	Criticality Urgency Duration
SYNTHESIS	Conclusions on the USES / resources involved		Conclusions on the USERS	Conclusions on the TYPE	Conclusions on the EFFECTS	
	Proposals for possible SCENARIOS mapping – generating ALTERNATIVES for conflict mediation/resolution					

- **Stakeholders / actors / parties involved and coalitions formation:** There is a need to overcome the interchangeable use of stakeholders / actors / parties / users in the analysis of the environmental conflict cases, because each have different methodological implications. From the analysis presented, the consensus seems to be on proposing the use of the term 'actors'. Second, we have made a grouping of actors [table-1.13] along four main categories: State, Civil Society, PPPs and the general Public. This grouping needs to be reflected upon. Third, coalitions formation in the environmental conflict plays a significant role in shaping the course of the conflict, and therefore, they are critical means of understanding and assessing a conflict. Such coalitions are grouped in two main ways: 'institutional-interest-pressure' groups; and 'development-conservation-primary-modern' groups. They need to be reflected upon and standardised. Fourth, and most importantly, there is a need to focus on analysing the 'interactions'; actors and their groups in different coalitions co-define each other that could best be understood through the type of interactions. This is to say that actors are always in relation to each other - as such analysing actors alone do not yield useful insights - through forming interactions. Such interactions develop 'camps' that produce (conflict's agenda, demarcation lines in coalitions, etc.) and shapes the structuration of the environmental conflicts. Therefore, next to the coalitions formation, there is a need to develop taxonomy of such interactions.
- **Typological classification:** The typological classification by dynamic, cause, stage and scale yield significant insights for developing a more synthetic profile of the environmental conflicts. However, there is a problem of overlapping of each case across different categories of the same type [see tables-1.18 till 1.21]. A tentative rating system is devised to give an over-all salience of the case by type, which does not really reflect on the degree of presence of different components of each category. Moreover, there is a need to introduce a new typology of environmental conflicts based on their visibility and impact: the more visible and the more predictable the impact of a plan / project is, the more intense the conflict is. The scale of the environmental impact is not necessarily related with the scale of the conflict: destroying protected nature reserves in a remote area seems to be less noticed and leads to lesser conflicts than the plan to cut down rows of trees in an urban area, which dominate the urban landscape, or infringing access to public recreational areas, pollution, etc. are clearly visible and are an important part of landscape perception for many local residents.

- **Comparative ranking of the environmental conflicts:** The ranking of the environmental conflicts along the three criteria - criticality, urgency and duration - unfold several issues. First, each criterion was supposed to be subdivided into indicators to allow assessment and rating following the Delphi methodological explanation for the process. However, this has not yielded sufficient result. There have been problems with developing indicators as well as with following the Delphi or AHP spatial. The problems relate to two facts: the conflicts were already selected on the basis of a predefined approach (the three thematic choice) that cannot be “objectified” by a more systematic ranking; and that conflicts are in different phases of their unfolding and mitigation, with certain conflicts being rather recent ones for which it would not be possible to predict their criticality. Second, an attempt is made for comparative ranking of conflicts across cases through developing a rating [see table-1.22] of each conflict per category, which needs to be reflected upon. Third, the very idea of ranking might appear to be a valuable result for policy makers to detect priorities for their actions. However, it is extremely important to see them as part of the other elements of the analysing structure (e.g. types, theme, parties involved / coalitions).

5. Strategic aspects of the CAF

While outlining the strategic value of the environmental conflict assessment framework (CAF), it is worth reiterating that the strategic outcome of the application of CAF is not only the ranking (absolute or relative) of the conflicts. Rather the strategic nature of the CAF is in the application of a multi-criteria approach to unfold a nuanced *understanding of the causes, dynamics / evolution and effects of the conflict in a multidimensional way* – a knowledge-base - that facilitates a shared, democratic and participatory approach / process of conflict mediation and resolution. Studying interests, needs and values of the actors – which is at the heart of the proposed CAF - is not only crucial for understanding the legitimation of conflict, but it also facilitates developing cooperation and participation. The CAF establishes an approach that facilitates adaptive management, consensus building, participation, and social learning that in turn can help to frame environmental conflict resolution in broader strategies of sustainable development. The strategic working of the CAF embedded in its structuring elements (see figure 10.3) is in the way knowledge units are integrated, their form of integration and capacity for synthesis. The CAF provides a coherent typology where knowledge units related to

different aspects of environmental conflicts are integrated within a limited number of classifications. The framework enables a systematic and detailed analysis of each case in detail, where a conflict case is deconstructed according to a limited number of classifications. In terms of the form of integration, the primary aim of the CAF is not to bring together different aspects of a conflict, but rather to provide a list of components that characterize conflicts in order to make it possible to assess each case in detail. Through the application of the CAF it is possible to reach a comprehensive understanding of a conflict. However, the framework does not provide a model that unifies all cases in the sense of common threats and/or solutions, but creates a joint platform for analysis of different cases that have different properties, making these cases qualitatively comparable.

In its capacity for producing synthesis, the application of CAF creates a system of integrated knowledge, providing a systematic and coherent qualitative assessment of the environmental conflict cases. In particular, the 5th step of the CAF (see figure 10.3), the ranking of conflicts, can be seen as a step towards synthesis of the previous four steps where comparison across conflict cases is made possible. More importantly, the synthesis making crucially depends on the quality of conclusions arrived at on users, uses, typologies and effects. Based on these conclusions, synthesis can be generated in the form of contextually embedded and informed proposals for possible scenarios, and their mapping to unfold shared alternatives for conflict mediation / resolution.

In summary, the meta-analyses of the application of the CAF to analyse and assess a range of conflicts in diverse contexts, and the fore-going reflections, unfolds its value in *strategically assessing a conflict in spatial as well as temporal dimensions*:

- It allows to identify and comprehend the conflict in its multiple dimensions and scales involved;
- What is at stake (economic development, environment, mobility, resources);
- How the stakes are valued in the particular context;
- How is the conflict shaping / evolving (the main actors involved, the coalitions emerged);
- What are the typological characteristics of the conflict (underlying cause / substance, manifestation dynamics, current stage, scalar interactions);

- What is the extent of effects / consequences (criticality, duration-long or short-term effects);
- What are the modalities for resolution that exist on the ground (current trends, degree of involvement of people, degree of demand for resolution, and involvement of deadlines).
- What are the interests, needs and values of the actors to develop cooperation and participation?
- What are the modalities for adaptive management, consensus building, participation, and social learning that in turn can help to frame environmental conflict resolution in broader strategies of sustainable development?

The policy relevance of such an assessment through the CAF predominantly depends on the ability to draw integrated conclusions across classifications in order to identify scenarios or alternatives for conflict mediation or conflict resolution. More specifically, such an assessment appear to be strategic as a valuable result for policy makers to detect:

- Priorities for their actions,
- Coordinate them at different scales, and
- Mediate short to medium term interests with long-term benefits
- Develop cooperation and participation
- Devise strategies for a consensus-based democratic resolution that is in the interest of the present as well as future generations.

Finally, and from a strategic perspective, we would like to emphasize one concluding remark: environmental conflicts in coastal urban areas are socio-ecological constructions that are hybrid and dynamic problems by nature. They require open, flexible and dynamic solutions. Not only their processual nature and elements of hybridity in them which make it difficult to classify some of these conflicts, but they must also be seen as in flux rather than static. Particular events, structural or institutional changes, at different scales, have the power to shift environmental conflicts between categories, either for very short or for much longer duration. Hybridity and dynamic change are therefore main features of our conflict analysis and initial classification, and these will be further explored in subsequent SECOA work packages which will apply a range of modelling techniques and meta-analyses to interpret the taxonomy and scenarios of coastal conflicts, and develop flexible policy and analytical tools for

solutions to these at various levels of complexity and planning. Environmental conflicts include several “cleavages”, sub-conflicts and many conflicting interests that can best be resolved in the longer run through “piecemeal engineering” and not for the whole conflict through one decisive decision, but through solutions to partial conflicts included. Conflict assessment should aim at reorganizing the agenda in such a way that the position of stakeholders to the systemic challenges is clarified. This is to say that the conflict assessment framework should be seen as a step towards unfolding flexible policy and analytical tools for solutions that have the elements of evolution embedded in them.

6. References

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ABSTRACT: In-depth analyses of the twenty-six environmental conflict cases (chapters 2 till 9) from seventeen coastal metropolitan areas of eight different European and non-European countries have been presented in this volume. Framed by their meta-analyses (chapter 1), our underlying concern has been clearly to advance the assessment of environmental conflicts as a strategic approach for addressing and unfolding sustainable development in the coastal areas. In this regard, our main objective has been to develop diagnostic and analytical capabilities through developing an environmental conflict assessment framework that is based on an in-depth interdisciplinary understanding and analysis of the nature of these conflicts. As a way of formulating conclusions about these concern and objective, we first present our understanding of environmental conflicts that has been advanced as socio-ecological constructions that are complex adaptive systems. In a next step, we bring together the methodological insights unfolded through the meta-analyses of all the cases in sketching out a strategic framework for their assessment. This is followed by highlighting the diagnostic, analytical and strategic capacities of this framework towards the end of the conclusions.

KEYWORDS: environmental conflicts, strategic assessment, panacea

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