

**Spatial planning in the Wadden Sea Region; about strategies for development, quality of the environment and spatial synergies**



**University of Groningen  
Faculty of Spatial Sciences**

**Master Thesis  
Research Master *Regional Studies***

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(photo frontpage: [www.wadden.nl](http://www.wadden.nl), november 2009)

**Spatial planning in the Wadden Sea Region; about strategies for development, quality of the environment and spatial synergies**

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**Master Thesis (GEMTHREG)**  
**Research Master: Regional Studies**

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## Foreword

During the two years of my Research Master I had been given quite a few opportunities to join and be part of research groups. There, I learned about complexity theory, complex urban and regional systems, peri-urban areas and other complex issues. In spatial planning these topics and issues are still rather new. On the one hand, studying the topic means that you are in the middle of the most recent planning debates. On the other hand, theories and research methods are still evolving. I experienced that studying complex spatial issues is complex and challenging in it self. And for me, therefore, very interesting.

That I would be studying the Wadden Sea Region, is something I couldn't have seen coming. I only knew the area as a necessity to cross when going to the Wadden Sea Islands for holidays. Overlooking the last few months, I now know that there is more to this area then just flat lands and agriculture. From a planning perspective the area has proven to be very interesting. Behind the façade of a static area, a multitude of spatial dynamics can be distinguished ranging from material to institutional and from the local to the international level. All and all, I enjoyed getting to know the area better and writing my Master Thesis about it.

Groningen, November 2009

Stefan Hartman

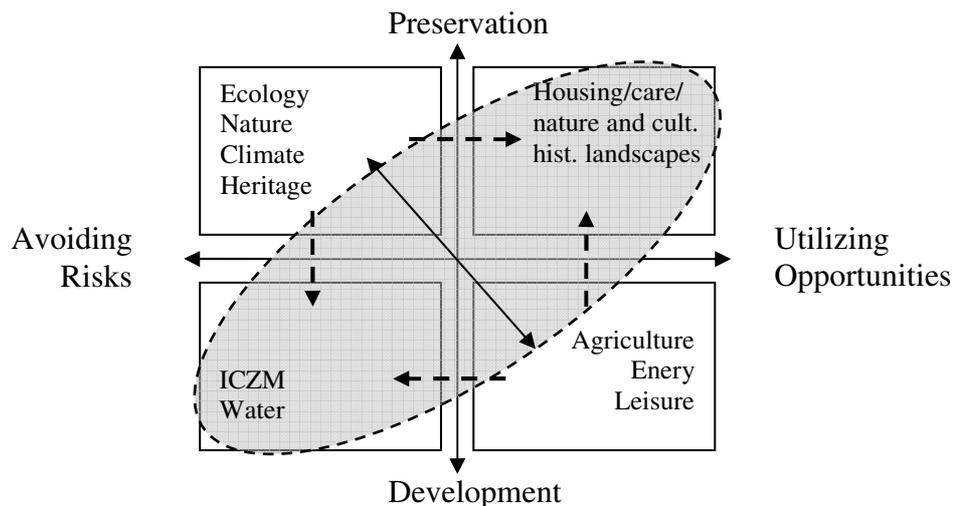
## Summary

The Wadden Sea Region is from a historical perspective a predominantly rural region. For many centuries man was caught up in a 'fight' with the Wadden Sea. As long as embanking and reclaiming land was technically possible, and while the agricultural sector was economically viable, the agricultural areas expanded into the Wadden Sea. As a result the influence of the Wadden Sea was diminished due to large sea dykes, which were built to prevent floods and protect areas in the hinterland. Consequently, the inland area became largely dominated by monofunctional agricultural usage. Though recently, many authors see that the dichotomy between urban and rural areas is blurring. Urban interest are increasingly expanding in to the countryside, introducing new claims on land use. Traditional land uses such as agriculture increasingly have to deal with the preservation of nature, landscape, ecology and cultural history. In addition, open space is no longer seen as exclusive areas reserved for urban expansion. Open spaces are increasingly seen as an influential factor on the quality of life, both in urban as well as rural areas. The resulting mixture of urban and rural oriented types of land uses and claims increase planning complexity, especially when the amount of stakeholders involved in the planning process is increasing as well. While spatial dynamics are occurring and are (potentially) leading towards new spatial structures, planning strategies seems not to adapt and evolve along with these dynamics. For several areas in the Wadden Sea Region, this lack of adaptation might limit their development potential. While for other areas, having to deal with demographical and economical shrinkage, new issues are occurring which also demand a revision of current planning strategies.

In this study we use complexity theory and the concept of transitions to critically analyse spatial developments in the Wadden Sea Region. Taking into account changes on multiple levels of scale, we bring together dynamics ranging from autonomous trends to ad hoc, niche developments. These multilevel dynamics are taken into account in order to analyse and discuss planning strategies. Doing this, we have found that several processes create a demand for integrative, area and quality oriented planning approaches, instead of the traditional functional planning approaches. For example, societal demand has led to an increasing attention for the preservation of cultural history, landscapes, nature, ecology, etc. Combined with trends in spatial policies, such as changing governmental investment strategies, economical decline of the region, the importance to link preservation with economical functions becomes crucial. Overall, we found that dynamics in the Wadden Sea Region increasingly need planning strategies which are integrating multiple developments while taking the spatial quality of areas in to account. The diagonal arrow in figure on the next page shows the traditional separation of spatial-economical functions. The dotted arrows show the demand driven tendency towards integrative spatial-economical initiatives. While several of these developments have been recognized (around the Lauwersmeer, on the Wadden Islands and in the National Landscapes), they are currently only scarcely recognized in planning strategies. These niche developments are neglected and perhaps even forgotten by institutions

and organisations in their spatial policies as potential dynamos for regional development. As a result a negative lock-in situation for certain areas occur, where development potential is not recognized in planning strategies. In addition, other developments are isolated and not linked with surrounding areas even though they provide potential for area oriented development approaches. Since economical functions become more and more crucial for maintenance and enhancement of spatial quality, such processes offer possibilities if they are recognized also in spatial strategies, decision-making processes and policies.

#### Framework for spatial-functional developments



*In grey: spatial themes for the WSR*

Overall, we have found that a new balance needs to be found between development potential and development constraints. Given these findings, the current spatial system (physical, organisational and institutional) is gradually changing under driving forces at both the macro level and niche developments on the micro level. But still the organisational adaptation and the institutional co-evolution is lagging behind, creating a demand for a revision and reorientation of planning strategies and spatial structures. Using the concept of transitions as an analytical framework requires planners to take a step back from their daily practice, and consider spatial dynamics in a more abstract manner. The main consequence of thinking in terms of transitions would be that planners do not see the spatial structure as static and unchangeable. Instead, they should approach the spatial structure as a dynamic system. Therefore, the planning system should be plural-potent: being able to change and adapt to opportunities provided by an interconnection between autonomous changes, macro level influences and area specific qualities. In other words, a planning system should be able to respond to change rather quickly before getting tangled up in a lock-in situation. By increasing the plural-potency of areas, makes responding to future trends and changes easier. This increases coordination over spatial processes; being able to allow flexibility while still maintaining some control over spatial dynamics. When a planning system is able to respond (quickly) to changes, it is more likely to be able to benefit from opportunities. Then a momentum is created where an area oriented planning approach can qualitatively embed spatial developments, and potentially revitalize the social and economical viability of the Wadden Sea Region.

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# Chapter 1: Introduction

## *The spatial complexity of the Wadden Sea Region*

### **1.1 Background**

The Wadden Sea Region (WSR) is the result of a continuous interplay between human and natural processes. In the region, the relation between man, economy and ecology is strongly interwoven, due to the presence of natural values and economical potentials. These natural values and economical potentials are strongly interconnected and interdependent. Though increasingly friction between spatial claims occur. For instance due to recreational use, building activities, etc., pressure increases in sensitive areas such as natural areas and areas of ecological importance. Often these sensitive areas are protected by rules, laws and regulations. Developments that are attracted to the qualities of such areas can also increase the pressure, for example the tourist villages on the Wadden Islands and recreational developments at the fringes of the Lauwersmeer. The difference is that we try to preserve sensitive areas, whereas for areas of spatial-economic dynamics we try to encourage and steer these developments as best as possible. Yet often we see that the interests between environmental qualities and spatial developments interact, contradict and collide.

Most attention is currently paid to the preservation of sensitive areas and areas where spatial-economical developments are concentrated. Yet these areas, sometimes even abruptly, alternate with areas that receive less attention. Even though here, quite important spatial issues are on the agenda. Examples are the living quality in villages, demographical shrinkage, diminishing economical growth, degrading quality of the environment, the potential effects of sea level rising, etc. Issues that can not be properly dealt with by traditional planning strategies. In the Wadden Sea Region there is a tension between the conservation of types of land use and the development of (new) spatial functions. Next to the traditional land use claims other types demand space, such as the preservation of the landscape, cultural-history, nature, ecology and even climate change. In addition we see rather autonomous processes such as demographical and economical decline in parts of the area. In general, behind the façade of a stable rural landscape there is a growing complexity of spatial issues. A complexity that drives a need for a revision of current planning practice. The questions are now; what processes are driving spatial change? What processes can be identified that can lead to spatial-economical opportunities or pose conditions? And what are then the consequences for spatial planning, spatial concepts and their legitimization?

As a basis to analyse and understand spatial dynamics in the WSR, the insights provided by complexity theory and especially the relatively new concept of transitions on spatial planning are potentially useful (Rotmans et al., 2001 and Hudalah & De Roo, 2007). Already 'transition thinking' has been recognized as a useful concept for the analysis of complex systems such as spatial change in peri-urban area (EU 6<sup>th</sup> Framework project 'PLUREL') but

also for energy related studies (SREX-project) and other studies regarding the spatial environment for example by Rotmans et al. (2001), DRIFT (2007) and Van der Brugge (2009). The concept of transitions recognizes the complexity and the interrelatedness of changes in policy, physical characteristics, behaviour of actors and the society that interact on multiple levels of scale. In theory, it has all the characteristics to understand dynamics in (complex) spatial systems. Moreover, the concept of transition has the potential to provide new insights and understandings for spatial strategies in the Wadden Sea Region.

## **1.2 Aims and objectives**

The research objective of this study is to assess to what extent the concept of transitions can contribute to understanding complex spatial systems such as the Wadden Sea Region, and how it can contribute to spatial strategies for such areas. As mentioned in the previous paragraph, it is relevant for the Wadden Sea Region to discuss strategies for spatial issues, such as how to simultaneously address (autonomous) spatial developments and the protection of spatial qualities within a same region, while creating opportunities for beneficial integrative strategies, e.g. synergies and complementarities. Before we are able to discuss to what extent the concept of transition can contribute to the understanding of planning strategies for the Wadden Sea Region, we must first understand processes that drive spatial change in the region. An analysis of the region its characteristics is therefore important to identify the development trajectory and to identify the region its spatial opportunities and conditions. Subsequently, we will be able discuss spatial planning approaches and, last but not least, the decision-making and governance regarding spatial strategies.

These objectives lead to the following main research question:

*To what extent does the concept of transitions provide a useful analytical framework to discuss spatial strategies (and their legitimization) for the Wadden Sea Region?*

In order to address the main research, the following sub questions have been formulated: *Which trends, driving forces and mechanisms can be identified that affect spatial planning in the Wadden Sea Region?* By means of a path dependence perspective we aim at providing an understanding of the region its development trajectory (also see Martin and Sunley, 2006). We aim at identifying those elements that are important to be able to discuss planning strategies for the near (long-term) future.

*What are the implications for planning strategies for the Wadden Sea Region, when dealing with dynamics regarding both (autonomous) spatial-economical development and environmental quality?* This research question aims at understanding the influence of (dynamic) processes at different levels of scale and for different spatial themes on spatial planning in the Wadden Sea Region. By studying this research question we aim at providing an integral overview of relevant developments regarding spatial dynamics. Subsequently we will be able to discuss the consequences for spatial strategies in the region.

Finally we will discuss the question; *What are relevant issues to discuss for the legitimization of spatial strategies for the Wadden Sea Region?* This question combines findings based on complexity theory, the concept of transitions and the empirical findings in the case of the Wadden Sea Region in order to discuss the legitimization of spatial strategies. By discussing legitimization we aim at providing insight in spatial strategies and how to find support by society (inhabitants, visitors, etc), policy makers and politicians. Basically it is about connecting *the story so far to the story of the future*.

### **1.3 Data and methodology**

In this study the qualitative research method of a single case study approach will be used. Flyvbjerg (2006) argues that it is difficult to generalise from a single case, but adds that its *force of example* must not be underestimated. The analysis of spatial dynamics of the Wadden Sea Region will provide an example of how the concept of transitions can be applied to dynamics in practice. Consequently, the case allows us to challenge and discuss theoretical propositions (Yin, 1994). On the basis of the ‘example’ provided by the case study, we will therefore be able to further discuss planning strategies. The case ‘The Wadden Sea Region’ has been selected because of specific, complex spatial issues occurring in the area. Already in paragraph 1.1 we have given some examples of pressing spatial issues. Due to the characteristics of such processes affecting the spatial situation, it is unlikely that the traditional development path of the region can be extrapolated. Instead the development trajectory of the (near) future is rather unknown and is increasingly getting quite difficult to predict. How planning has to deal with the increasing complexity of these spatial dynamics, is therefore relevant to study.

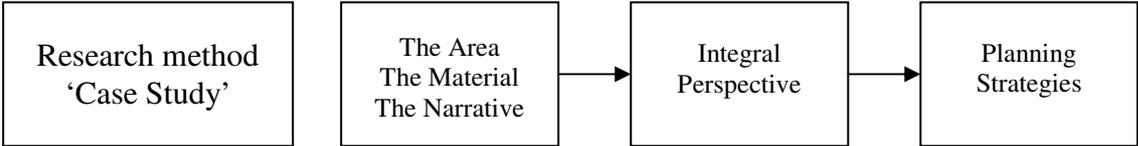
Hudalah & De Roo (2007) argue that changes in complex systems can be better understood by looking for material, organizational, and institutional changes. Material changes consider causal relations, such as physical changes (land use, infrastructure), regional dynamics (demography, economy) and catastrophic events (disasters, accidents). Organisational changes consider economic, political, governmental, non-governmental actors and their behaviour. Institutional change considers cultural values, ideologies, institutional structures and formal rules (Hudalah & De Roo 2007; forthcoming). Rotmans et al. (2001) add that the level of scale is important to take into account. They argue that changes are interrelated on a macro, meso and micro level. Combined, a multilayered perspective on spatial change emerges. For this study the elements of this multilayered perspective are taken into account by providing data on the following three subjects<sup>1</sup>; ‘*the area*’, ‘*the material*’, and ‘*the narrative*’. *The Area* will focus on characteristics and qualities in the Wadden Sea Region and how they are connected on a local, regional and (inter)national level. *The Material* will focus on the contents of already available policy documents such as visions and strategies on spatial and economical developments. Also information available from nature and cultural organizations as well as scientific literature will be analysed. With *The Narrative* we will

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<sup>1</sup> Earlier a similar approach has been used in ‘expeditie woonlandschappen’ (A.M. Brouwer, M de Jong & G. de Roo, 2007) in order to create an comprehensive overview of spatial issues and trends.

discuss a discourse analysis of important actors such as inhabitants, visitors and policymakers. It focuses on how (change in) specific discourse structures affect spatial planning. Collectively, these three subjects will provide an integral analysis of the Wadden Sea Region.

**Figure 1: Research methodology for the case study area**



This analysis helps us to identify trends (in planning policy) as well as identify the area its strengths, potentials and conditions. In general, due to the analysis we will be able to provide an integral perspective on relevant spatial topics and issues in the WSR. Moreover, this integral perspective on spatial changes allows us to discuss planning strategies for the region (see figure 1) by means of a perspective offered by complexity theory and the concept transitions.

**Figure 2: Conceptual model**

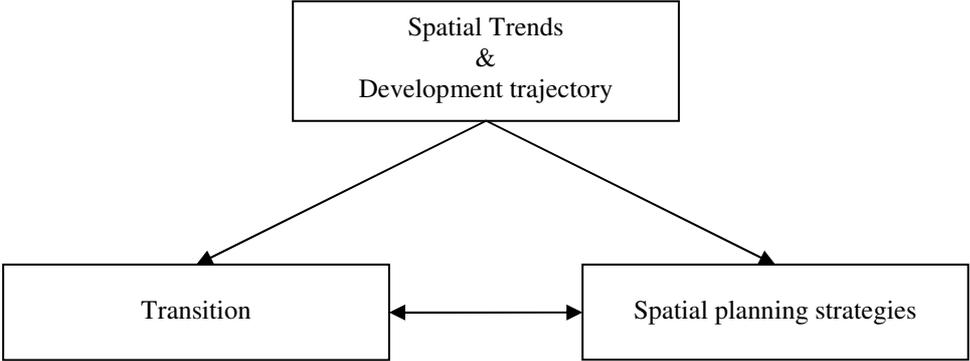


Figure 2 summarizes the research approach of this study in a conceptual model. The outcome of the case study will provide information about the area its development trajectory and spatial trends. The information derived from the case study will allow us to discuss to what extent the concept of transitions provides a useful analytical framework for spatial planning strategies.

**1.4 Structure of the thesis**

In the following chapter a theoretical framework is presented (chapter 2). This framework will be used to analyse and understand spatial change in the Wadden Sea Region. In chapter 3 an analysis of spatial dynamics that affect the Wadden Sea Region will be presented. In chapter 4 the consequences for spatial planning strategies of the (empirical) findings as a resulting from the analysis of chapter 3 will be discussed. Concluding remarks about the concept of transitions and its usefulness to spatial strategies will be reviewed and discussed in chapter 5.

## **Chapter 2: Theoretical Framework & Literature Review**

### **2.1 Introduction**

In this chapter a theoretical framework is presented in an effort to understand spatial change in complex spatial systems. We will elaborate further on complexity theory and the concept of transitions. This theoretical framework will be used as a means to discuss spatial spanning and spatial strategies for the WSR in the following chapters. The case study results derived from the analysis of the WSR (chapter 3) will in turn provide feedback in order to discuss the usefulness of the concept of transition for spatial strategies.

### **2.2 Spatial dynamics, complexity and planning in predominantly rural areas**

Spatial planning is described by Voogd (2006; p18) as the decision making about, and the interventions in, the physical environment in order to maintain or enhance the spatial quality. Sometimes spatial quality can be adequately understood and agreed upon when spatial issues are reduced to simple cause and effect relationships. When relationships regarding cause and effect are less clear, consensus about spatial quality and spatial development approaches will be (more) difficult to attain. Such a complexity of spatial issues is generally not associated with rural areas, at least not within society. Yet from a planning perspective several authors recognize changes that cause an increasing complexity of spatial issues (for example Byrne, 2003, Zuidema & De Roo, 2004, Boelens, 2005, Martens & Rotmans, 2005)

Many authors (compare Tjallingii, 2000, Hidding et al., 2000, Scott et al., 2001; p18, Carsjens & Van der Knaap, 2002, Madaleno, 2004, Dijst et al., 2005, Simon, 2008) see that the dichotomy between urban and rural areas is blurring. Urban interest are expanding in to the country side, introducing new claims on land use. Traditional land uses such as agriculture increasingly have to deal with the preservation of nature, landscape, ecology and cultural history (Hillebrand et al., 2000, Overbeek & Vader, 2003). In addition, open space is no longer seen as exclusive areas reserved for urban expansion. Open spaces are increasingly seen as an influential factor on the quality of life, both in urban as well as rural areas. The resulting mixture of urban and rural oriented types of land use increase planning complexity. Especially when an increasing amount of stakeholders are involved in the planning process (Carsjens & Van der Knaap, 2002). Spatial planning in predominantly rural areas has traditionally been sector-oriented, at least in the Netherlands. Although recently integrative planning strategies are more and more recognized as important, consensus about adequate (planning and legislative) instruments and strategies is yet to be found.

The traditional spatial-economies in rural areas are under pressure. For most rural areas in the Netherland, the importance of agriculture is declining (Van der Valk, 2002). The extent to which this process occurs, of course differs for specific areas. Nonetheless rural areas have a long tradition of being predominantly dependant on agriculture. Changing planning approaches in order to deal with recent dynamics is difficult, due to the economical path-

dependency of the region. Hassink (2005) argues that regions are able to get into a situation of 'lock-in', meaning that the spatial-economical situation and the path dependency of development of an area might frustrate the ability to adapt to (contextually driven) change. To prevent regions to get locked-in, '*indigenous potential and creativity*' must not be frustrated by institutional layers that aim at preserving existing traditional structures (Hassink, 2005; p506). Martin & Sunley (2006; p395) strikingly add that "*regional economies become locked into development paths that lose dynamism, whilst other regional economies seem able to avoid this danger and in effect are able to 'reinvent' themselves through successive new paths or phases of development*". It can be argued that for predominantly rural areas a lock-in situation might be possible when they do not respond and adapt to recent changes. As argued in the introductory chapter, this might be the case for the WSR. To reinvent themselves, as Martin & Sunley (2006) put it, a rather fundamental change in planning strategies and future development trajectories is needed. Especially as planners increasingly have to deal with dynamics, an increasing amount of spatial claims, as well as to be able to see opportunities to effectively mix types of land use and create multi-functional spaces (see also Hoggart, 2005). Because of these observations, it is relevant to analyse changes in a region in order to discuss planning strategies for changing rural area for the (near) future. In order to do so, we will now look at complexity theory and the concept of transitions as a means to understand changes in such complex spatial systems (see Hudalah & De Roo, 2007).

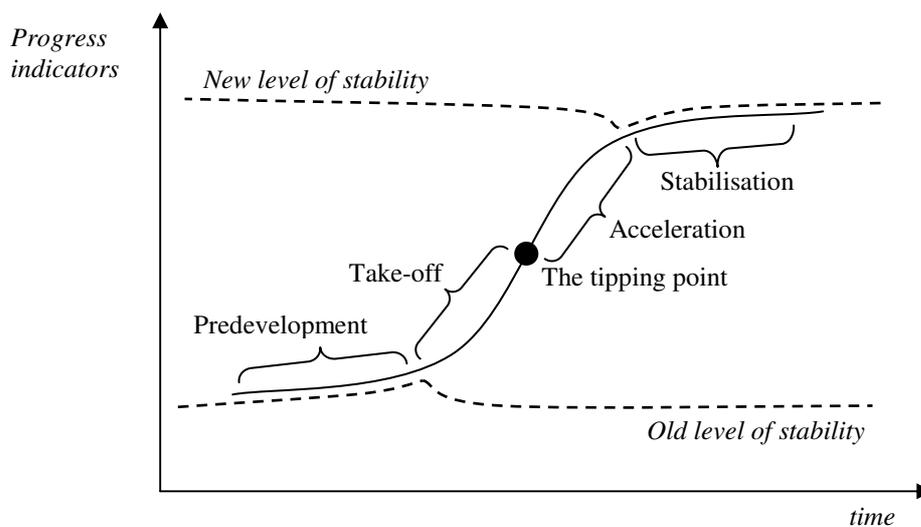
### **2.3 Complexity theory & the concept of transitions**

As argued in the previous paragraph, changes are influenced by many factors. Relations can therefore range from straightforward to very complex. Systems theory (e.g. by Waldrop, 1992 and Wolfram, 1986, 2002) divides complexity into four classes. In Class I, *closed systems*, the context is relatively stable and relations are often directly causal. Class II, *systems of circular feedback*, where the context influences the system to change within fixed states. In Class I and II the relation between the parts are fixed and quite clearly defined. The systems are linear and can be described by rules (Waldrop, 1992 and Cilliers, 2000). As the most extreme, in Class III '*open network*' systems are highly unstable and unpredictable (Waldrop 1992; p226). If Class I to III could be seen as a continuum, the processes towards Class I & II systems on the continuum are more linear and predictable. Towards Class III systems processes become more unpredictable and uncertain due to change in, and the interrelatedness of, the object and its contextual environment (De Roo, 2003; p11). In Class IV systems or '*complex systems*' there is no single equilibrium, as they are continuously adapting, organizing, and moving into different and new equilibria, in a non-linear manner (Waldrop 1992; p228, Phelan 1995, Hudalah & De Roo 2007). Change, dynamics and uncertainty are increasingly recognized in rural areas. The question now is; will it help spatial strategies when changes in such areas are considered as complex systems in order to understand these dynamics? And will it help to be able to discuss spatial planning in an attempt to better deal with such change? To understand dynamics in land use change we will now look at the concept of transition.

Changes in Class I and II systems are linear processes and can therefore be planned and

managed in a more or less rational manner. Planning and control in Class III systems is unlikely due to its instability and unpredictability. Changes in Class IV systems cannot be planned and managed like Class I and II systems, because of their non-linear character. Since Class IV systems are continuously reorganizing relationships between different elements can range from and to vary in between simple and causal (Class I) to very dynamic and complex (Class III). Due to the appearance of different equilibria the concept of change (as a linear process) is for these complex Class IV systems substituted, amongst others, by the concept of transition (as a non-linear process) (Bridges 1986, 1991). According to Levy (1986; p11) non-linear processes are characterized by multidimensional, multicomponent, multilevel, qualitative, contextual, discontinuity, new directions and irreversible change. Transitions, therefore, affect the system as a whole, resulting in a new state of 'being'. Bridges (1991; p5) illustrates that a transition is a process that goes through three main phases. First, letting go of the old situation. Second, going through 'the neutral zone' between the old and the new situation as a time of loss and confusion. And third, making a new beginning in the new stable situation. Also Hudalah & De Roo (building on Nicolis & Prigogine, 1989) and Kemp et al. (2007) argue that complex systems perform transitions from one level of stability to another, through a process of structural or radical change.

**Figure 3: Phases of transition**



(Source: Hudalah & De Roo, 2007)

During a transition elements react to changes performed by other elements, by changing themselves; in turn forcing other elements to adapt as well, completing the circle of continuous change. This type of change makes the behaviour of a system non-linear, meaning there is no proportionality between cause and effect (Levy 1986, Kaufmann 1995, Kemp & Rotmans 2005, and Heylighen et al., 2007). Translated in a less abstract way by Rotmans & Kemp (2003), a transition can be seen as “a set of interconnected changes, which reinforce each other but take place in different areas, such as technology, the economy, institutions, ecology, culture, behaviour and belief systems”. Essential to the understanding of the concept of transitions is that not all processes affecting a spatial configuration can be totally controlled

through (spatial) planning. Argued is that no single actor is able to control the process by itself; changes and perturbations are dealt with through interactions between actors or agents. Therefore systems need continuous re-organization in order to survive and adapt to changes and perturbations (Heylighen 2008, Garnsey & McGlade, 2006, Zuijderhoudt et al., 2002). A striking summary of the concept of transitions is given by Loorbach and Rotmans (2006): *'transitions cannot be managed in terms of command and control, they can be managed in terms of influencing and adjusting: a more subtle, evolutionary way of steering. In other words, the direction and pace of transitions can be influenced, even if not controlled directly'*.

The concept of transitions discards the idea that total control through spatial planning is possible. The influence of dynamic (exogenous or) autonomous processes on spatial structures causes continuous uncertainty. As a consequence, flexibility becomes essential for a spatial system to accommodate and to adapt to perturbations caused by such processes (Phelan, 1995). But Weichmann (2007) points out that strategic planning aiming to induce change, can only modestly influence autonomous strategic behaviour, while this autonomous behaviour has a strong impact on strategic planning. Therefore Healey (in OECD, 2001; p153) argues that formulating spatial strategies involves identifying possible *'trajectories and patterns in emergent tendencies and imagining what to enhance or counteract them'*. Instead of creating blueprints for urban forms, it will be more important co-adapt to changes and to shape and frame interventions and innovations. In the next paragraph we will elaborate further on dynamics and what the consequences are for complex spatial systems.

## **2.4 Understanding dynamics in complex spatial systems**

We have given a theoretical perspective on the concept of transitions in the previous paragraph. In the following paragraph we will discuss how this concept of transitions can be related to the understanding of spatial changes occurring in complex spatial systems.

Traditionally (1950's – 1960's) spatial issues were treated as class I systems, relying solely on professional planners and their technical rational. Spatial planning relied on the objectivity of the planner and their instrumental approach e.g. 'blue print planning'. Over time, this has become less sufficient since spatial issues are increasingly characterized as more complex and interrelated. Instead subjectivity, consensus, and collaborative approaches have been adopted to deal with complexity and uncertainty (see for example Faludi & Van der Valk, 1993, Healey, 1997 and De Roo, 2003). Already in the introductory chapter, we have argued that rural areas are increasingly integrated into a broader spatial system. Traditional rural activities are more and more confronted with urban activities. Such spatial change cause the planning practice to become more complex, as the amount of spatial claims and involved actors are increasing. Due to the increasing interconnectivity of spatial processes, it can be argued that spatial dynamics emerge out of the interaction between the context and a specific spatial situation (De Roo, 2003, Heylighen et al., 2007). Hudalah & De Roo (2007) propose to untangle this complexity by means of a multilevel perspective. They argue to look for interconnected material, organisational and institutional changes on the macro, meso and

micro level. This means that spatial dynamics can be a result of perturbations and changes in the spatial system itself (micro and meso level) as well as their context (macro level).

Due to the increasing interconnectivity of spatial issues the need emerges for spatial systems to continuously re-organise, in order to survive and adapt to changes and perturbations (Zuijderhoudt et al., 2002, Garnsey & McGlade, 2006, Heylighen 2008). It must be mentioned that not all perturbations have similar effects on a system. Some perturbations can be reinforced creating (ever) increasing changes, while other perturbations are suppressed resulting in a movement towards an 'old level of stability'; not wanting to let go of 'the old situation'. It is argued that drivers of change can push or pull dynamics towards a 'new level of stability' as well as to an 'old level of stability' (Heylighen 2008, Zuijderhoudt 1992; p22). When spatial systems are not adapting to changes, Martin & Sunley (2006) argue that areas potentially experience a 'lock-in' situation. Arthur (1989) speaks of 'lock-in' when a system becomes rigid and less able to adapt to changes. Before a spatial structure reaches a lock-in situation, a system can produce (economical) increasing returns and externalities. Yet it might be the as Martin (2006) argues that the "*very processes, structures and configurations built up as a result of positive 'lock-in' become a source of increasing rigidity and inflexibility, which undermine the region's productivity, adaptability and competitiveness*" (Martin, 2006). In terms of complexity theory breaking free from a restrictive, negative 'lock-in' situation to a new, alternative level of spatial arrangements, is quite similar to the concept of a transition. In both situations the 'old' and the 'new' level of the system its structure and configurations are fundamentally different. This raises several questions: How do areas become locked-in in a situation which is relatively negative compared to other areas? What causes the inflexibility? And what does it take to transform such a situation in to a more positive orientation, being able to produce, adapt and be competitive?

The concept of transitions gives us a framework to understand spatial processes. Earlier we have discussed that not all processes affecting a particular areas can be totally controlled. Antrop (1998) argues that the structure of the landscape results from '*adapted planning mixed with processes of autonomous development*' (Antrop, 1998; p158). Some changes can be recognized and considered as 'autonomous', because of the characteristics of such changes they are difficult or even impossible to influence from a lower level of scale. For example causes of demographical and economical shrinkage often originates on a national or even international level, such as changing societal preferences or a financial crisis for example (Self, 1982). This approach assumes that it is unlikely to precisely plan a development trajectory of an (local or regional) area, for example making use of 'blue print planning' approaches. Instead, some changes are (must, or should be) considered by planners as rather autonomous, as resulting from the interrelatedness of spatial processes at multiple levels of scale. This does not mean that spatial planning is obsolete. What it does mean, is that identifying autonomous processes as well as the way they affect spatial structures becomes crucial. Therefore, following Hudalah & De Roo (2007), analysing interconnected multi-faceted and multi-level changes will be essential in order to, as Healey (2004; p60) puts it,

identify the options and potentials for a specific spatial situation. For planners it becomes essential to know when to allow (autonomous) dynamics, and how these dynamics can be utilized in order to contribute to a desired spatial situation. Garnsey & McGlade (2006; p105) and Folke et al. (2002) point out that the capacity of a system to reorganize and to absorb and adapt to disturbance while undergoing change, without experiencing major structural transformation or collapse, is essential. In other words planners have to try to “*utilise existing dynamics and orient these dynamics to transition goals that are [autonomously] chosen by society*” (Rotmans & Kemp, 2003; p15).

From this perspective, the concept of transitions provides a way of understanding multi-layered and multi-faceted change. For the spatial development trajectory of rural areas, this leads to the following questions: To what extent is there a need to escape from an ‘old level of stability’ or negative lock-in situation and move towards a ‘new level of stability’? What forces are driving these changes? And to what extent are these forces autonomous or controllable? And to what extent is it possible to steer or influence a transition trajectory of an area?

## **2.5 Transitions and spatial planning**

From a theoretical perspective, the concept of transitions seems to be useful to describe the complex processes behind spatial dynamics. But when addressing spatial change as a transition, what are the consequences for spatial planning? Earlier it has been argued that spatial dynamics are interconnected amongst multiple layers. Therefore, both dynamics in the context (macro level) as well as properties of a specific area (micro level) are important. Moreover it has been argued that some processes behave in an autonomous manner, meaning we discard that total control through spatial planning is possible.

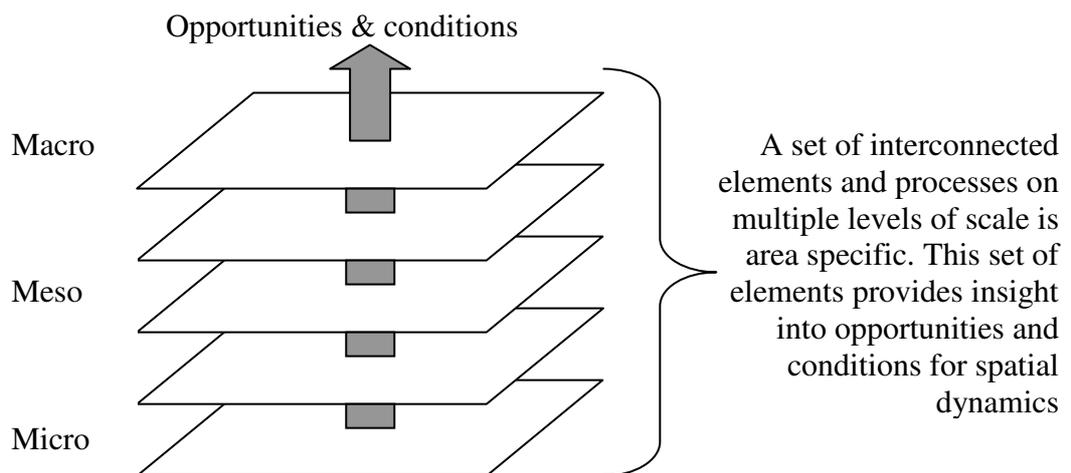
*Antrop (1998; p160): The “overall change of a landscape is the result of complex interaction of more autonomous processes and planned actions by man. Autonomous processes are both natural ones as the result of the numerous individual, not concerted actions by man. The landscape changes accordingly in a somewhat chaotic way, while at certain times man tries to steer and (re)direct the evolution by planned actions”.*

In order to ‘*steer and redirect*’, as Antrop (1998; p160) puts it, it is important to identify, acknowledged, and take into account autonomous processes that are (in potential) able to affect the spatial structure of an area. Understanding how a specific area changes and what the specific drivers of change are, becomes essential when looking for the possibilities to induce change through spatial planning. Implicitly, in terms of planning paradigms, this means that next to linear end-state-planning approaches, spatial planning must be more oriented on an area its specific set of characteristics and its specific development path or trajectory. Moreover, De Roo & Schwartz (2001) argue that spatial planning is not only a technical design processes, but also an effort to relate and deal with interconnected spatial themes in a

specific area (in Dutch referred to as ‘omgevingsplanning’, also see De Roo, 2002).

Several authors (see for example, Bryant 1995, Healey in OECD, 2001, Rotmans, 2001, Kemp & Rotmans 2005 and Hudalah & De Roo, 2007) argue that connecting developments and dynamics in different spatial themes at different levels over a period of time, is able to provide insight into an area its (historical as well as potential) development trajectory. Attention should also be paid to the high degree of place-dependency of spatial themes and issues, as Martin & Sunley (2006) emphasize. Therefore in order for planning to understand spatial dynamics, changes should be considered on multiple levels for all relevant spatial themes that co-exist in a specific area. Through analyzing the development trajectory for a specific area, crucial information about the processes that have created current spatial structures can be provided. By analysing this trajectory, potential opportunities can be identified on the one hand. On the other hand also spatial conditions can be identified; terms and constraints belonging to the characteristics of an area that might be restrictive for a preferred (based on policy, society, etc) development trajectory (see figure 4).

**Figure 4: Relation between area specific characteristics and opportunities and conditions**



Based on the concept of transitions, the challenge for planners seems to be as follows. It is essential to identify autonomous processes on multiple levels of scale. Subsequently, identifying how these processes can be accommodated given the spatial characteristics of a specific area. Together this results in a set of potential opportunities and conditions (analysis if a region is in a positive or negative lock-in situation). Combines, these elements form the ingredients for future spatial strategies and concepts.

## **2.6 Planning strategies in complex spatial areas; theory & practice**

In general, the acknowledgement of complex spatial issues is closely related to the gradually emerged understanding that many spatial themes are interconnected throughout different levels of scale. In this respect, approaches based solely on sectoral planning and technical-rationale have already been debated (Faludi & Van der Valk, 1993, De Roo, 2002). Especially in complex spatial systems, spatial planners must be seen as a part of the planning arena

instead of an objective expert. Therefore authors such as Healey (2006), De Roo (2003) and Allmendinger (2002) argue that consensus and collaborative forms of planning are needed in addition, to properly address complex spatial issues. Following this line, bottom up processes then become important to catch the 'narrative' of an area in an effort to understand area-specific planning issues as well as potential qualities at the local level (Browning & Boudès, 2005). On the one hand, a broad understanding of a local area its specific characteristics is, in transition terms, important to identify potentials and restrictions for adapting to autonomous processes. On the other hand knowledge about autonomous processes playing at the supra-regional or (inter)national level and how they influence other levels of scale is equally important. Already it has been argued that spatial issues are becoming more complex, as interconnectivity increases. From a strategic planning perspective, addressing questions about the proper level of scale have to be dealt with. Janssen-Jansen (2004) and Lurks (2001) argue that spatial issues often cross formal, institutionally created geographical boundaries. Moreover, due to processes as globalization, information and communication technology, increased mobility, spatial issues are exceeding the local level or the municipal boundaries (Healey in OECD, 2001; p144, Spaans & Wolff, 2005, Simon, 2008). Not surprisingly, the regional level has recently become the level of crystallisation for dealing with cross boundary spatial issues (Kreukels & Pollé, 1997, Janssen-Jansen, 2004 and Hajer & Zonneveld, 2000; p349).

In general, spatial planners face the following challenge; connection autonomous processes, local qualities, and spatial issues that transcend the local level. In theory, the concept of transitions offers a framework to interconnect autonomous processes at multiple levels of scale based on the potential and conditions of a specific area. Subsequently, it is possible to reflect and discuss area-oriented planning strategies. From a transition perspective, spatial strategies must therefore focus on connecting autonomous change and the capacity of local or regional level to adapt to these dynamics. The more an area is capable of adapting to different kinds of autonomous changes, the more 'plural-potency'; meaning that a negative lock-in situation is less likely to occur. In terms of complexity theory (see Urry, 2003 & Phelan, 1995) spatial structures must not becoming too rigid and not too flexible, but balancing on the 'edge of order and chaos'. This means holding out the characteristic of robustness on the one hand, keeping control over a system in order to not let it fall into chaos. And on the other hand, controversially allowing flexibility since this has the potential to create opportunities for development, novelty and innovation (Folke et al., 2002). Such processes are in literature also referred to as resilience (see for example Walker et al., 2004).

## **2.7 Conclusions**

Both in planning practice and planning theory (as well as for the concept of transitions) it is increasingly argued that, when thinking about planning strategies, it becomes essential to study the area its specific characteristics, issues and relationships in an integral manner. The literature review showed the importance of the area its specific characteristics and the interconnectedness of spatial themes and levels of scale. This shift in planning theory and

practice has led to an effort to identify an area its spatial qualities, instead of superimposing a spatial design onto an area regardless of its characteristics. Top-down planning is then complemented by bottom-up, resulting in a dialog between planning objectives and the potentials and conditions of a specific area. In this respect it is important to discuss and reflect upon the implementation of planning strategies along different levels of scale. It is already argued that spatial conditions and opportunities can be different for each area. But just like in a mosaic, in a spatial system all separate parts must preferably contribute to a broader entity, connecting areas and strategies over multiple levels of scale. Questions arise such as: how can the specific qualities of a particular area be utilized, being complementary to spatial strategies on multiple level of scale?

We will not use complexity theory and the concept of transitions as ‘the truth’ or as ‘the perfect theory’ to explain spatial change in the WSR. As discussed in the introductory chapter, we have evidence that at least for some parts of the region a rather different planning approach is needed. The concept of transitions helps to critically discuss the complex processes occurring in the WSR. Therefore in the following chapters we will use the concept to refer to, in order to analyse empirical findings in the WSR case study. When addressing the case of the Wadden Sea Region, two main methodological consequences for spatial planning can be derived from the earlier literature review. First, it is important to identify area specific characteristics (on micro & meso level) in order to gain insight into spatial qualities. Second, autonomous developments and development constraints (meso & macro level) should be identified in an effort to understand their influence on the spatial structure of a specific area. Combining the information derived from these two observations will provide insight into potentials and conditions for inducing spatial trends. In turn, this analysis provides input for future spatial strategies.

## Chapter 3: The Wadden Sea Region - Case Study

### 3.1 Introduction

In this chapter dynamics affecting the spatial structure of the Wadden Sea Region (WSR) will be addressed. The main goal is to gain insight into processes that affect the spatial structure of (parts of) the Wadden Sea Region. We will also provide insight into driving forces and processes that caused the spatial system to reach the state that is currently in. Additionally, we aim to identify trends that provide information for potential future development trajectories (path dependency). When combining these two elements with theoretical insights provided in chapter 2, we will be able to discuss spatial changes. We aim to provide insight into questions such as; to what extent are developments in (parts of) the region ‘locked-in’ and what are the causes? Which parts of the area are able to adapt to changes, which areas are not and what are driving forces behind these possible observations? Also what relation between autonomous, contextual trends and local level dynamics can be identified? Basically we aim at understanding the trends, forces and mechanisms that cause spatial changes and how that potentially affects spatial planning (sub question one). This information will also allow us to make comments on potential opportunities and constraints regarding the integration of spatial-economical development and environmental quality.

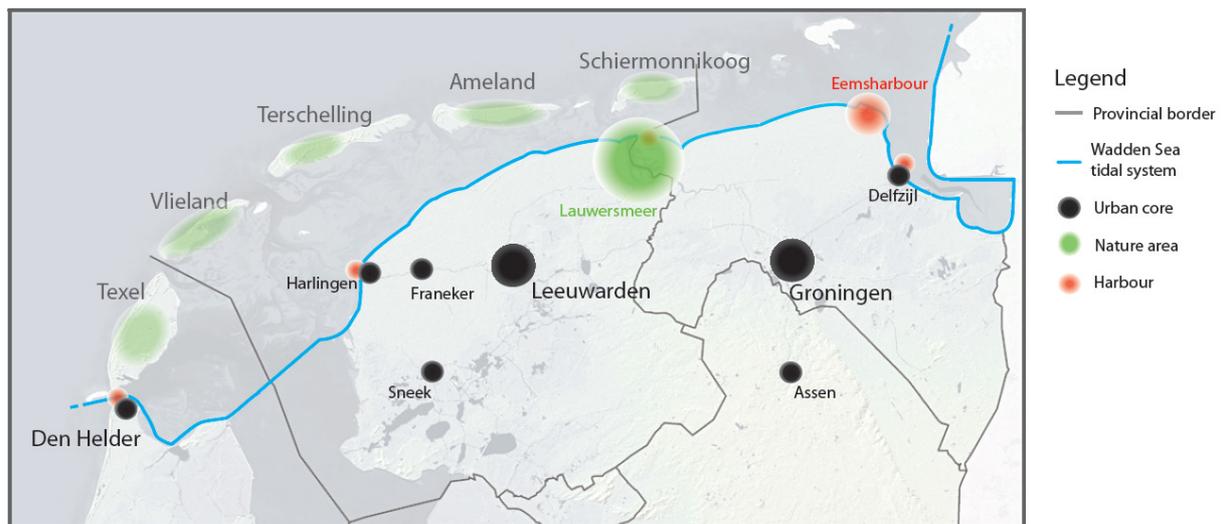
In this chapter we will present the results of a regional analysis of spatial dynamics in the Wadden Sea Region. The regional analysis consists of three parts. First the area and its characteristics will be addressed. *The Area* (§ 3.2) will focus on qualities in the Wadden Sea Region and on the interconnectivity on a local, regional and (inter)national level. Second, *The Material* (§ 3.3) will focus on the contents of policy documents on spatial and economical development. Also information available from nature and cultural organizations as well as scientific literature will be analysed. Third, *The Narrative* (§ 3.4) a discourse analysis of important actors such as inhabitants, visitors and policymakers will be discussed. It mainly focuses on how (changes in) specific discourse structures affects spatial planning. Collectively, these three parts will provide an integral analysis of the Wadden Sea Region. The findings presented in this chapter will provide input for the following chapters, focussing on the analysis of the findings and on potential spatial strategies for the region (chapter 4). Both will be used to critically reflect on the usefulness of the concept of transitions regarding spatial strategies in complex spatial systems (chapter 5).

### 3.2 Case introduction Wadden Sea Region

The case study focuses on the Wadden Sea Region. The region is located in the Northern part of the Netherlands, north of Leeuwarden and Groningen reaching up to the Wadden Sea and including the Wadden Sea Islands (see figure 5). The main focus is on the spatial processes in the predominantly rural areas, and not on dynamics within the urban cores of Leeuwarden and Groningen. A clear demarcation of the case study area in terms of formal geographical or instructional boundaries has not been used. Letting opportunities and conditions of spatial

themes emerge from the area, and subsequently analyzing relations and interconnections through multiple levels of scale, provides more adequate information to discuss the usefulness of the concept of transitions. This also allows us to reflect on organisational and institutional elements. In order to do so, spatial dynamics in the region are identified by means of a regional analysis, as discussed in the previous paragraph. Following the literature review from the previous chapter, attention will be paid on interconnected, multifaceted and multilevel spatial dynamics in order to derive information about the development trajectory of the region.

**Figure 5: Overview of the Northern Netherlands and the Wadden Sea Region**



### 3.3 The area - The triad of the Wadden Sea Region

The Wadden Sea Region is a diverse region in many respects. For example, the spatial-functional characteristics of the islands and the mainland are opposites for many characteristics. Also the region includes areas of natural and ecological importance as well as areas of economical value. Next to these tensions, also many relationships can be distinguished. Large scale mono-functional nature and agricultural area are alternated by areas of high activity. Often such activities are attracted by the characteristics of these mono-functional areas with characteristics such as tranquillity, open space and with natural and ecological assets. Areas of low and high human activity alternate, sometimes even abruptly. For areas of natural and ecological importance, this might be desirable. Yet the low level of activity might cause other areas to become forgotten and meaningless due to ecological, cultural, spatial or economical underutilization or undervaluing. At first sight, the region seems to contain characteristics that might contradict and collide. Though many areas are related and interconnected. These remarks are the starting point for a further analysis of the region. From a spatial-functional perspective the Wadden Sea Region can roughly be divided into three parts; the mainland behind the sea dikes, the Wadden Island, and the Wadden Sea itself.

### *Mainland behind the sea dikes*

The mainland of the region expanded gradually by means of reclaiming land from the Wadden Sea, thereby iteratively adding a new layer of land to the coastal area. In order to protect these new areas, dikes were raised to provide for security against the water. This has resulted in a relatively new but very characteristic production-oriented area on top of a centuries old landscape consisting of terps and mounds. Due to the land reclamation, the agricultural sector was able to adapt to the changing demands set by the globalisation of the market. To keep up, a continuous process of expansion, up scaling and automation was needed (Berkhout & Van Bruchem, 2007). This has resulted in quite large (relatively) mono-functional areas. The construction of large, protective sea dikes cut off the mainland from the Wadden Sea. This process led to a spatial-functional divide, since most of the agricultural areas are oriented land inwards.

Not the entire region is dominated by the agricultural sector. Some exceptions can be recognized. The first exception is the Lauwersmeer area. It differs greatly since it is a concentration zone of nature and ecological assets (from now on referred to as ‘qualities’). The nature area of the Lauwersmeer is cut away from the Wadden Sea by an adjustable embankment instead of a permanent dam. It forms an exception to the strong divide between the sea and hinterland in the region. Because of the adjustable embankment natural and ecological qualities concentrated in the Lauwersmeer area. Since the area is included in the Ecological Main Structure<sup>2</sup> and is appointed as a Natura-2000 area spatial dynamics are constrained in favour of nature and ecology (Ministry of LNV, 2006), with the exception a military training ground to the north-east of the lake. The second exception is formed by the industrial harbours, which are again fundamentally different in terms of functionality and spatial structure. Industries are currently concentrated in the harbours of Harlingen, Delfzijl and the Eemsharbour. While the share of the industrial sector is declining in the northern part of the Netherlands (CAB, 2008), the Eemsharbour finds itself in a reverse trend. After years of vacant plots, the occupancy rate of the Eemsharbour is increasing. Due to the relative absence of housing, population, congestion and the availability of knowledge, skills and infrastructure for the energy sector, the area provides opportunities the accepted forms as well as alternative forms of energy production. In the near future, several new power plants will be constructed. Combined with the (nearby) activities in Delfzijl, a cluster of energy, industry and (agro)logistics is gradually being created. The societal interest in sustainable production of (bio, green and blue) energy, might provide opportunities for the Eems-region (PGG, 2007, Province of Groningen, 2007). Already several initiatives for cooperation in the energy sector are present, such as Energy Valley, Grounds for Change, Cost Due, EDReC (Energy Delta and Research Center), and most recent the EDGaR research programme.

It is striking that agricultural areas, the nature area of the Lauwersmeer and the harbour areas are only modestly linked with their surroundings. Also all areas are relatively monofunctional, each in their own terms. In the Lauwersmeer area, nature and ecology are dominant, whereas

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<sup>2</sup> Translated from the Dutch ‘Ecologische Hoofdstuctuur’ (EHS) by the author.

in the harbour and industrial sites economical drivers are dominant. Also, as already given in the introductory paragraph of this chapter, they alternate quite abruptly with their surroundings. For example in the spatial-economical dynamics are relatively high in the harbour areas, while there is (almost) no spatial-functional relationship with the hinterland. As a result, the harbours are in great contrast with their surrounding areas consisting of vast agricultural areas, as a result of regional and national centralization of different industrial activities. Overall, the trajectory of their spatial development differs from each other. Consequently, the areas are rather isolated, operate on their own and do not function as a dynamo for creating a regional development momentum.

Again, there are exceptions to be made. Even though large parts of the Wadden Sea Region are divided in a rather monofunctional manner, developments are observed that break with this spatial structure. A striking example is provided by the activities on the fringe of the Lauwersmeer area. Here, the amount of initiatives in the tourism and leisure sector is increasing, such as the marinas of Lauwersoog, Nieuwe Zijlen and Oostmahorn. But also the recent development of Esonstad, Villapark Lauwerssee and the planned development of the care and recreation facility of Lauwershage (Province of Groningen & Province of Friesland, 2007), are signals that the Lauwersmeer can become a crystallisation point for leisure related developments. Following Lambooy (2002) the regional economical structure might reach a 'critical mass', meaning that these processes are attracting similar kinds of developments, reinforcing the economical structure as a whole. Comparing to the Wadden Islands, intensifying usage of the area might lead to tensions between development and conservations. Though up until this moment most developments are concentrated on the fringe of the lake, but almost do not create spin-offs effects for a broader region. Similar nature development areas can only be found on a small scale, where areas are used for water retention, nature development and for sweet and salt water interaction (Van Duin, 2007). Examples where combinations with other functions are made are only (very) modestly available in the region.

Having noticed and observed the changes in on the fringes of the Lauwersmeer, discussing the driving forces more in-depth helps to explain these rather contradictory developments, when compared to most of the other parts of the WSR. Recently more and more dynamics are recognisable that break with the predominantly monofunctional spatial structure. The main driver behind this trend is the effort to become less dependant on agricultural as the main economy. This is (in)directly influenced by the introduction of alternative spatial themes aiming at spatial quality and therefore questioning the processes of up scaling and rationalization of landscapes for production purposes. The demand for preservation and maintenance of ecological, landscape and cultural-historical values is increasing. The competition for land use comes from, amongst others, the growing importance of living, recreation and tourism in rural areas (see Cloke & Goodwin, 1992, Elbersen & Van Dam, 2000 and Haartsen, 2002). Broadening the scope of agricultural businesses is increasingly seen as a strategy to spread and deal with risks (compare Huigen, 1996 and Werkman & Termeer, 2007). This process is also reinforced by the reformation of the EU Common

Agricultural Policy (CAP) (Werkman & Termeer, 2007, LEI, 2008, Ministry of LNV, 2008). Biological farming, nature development and agricultural maintenance of the landscape are already common initiatives to create multifunctional businesses. More recently, initiatives in the tourism sector and energy sector are up coming. For example farm campsites and care farming (Hillhorst, 2008) and usage of excess materials from landscape maintenance and the cultivation of (excess) crops to create bio fuel (Koopman & Alma, 2007). These up coming broadening of businesses (De Bont et al., 2003) is already recognisable for example in the National Landscapes 'De Friese Wouden' and 'Middag en Humsterland' (Overbeek et al., 2006, Berkhout & Van Burchem, 2008). Research by Strijker (in Ashworth et al., 2007) shows that currently ten percent of agricultural businesses in the Northern part of the Netherlands creates revenues from tourism and recreation. It is expected that this share will increase in the (near) future.

Closely related to the interest in spatial and environmental quality is the preservation of cultural-historical elements. Regardless of any spatial strategy, the dilemma between conservation and (re)development of landscape and cultural historical elements can not be denied anymore. In the Wadden Sea Region several villages are considered as historically and culturally important, as well as different phases of landscape cultivation such as old sea dikes and allotment patterns. Also (farms on) one-man terps, spatial patterns of creeks and infrastructure referring to historical situations, and element contributing to the history of water management in the area (Ministry of OCW, 1999b) are recognized as important. Most of these areas are situation on top and around the old and more recent natural dikes formed by salt marches. The current infrastructure pattern (see for example the regional roads of N393, N375, N358, N361, N363, N362) follows these lines for the greater part, consequently running parallel to the sea dikes (Ministry of OCW, 1999a, Province of Groningen, 2005). Moving towards the most recent land reclamation areas and the current sea dikes, similar landscape and cultural historical element can only be modestly found.

So far, we have discussed spatial-functional changes and trends where spatial strategies have to deal with. In the Wadden Sea Region also several societal and economical dynamics can be recognized. For some time already, social-economical factors and demographical shrinkage lead to a decrease in population, a changing composition of households and a less favourable age distribution in different areas (Van Dam et al., 2006 and Knol 2006). For example the migration of the youth from rural to urban areas is currently recognized. But in the (near) future also the consequences of the population decline in absolute terms will have its effects on the spatial structure. All of the municipalities in the Wadden Sea Region, apart from the municipality Het Bildt, are already experiencing, or are about to experience, demographical shrinkage (Mulder, 2009 and Van Wissen, 2009). The trends in both social and economical change and shrinkage create a pressure on the traditional spatial structure, the functions and their spatial-functional interconnectivity. An important issue resulting from the shrinking demographical and spatial-economical situation is the changing liveability in these areas. Liveability is a result of a multitude of functions, and can be negatively influenced when one

or more functions are missing or are gradually slipping away. As a result of shrinkage the demand for housing and the critical mass for facilities are changing, which often means a problematic housing market, the closure of facilities and rising vacancy rates (SNM, 2007). In order to utilize space and infrastructure as efficiently as possible, policies aim at creating a hierarchy of urban centres. Supply oriented strategies such as subsidising facilities or efforts to increase or change the demographical composition are often inefficient. Therefore provinces are already thinking about strategies for a hierarchy or network of rural urban centres based on current availability of services. (Province of Friesland, 2007 and Province of Groningen, 2009). Functions such as housing, employment and public facilities are geographically concentrated and centralized through governmental policy (Ministerie EZ & SNN, 2007 and Province of Groningen, 2009). The question is if there are other approaches possible? Van Dam et al. (2006) argue that the consequences of demographical shrinkage might lead to an alternative spatial agenda, discussing concepts such as dilution, greening and perhaps de-urbanization. Reorganising, rescaling and integrating functions as well as adjusting and connecting services to the structure of housing, public transportation and infrastructure will become more important (see studies by Heins, 2002 and Van Dam et al., 2005). It must be noted that these approaches raises important coordinative capacity at a supra-local or regional level.

### *The Wadden Islands*

The situation and morphology of the Wadden Islands form a natural protection for the tidal area. The islands are also popular for tourism and leisure, due to their relatively natural and semi-cultivated characteristics. Yet most popular are the sandy beaches along the North Sea coastal line, the small idyllic villages and the vast amount of recreational possibilities. Tourism has already become the largest source of income on the islands (RvdW 2008). The popularity of the island is as such, that developments in the recreational sector are increasing the pressure on the attractive qualities. The provinces of North-Holland and Friesland are currently carrying out a stabilisation policy in order to control the touristic pressure by balancing the carrying capacity of the islands (Province of North-Holland, 2005; Province of Friesland, 2007). The touristic influence affects the spatial structure in different ways. The main themes are housing and the seasonal economy of recreation. The demand for housing on the island is high, concentrating mainly on second houses and holiday houses or apartments. The CBS (2009 and DvhN, 2008) already sees that many houses on the islands are formally 'unoccupied', since it is often a second house. This phenomenon is related to entire coastal zone of the Netherlands. Therefore the island municipalities try to limit ownership of houses by people that do not have an economical bond with the areas (see for examples; Municipality of Texel, 2009, Municipality of Ameland, 2009, Municipality of Terschelling, 2009).

For the islands, the tourism sector is the main driver behind spatial changes. It creates local economical opportunities, but also directly influences spatial qualities. Controversially, it is often negatively influencing the qualities to which tourists are attracted. For example the growing demand for housing has led to large apartment complexes, consisting of many

different types of architecture. This development interferes with the wish to preserve and maintain urban boundaries and the characteristics of the villages. Such developments raise questions: To what extent are developments possible that contribute to the qualities of the islands, instead of causing degradation to these qualities? Are there possibilities for nature maintenance and housing to go hand in hand? An others issue is raised by the seasonal economy of recreation. The amplitude of activity on the island varies greatly during a year. During the school holiday seasons, the occupancy rate on the islands is very high. While during the remaining periods, the 'dynamic' island is tranquil. What kind of strategies would spread the seasonal pressure more equally throughout the year? Considering the social and demographical changes, does ageing and upcoming themes as wellness and care create opportunities? And considering international trends in the leisure economy, what are the possibilities to increase the economical impact of yachting; expanding the harbour services and capacity and subsequently attracting long haul yacht routes and creating a place for boats to 'hibernate'?

Earlier we have observed the lacking interconnection between the mainland, the sea and the islands. This is exemplified by the following observation; regardless of the nearby Wadden Sea and the touristic overpressure on the Wadden Islands, the coastal zones of Groningen and Friesland profit only modestly from the leisure sector. Developments only scarcely present are occurring only on an ad hoc basis, such as 'wadlopen', bed & breakfast and care as secondary business for agricultural firms. Locations which are relatively well-connected by infrastructure (Harlingen, Holwerd, Den Helder) only function as a point of transfer to the islands. In general from a tourism perspective, most of the area is considered as a far away periphery and as a necessity to cross when going to the Wadden Islands. Considering the trends and developments in the recreational sector, what are the opportunities and conditions to profit from these trends?

### *The Wadden Sea*

The Wadden Sea is part of the biggest tidal area in Europe. Its natural and ecological values are praised, leading to a status of 'world heritage' appointed by UNESCO in June 2009 (UNESCO, 2009). UNESCO pleads for the protection and preservation of this unique area. Controversially, the main characteristic of the tidal area is its dynamism. Changes are ranging from fast tidal changes to slow changes such as islands that are slowly 'moving'. Preserving natural and ecological values seems to be important, though human activity is not completely banned. The Wadden Sea has to be used by ferries connecting the islands and the coastal zone. But fisheries, gas extraction and military exercises are limited when the activities cause irreversible changes and degradation of qualities (see Raad van State, 2007). For the near future the Wadden Sea has to deal with the increasing popularity of yachting, the recreational use of (sailing)boats (RvdW, 2008).

The area is from a historical geo-morphological perspective strongly interconnected, with the sea as their common denominator. But looking at the current spatial structure, the Wadden

Sea has become isolated in between the island and the coast. Both the Wadden Island as well as the mainland seem to orient themselves away from the Wadden Sea. Physical interaction has and human activities have largely been limited. The Wadden Sea has become a transient area instead of a linkage between the island and the coast.

#### *Spatial trends of 'The Area'*

Spatial development in the Wadden Sea Region is diverse and fragmented; several areas experienced a different development trajectory. While for some areas such as the harbour areas spatial dynamics are possible and preferred, for others dynamics are kept to a minimum in order to preserve natural, ecological, landscape and cultural-historical qualities. For several situations a clear division is not manageable. Tension between spatial dynamics and conservation is recognized such as for the Lauwersmeer area. Controversially, for several issues such as the maintenance and revitalization of the landscape, cultural-historical and heritage elements, the economical utilization might become essential. Especially when the current economical structure is declining, combined with relative and absolute decline in terms of the demographical composition. Still, some areas are experiencing a high rate of activities, whereas others seem from this perspective to be forgotten or neglected. The latter accounts for most of the mono-functional and agricultural coastal zone behind the sea dikes, although agricultural areas sometimes alternate abruptly with characteristic villages and with harbour and industrial areas. Also the sea and the mainland alternate abruptly. Here, the sea dikes are recognized as a boundary that functionally separates the areas (also see Janssen, 2000, De Leeuw & Backx, 2001). As a result, the interaction between land and sea has been reduced to a minimum.

In general, several imbalances are identified in this paragraph. Large functional-spatial contrasts between areas, which for some themes should become bigger (spatial separation), while for other areas spatial contrasts are not preferred. Overall, linkages and connections are missing between areas and between spatial themes. Examples are provided by over and under pressure, functional divide between agricultural, natural and recreational areas and the divide between sea and land. Demographical and economical changes on the one hand and the (societal) demand for spatial qualities (landscape, nature, ecology, cultural history) on the other hand demands a planning strategy capable of integrating issues while being oriented at maintaining spatial qualities.

### **3.4 The material – The documentation of the Wadden Sea Region**

The spatial dynamics of the Wadden Sea Region are embedded in a context of formal and informal rules about behaviour, utilization and legislation. Changing discourses about policy and legislation influence the attitude towards spatial planning and political acting, (greatly) influencing the spatial environment. In this paragraph contextual developments will be analyzed, in order to identify consequences for spatial planning and strategies in the Wadden Sea Region.

### *Separated areas*

The Wadden Sea Region has been the stage of a continuous fight between man and nature. Land reclamation and embankment were alternated by dike failures and floods. To prevent large scale floods, plans have been developed to dam the entire Wadden Sea. Though advice provided by the commission Mazure in 1974 and the commission Staatsen in 1976 argued that the tidal area should be protected and preserved. Embanking the area would create a huge loss of environmental and ecological qualities. Currently international as well as national rules, regulations and guidelines have been prepared aiming at the protection of flora, fauna and the physical characteristics. The main proportion concern the ‘wet areas’ within the region and (some parts of) the Wadden Islands. To a lesser extent, rules and regulations concern the ‘dry areas’ of the coastal zone municipalities (with the exception of the harbours, the Ecological Main Structure and the Lauwersmeer area). The PKB (Dutch abbreviation for ‘spatial planning key decision<sup>3</sup>’) Wadden Sea, issued by the national government, states that nature will have priority over other uses, though ‘limited human usage’ must still be possible. The PKB Wadden Sea states that the construction or expansion of harbours, marinas and industrial areas are not permitted if they are adjacent to the Wadden Sea. Only inland developments are permitted (Ministry of VROM, 2007). The ministry of Public Works and Water Management (PW&WM) also identified the confrontation of natural, ecological and human influences, and its effect on the spatial structure: *‘In a natural tidal system, the Wadden Sea would slowly move inland. Due to human interaction this process is stopped; the islands are kept in place by sand supplementation and the coast has become static due to huge sea dikes. Since the sea level is rising, the demand for sand to keep the tidal system as it is increases. This has consequences for coastal zone maintenance and management. Therefore irreversible spatial developments along the coastal zone should be prevented, in order to execute potentially necessary measure in the (near) future<sup>4</sup>’* (Ministry of PW&WM, 2000; p56). This is a clear example of the existing tension between conservation, adjustment and development.

The stable situation created by man is maintained by means of administrations, policies, rules and regulations. Reducing the risk of flooding on the short term and on the long term is seen as essential. Maintaining the current natural and ecological situation is preferred, which is possible from a technical point of view. Processes such as the ecological dynamic of the Wadden region, sea level rising and the increasing demand for sand, need an adaptive capacity of the spatial-environmental system. The rigid sea dikes form an obstacle for this process, as they ‘sustainably’ separate land and sea. Also from an administrative perspective, the physical and functional interaction is minimalised<sup>5</sup> (compare the National Spatial Plan ‘Nota Ruimte’ and the Third PKB Wadden Sea). Maintaining the current physical structure in

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<sup>3</sup> A ‘PKB’ is issued by the national government as a means to steer developments on lower level of scale. Provincial and municipal governments have to take PKB in to account when formulation spatial policies

<sup>4</sup> Translated from Dutch by the author

<sup>5</sup> Though in Denmark a regional document has been created for North and South Jutland, where the relation between the Wadden Sea, the hinterland and the coastal zone are more prominent than traditional geographical boundaries (Enemark, 2005).

the long term might not be tenable under the influence of climate change and related sand demand, etc. Increasing attention is paid to water accommodation, water retention behind sea dikes and using the potential of water for energy production leads to new and potentially innovative land use concepts. An example is Integrated Coastal Zone Management (ICZM). This strategy aims at creating an interactive and adaptive relationship between the sea and its hinterland when possible. When such strategies are impossible, more rigid measures are taken to reduce risks. Such initiatives are trying to combine the best of both strategies, where the necessity of protection and risk avoiding behaviour is continuously weighed against the possibilities and potentials to seize opportunities and area-oriented developments.

#### *From sectoral to area-oriented planning*

Already examples of area-oriented spatial strategies have been given, as an addition to the more traditional sectoral policies. Planning practise forces planners to acknowledge that spatial issues, such as nature, environment, infrastructure and cultural history, are interrelated and cannot be analysed without taking its context into account (see De Roo, 2003). This interconnection narrows the effectiveness of predominantly sectoral policies. Next to technical-rationale and instrumental approaches, the interests in area-oriented approaches are increasing (Van der Valk, 2002, Spit & Zoet, 2003). Looking at the development trajectory of the region, the reason might be the high rate of mono-functionality of land uses within the Wadden Sea Region. The vast agricultural areas did not, and potentially will not, demand an integral or area-oriented approach. Similarly, this accounts also for the unique and precious nature areas. Such areas are protected for their physical characteristics and are reserved almost exclusively for flora, fauna by means of rules, regulation and guidelines such as the European Union's Bird and Habitat Directives and the national guidelines regarding the Ecological Main Structure and the National Landscapes. But developments in particularly the tourism and leisure sector are attracted to the qualities of these areas. Consequently, the fringes of these mainly mono-functional areas become more and more multifunctional. For the (near) future sectoral policies will likely to be efficient for areas with strong mono-functional land uses. Yet an upcoming demand for multifunctionality can be recognized on the fringes of rather mono-functional areas that are containing attractive qualities for leisure and tourism (see previous paragraph). For these fringe areas, strategies are interesting whereby developments are able to add value or quality to an area, which in turn create an impulse for further development. In the Wadden Region examples of combinations of nature and leisure, and agriculture and leisure are already identified in the previous paragraph, but remain ad hoc and fragmented.

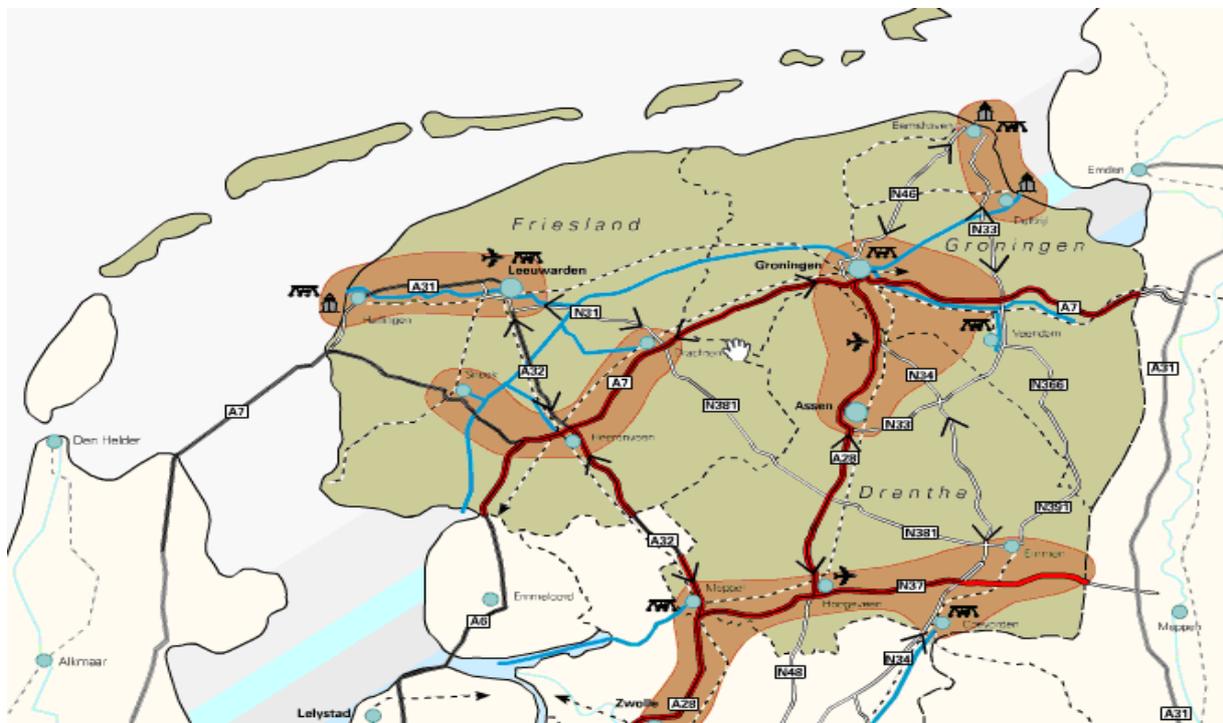
Strategies are increasingly needed that combine the protection of important qualities and spatial developments in the same area. Defensive strategies separating all functions from each other are therefore not tenable for every area. Increasingly the demand for spatial strategies can be distinguished that utilize existing qualities in order to enhance and strengthen these qualities in an integrated and area-oriented development approach (see for example Ministry of LNV, 2000). But do area-oriented approaches, incorporating tailor made and consensus

strategies, lead to better decision and results? Approaches will differ for each area, and will cost time, energy and care. Combining the development of ecological and natural qualities with economical potentials need to be given further attention.

### *Peak policy and localisation/regionalisation*

The need to combining ecological and natural qualities with economical potentials also results from recent changes in national spatial planning policies. A change in political and administrative discourse caused a movement from allowing and protection towards development and seizing opportunities and the investment in spatial-economical ‘peak’ of a region, area or location. Governmental investments in spatial development are subsequently depending on the expected return of these investments. The northern part of the Netherlands is currently referred to as rather empty by the Ministry of Economical Affairs. Opportunities that are distinguished are summarized in terms of the north as a knowledge and energy region (see Ministry of EZ, 2006). In the publications ‘Kompas van het Noorden’ (SNN, 1999) and ‘Lila en de planologie van de contramal’ (Hermans and De Roo, 2006) different concepts are mentioned. In these publications ‘the North’ is seen as an area of tranquillity and open spaces in stark contrast to the Randstad (roughly the city region of Amsterdam, Utrecht, Rotterdam and The Hague), having different but complementary qualities. For example in ‘Lila en de planologie van de contramal’ regional qualities are in particular related to recreation and leisure.

**Figure 6: Cluster areas of economical development in the northern part of the Netherlands**



(Source: Province of Drenthe, 2009)

In the most recent national spatial plan, opportunities have to be utilized in the regional or local level when possible and preferable (Ministry of VROM et al., 2006). The national ‘peak

policy' can also be found on the regional level. The province of Groningen concentrates economical development within so called 'core areas' and the province of Friesland in similar 'cluster areas' (Ministry of EZ & SNN, 2003, 2007, Province of Friesland, 2007, CAB 2008, Province of Groningen, 2009). It must be noticed that the peak policies are limited to the urban regions of Groningen-Assen, Leeuwarden-Sneek-Harlingen and the harbour areas of Eemsharbour-Delfzijl (see figure 6). Consequently, most investments in the industrial and service sector are concentrated in these urban and harbour areas (explicitly Delfzijl and the Eemsharbour). This trend means that large governmental investments in the more peripheral areas will not be done in order to level their positions (in terms of economical growth rates, income, welfare, etc) with other regions within the nation. Instead, such investments will only be done when the chances of success are apparent. Following this trend the development of the 'Blue City'<sup>6</sup> is rather difficult to put in place. Here, investments in a disadvantaged peripheral and rather isolated area have been done without evident knowledge of the state of the housing market, being the main driver behind the success or failure of the development. The agricultural sector in the Wadden Sea Region also experiences dilemmas regarding the processes of decentralisation and the utilization of area specific qualities. Available space for expansion and up scaling is getting scarcer. First, laws and regulations prohibit traditional process of land reclamation in the Wadden Sea or cultivation of natural areas. Second, the amount of businesses is declining, and the inability to take over these businesses increases. Third, an increasing amount of spatial claims occurs such as nature development, water retention and recreation (WRR, 2002). Fourth, the increasing societal and institutional demand to preserve and protect cultural and landscape heritage (Ministry of OC&W, 1999). Overall, boundaries are set for further developments and the required space is often unavailable.

A change in policy occurs from permit planning (no, unless....) to development oriented planning (yes, under the condition that...). That does not mean that protection and risk avoidance will become outdated. Bird and Habitat guidelines, climate control, and protection against the consequences of flood are inherent to the Wadden Sea Region. Though it seems that there is a period at hand, where neither protection and preservation nor expansion and development is prioritized. Instead, recognizing their interconnectivity and abstracting potential opportunities from this relationship will become more and more important. From a (macro and meso) policy perspective the importance to recognize and identify opportunities and relationships on the local and regional level therefore increases.

### *Trends of the Material*

The change in spatial policy means that a focus on the development and the utilization of an areas its own strengths, becomes more and more important. For the region it will become increasingly important to think in terms of development, based on opportunities originating from a specific area itself. Currently, in terms of spatial policies, spatial and economical

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<sup>6</sup> The 'Blue City' is a project in the east of the province of Groningen, were an agricultural area has been transformed to a lake and water retentions basin, combined with luxury housing development.

developments are interwoven with industries and the service sector and are concentrated in city regions, core zones and concentration zones such as the Eemsharbour region. Yet, areas with ecological and natural qualities such as the Wadden Sea, Wadden Island and the Lauwersmeer, are rigidly protected by national and international law and regulations in an effort to prevent the negative effects of this trend in spatial developments. This analysis suggests that policy interventions created a balance between area of development and areas of protection. This balance though, sometimes suppresses potentially interesting spatial dynamics, resulting in a spatial lock-in situation. An example is provided by the observation that more and more rules and regulations are interfering with the drive for developments in the agricultural sector. Developments such as housing, leisure around natural areas are often impossible even though it has the potential to expand and strengthen such areas. Also the possibilities of turning the land inward orientation of the coastal zone outwards, is restricted due to policy interventions.

Overall, the Wadden Sea Region is not a static area. A range of spatial dynamics can be distinguished. Though from a functional and spatial perspective, (almost) the entire region is planned and confined through policy interventions. The emphasis is put on the separation of functions, without (yet) recognizing the potentials of integrative strategies. As a consequence space for development is scarce at this moment, even though niche developments are already occurring that can add value and strengthen area specific qualities when integrating multiple types of land use. These developments are not (yet) recognized in planning policies as potential new spatial and spatial-economical themes and structures.

### **3.5 The narrative – The story of the Wadden Sea Region**

The discourse to describe an area in an objective manner, for example based on a functions, qualities or economical development, has changed. Every area, region of location has its own 'story', which is based on the perception of people and which also influences this perception (see for example Van Dijk & Van der Valk, 2007 and Dagevos et al., 2000). The story of an area is therefore not straightforward, but often is divergent. In this paragraph we will discuss the influence of different actors on the story of the area, and the consequences for spatial planning and the planning (decision-making) process. This discourse analysis will not be drastically detailed, but must be considered as a means to understand the influence and criticality of different discourses.

#### *The inhabitant, the user and the visitor*

As mentioned earlier, how actors perceive or experience a region is related to their behaviour and functional relationship to such an area (see Overbeek & Vader, 2003; p4). An analysis of the inhabitant, user and visitor will contribute to the understanding of future potentials and opportunities regarding the spatial structure. Questions such as who are these actors exactly? What expectations, wishes and restrictions do they experience in the Wadden Sea Region, or parts of the region? What kind of opportunities or threats do they perceive for the area? And regarding visitors are we only thinking of the people passing by or people who come and go?

For example, it is already known that German tourists are attracted to the islands and developments such as Esonstad (RvdW, 2008). Also we know that for visitors the rate of return is lower and the duration of stay is shorter for the coastal zone in comparison to the islands (RvdW, 2008). But what do they expect to find? And to what extent are they potential inhabitants or investors for the area? The relation between inhabitants, users and the areas is influenced by a set of characteristics (values) referred to as lifestyle. This lifestyle creates a certain image of an area, and expects the characteristics of such an area to fit this image. When considering lifestyles of different users, they can contradict and collide. Researching multiple lifestyles of different users will be necessary to identify an area its potentials and opportunities to meet these demands by (potentially new) users. This will be important for themes such as the preservation of urban and cultural historical centres in relation to permit or even stimulate second houses for example.

#### *The protector and the policy-maker*

Next to the inhabitant and the visitor, other actors are influencing the decision-making process as well as the image of the Wadden Sea Region. Important actors are organisations that have an interest in (the protection of) nature areas. They put most emphasis on avoiding risks and protection, and are often suspicious about initiatives to utilize spatial-economical opportunities. A reason behind this suspicion might be traced back to planning approaches used in the '60 and '70. These approaches were relatively functional interventions, that did not take area specific characteristics into account. When formulating more up to date spatial strategies, collaboration with such groups of stakeholders will be essential. Another important group of actors are the institutions and policy makers, involved in policy making for the Wadden Sea Region. It is regarded to as an important group but difficult to grasp completely, due to alternating compositions and involvement. While a general notion about the preservation of qualities is rather positive, acquiring consensus in thinking and acting is a more difficult process. Overall the group that is involved in policy making is important, since it is this group that generally deals with spatial management, the planning process and creates most of the spatial strategies.

#### *Planning policy; from functional allocation to qualitative embedding*

In 'the material' the currently policy regarding the Wadden Sea Region has already been discussed. We have seen that the traditional, defensive and sectoral planning approaches are increasingly complemented by development oriented and area specific oriented planning approaches. Planning policy is changing, searching for a new balance between spatial issues. In this paragraph we will discuss the narrative of the changing planning approaches in an effort to understand potential consequences for future planning strategies. Overall changes in spatial planning are closely related to societal and political discourse as well as the technical abilities and possibilities. Initially, spatial developments were restricted by the natural and morphological structure. For example houses were (almost only) built on sand and high clay grounds, roads followed the patterns of rivers, terps and moulds were built to adapt to the

treats of water. Such elements are still visible in the current spatial structure, referring directly to the historical development trajectory of the area.

A second main 'era' in planning practice is the period of 'functional planning'. During the '60s the manipulability of spatial structures acted as the spearhead of spatial planning and policy. Sectoral and functional allocation of functions dominated spatial planning resulted from the approach as formulated in the First and Second National Spatial Plan (1960 resp. 1966) and the plan 'Development of Northern Netherlands' (1967). The most prominent examples in the Wadden Sea Region are the vast agricultural areas with the planned, straight allotments and infrastructure and the Eemsharbour. Even though society is moving away from the functional era (Spit & Zoete, 2003, Faludi & Valk, 1994), planning practice is still struggling with issues regarding functionality such as the separation and integration of functions. Spatial changes occurred without incorporating area specific elements. Relations were only seen from a functional perspective, often neglecting natural, ecological landscapes or cultural historical elements for example. From this point of view the position of nature protection organisations is understandable, when considering spatial changes and examples of their disastrous effects to nature, its location and its surroundings.

As a reaction to the functional era of spatial planning in the Netherlands, attention for qualitative embedding increased due to discussions about sustainability, quality of life, and the importance of cultural history. For example according to the plan to protect cultural history, the 'Nota Belvedere' (Ministry of OC&W, 1999a), the terp and mould area of Friesland and Groningen are precious and may not disappear or be irreversibly affected by new developments. In order to preserve this spatial structure, 'preservation by means protection' is supplemented by 'preservation by means of development' (see Foorthuis & Kok, 2004). The essence of the plan is that cultural and spatial heritage can be preserved and create an added value for spatial developments (Ministry of OC&W, 1999a). In other words, the landscape and cultural heritage should be mobilized to enhance the spatial quality and social-economical situation (CWSS, 2001 and Schroor, 2008). Overall, as Zonneveld & Verwest (2005) see, the division of spatial functions is increasingly substituted by interconnecting spatial functions.

Currently, the planning discourse is more and more moving from functional allocation to qualitative embedding of new spatial developments. In other words, a spatial function has to fit in to an area, and preferably enhance the existing qualities of such as area (Voogd, 2006; p44 and Ministry of VROM et al., 2006). If we look at changes in recent planning policy and practice, this might be an important trend for planning strategies for the (near) future. Already provisions have been stated for the governmental decree 'Ruimte' (forthcoming in 2010 by the national government), emphasizing the need for embedding and incorporating area specific characteristics (Ministry of VROM, 2009b). Though as we can abstract from earlier paragraphs, this shift in planning thought has not been mobilized and utilized for strategies in the Wadden Sea Region.

### *Trends of the narrative*

Although every area has its own story or narrative the story of the Wadden Sea Region is rather unknown, even though this narrative can be important for behaviour in, and utilization of, an area. With the change in planning thought from functional allocation to qualitative embedding, this narrative seems to become more and more important to understand the development trajectory and identify the qualities and opportunities of an area. Insight into spatial qualities will also be essential, when planning practice is switching from permit planning to development oriented planning.

Earlier the tension between preservation and development in and around areas of economical and ecological concentration has been identified. Deriving from the pervious paragraph, the demand for qualitative embedding and the attention for landscape, ecology and cultural history increases. Also due to multiple spatial claims (by policy, ecology, nature, society, climate, etc) the demand for multifunctional areas in predominantly rural areas will increase as well, creating a more consumption oriented space based on its own characteristics instead of an agricultural, production-oriented space (Van Dam et al., 2002, Dagevos et al., 2000 and Urry, 1995). These will be important trends for especially areas where a combination of natural qualities, relatively high economical potentials, and landscape and historical heritage is present. We already have identified in earlier paragraphs that these characteristics can be found in fringe areas. Questions arise such as: should these areas remain to be fringe areas, or can they become crystallisation points for (policy induced) further development?

### **3.6 Conclusions**

In this chapter an overview of changes (potentially) affecting the spatial structure of the Wadden Sea Region has been presented. Overall, the spatial dynamics within the region shows a divers, ad hoc, and fragmented pattern of spatial changes. Dynamics are relatively low in the large mono-functional agricultural production-oriented areas and the precious areas of natural and ecological importance. The discourse either focuses development or on protection and preservation. From a functional perspective, the (traditional) discourse for such areas is that interaction with other functions is not considered as a potentially beneficial. But several processes and trends have been identified that autonomously interfere with the preservation of such a static spatial structure. First, changes that are driven by dynamics on a macro, contextual level, such as the increasing amount of spatial claims, changing societal preferences (demand for nature and recreation) and technologies (communication and accessibility) as well as agricultural businesses who are struggling with their economic viability due to globalization and increasing demand for up scaling. Also the shift in spatial policy, concentrating on investments in peak and developments with a high chance of success, leads to the importance of utilizing existing qualities as best as possible. Second, local changes can be identified, such as the increasing amount of leisure and tourism related businesses as well as initiatives related to care, nature and ecology. The latter example shows that new spatial-economical functions are emerging, reacting to (or as an interplay between)

changes on a macro, contextual level. Such bottom-up processes are utilizing the potentials of the region its characteristics, while also incorporating contextual dynamics. Considering the trends in governmental spatial and economical policies (e.g. mainly investing in peaks and developments with a high chance of success), these initiatives will become more and more important for the Wadden Sea Region.

Overall, a change of the spatial economical structure can be identified, though the pattern is fragmented. In some areas spatial dynamics are high, especially where spatial interests put claims on the same areas, co-exist, interact and collide. While for other areas spatial dynamics are suppressed or neglected due to legislative or policy constraints. From a planning perspective, there seems to be a tension between autonomous changes and the current spatial (and related institutional and organisational) structure. Overlooking institutional, organisational and physical elements, the general impression is that the spatial system is rather locked-in. While contextual changes and micro level developments show alternative development paths, the overall spatial system is still largely functionally oriented. We can conclude, therefore, that spatial policies and strategies are generally not co-evolving and incorporating changes at both the macro and micro level, therefore insufficiently supporting and facilitating potential opportunities to strengthen and enhance qualities within the Wadden Sea Region. But when we take societal preferences, policy dynamics and spatial-economical trends into account, there seem to be opportunities for spatial developments that are not yet recognized in current planning strategies. These observations will be analysed more in-depth in the following chapter in order to discuss planning strategies and reflect on the current situation of the Wadden Sea Region as a spatial system.

## **Chapter 4: Analysis of spatial dynamics; towards planning strategies for the Wadden Sea Region**

*About the mosaic of the Wadden Sea Region: separating or interconnecting functions?*

### **4.1 Introduction**

The spatial development trajectory differs for many areas within the Wadden Sea Region. The extent to which nature or man is dominant, differs between areas and depends of which period of time is considered. The interaction between man and nature has created the current spatial structure, and will also influence the spatial structure in the (near) future. Due to the influence of several (autonomous) processes and the observed alternative ad hoc, micro level developments, a clear divide between spatial functions might not be the most 'sustainable' balance. Especially in terms of seizing and utilizing spatial opportunities, given the changing context, a discussion about separating or interconnecting functions seems to be unavoidable. In this chapter we will discuss these issues, identify the implications on planning strategies and reflect on the current state of the Wadden Sea Region as a spatial system.

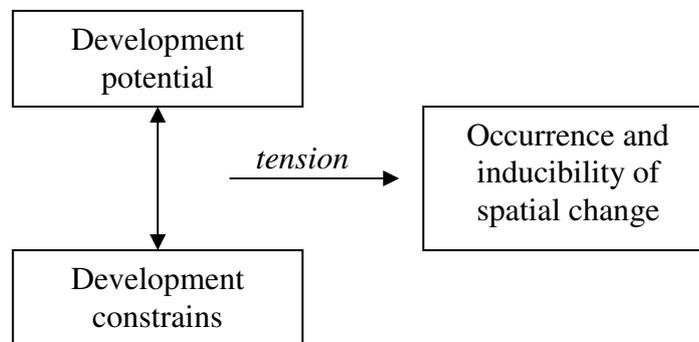
### **4.2 Development potential and development constraints**

When thinking about the role of spatial planning in complex spatial systems, we must look at ways to utilize spatial processes and trends. This implies on the one hand, not rejecting or denying the development potential resulting from the (autonomous) character of certain trends. On the other hand we must also take (potential) development constraints for spatial change into account. Development constraints might limit spatial dynamics, meaning that certain conditions such as the effect of environmental laws, safety regulations, etc., do not allow or restrict particular spatial changes. In this paragraph we will look more in-depth into the observations made in chapter 3 in order to identify development potentials as well as development constraints of particular societal, economical, ecological oriented trends. Combining these insights allows us to better understand the extent to which spatial changes can occur and provide insight to what extent changes can be induced. It also allows us to comment on the adaptive capacity of the spatial system of the Wadden Sea Region, from a material, organisational and institutional perspective.

Deriving from chapter 3, there seems to be a dilemma between development and protection in the Wadden Sea Region. From a traditional perspective nature and ecology are often seen as opposites of development and spatial change. This is illustrated by comments of Voogd (2006) about anthropocentric or ecocentric approaches. He argues that an ecocentric focus might be more appropriate for areas of natural or ecological importance whereas anthropocentric focus might dominate in urban and economic areas. But the approaches should be interpreted as continuum, in order to utilize complementary opportunities (Voogd, 2006; p45). In addition, Voogd argues that, next to generic measure, the local, area specific situation becomes the starting point for decision-making for this dilemma (Voogd, 2006;

p46). The extent to which spatial change (can) occur therefore depends on how ecocentric and anthropocentric ideas, regulations, rules, etc. are balanced for a particular area. For some areas of high natural or ecological importance, the focus can be mainly ecocentric and constraining anthropocentric developments. Even though such an area might have a big development potential, developments can be constrained by amongst others rules, regulations and (international) agreements. In this chapter we therefore aim to identify the development potential for several trends and themes. By analysing the occurrence and inducibility of spatial changes, we can make comments about the relationships between trends and actual developments and about possible strategies for future spatial structures. In addition it allows us to comment on current development constraints in terms of policies, rules, regulations, etc. We will be able to discuss the validity of these constraints under the current regional spatial dynamics, as an expression of macro and micro level developments (summarized in figure 7).

**Figure 7: Tension between potentials, constraints and spatial change**



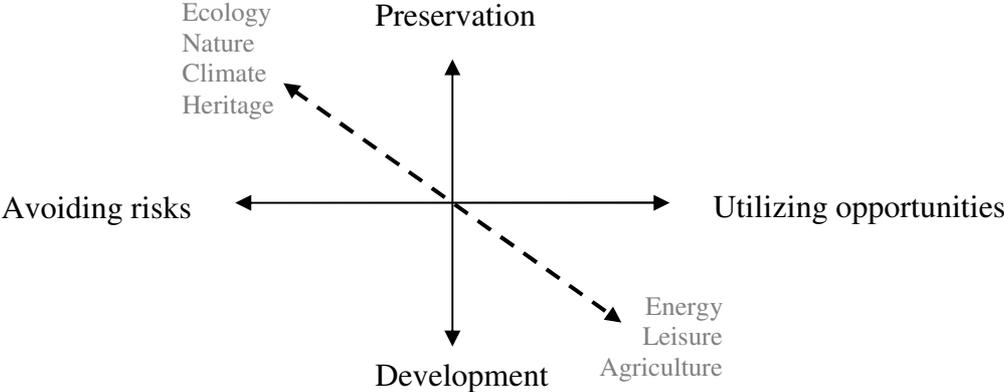
### 4.3 Separating or interconnecting spatial and economical functions?

Considering areas within the Wadden Sea Region, and bearing Voogd his comments on ecocentricity and anthropocentricity in mind, a sectoral separation of spatial functions can be distinguished. Areas are either economically or ecologically oriented; a division that is reinforced by the greater part of current governmental policies and regulations. For example spatial dynamics are restricted in natural and ecological areas, while dynamics have traditionally been promoted for the mono-functional development of agricultural areas. However, recently several changes have occurred in the Wadden Sea Region that do not fit this pattern. On the fringes of the mono-functional areas, new bottom up initiatives are breaking the surface, ‘escaping’ from the traditional development trajectory and its development constraints. Lambooy (2002) refers to such processes as ‘emergent behaviour’; developments that are innovative compared to the traditional activities. An example is provided by initiatives multifunctional spatial developments on the fringes of mono-functional areas, such as the leisure and tourism related developments around the Lauwersmeer and on the Wadden Islands, respond to a market demand which is driven ‘autonomously’ by an increasing wealth, free time, quality of life, etc. Not surprisingly, these initiatives lead to interactions, tensions, and collisions with the mono-functional spatial structure and the related development constraints. Here, we see that the presence of (unique) spatial and natural qualities causes a dilemma between protection and preservation of current

structure and possible developments can occur. When the spatial dynamics increase and if they are creating a successful spin off or increasing demand for additional developments, the demand for multifunctional areas will potentially also increase. Looking at figure 7, the increasing occurrence of spatial changes, can result in a tension between development potential and development constraints. When we aggregate these observations to a more abstract level, a distinction can be made between areas where risk avoidance of spatial change and the preservation of existing spatial structure dominate on the one hand, and areas dominated by the utilization of spatial opportunities and spatial developments on the other hand (see figure 8). This results in the following categorization for current spatial themes for the Wadden Sea Region:

- Preservation and avoiding risks as much as possible accounts for the rules and regulations regarding the coastal defence line, flora, fauna and the physical characteristics of the tidal system (ecology, nature, heritage, climate). Policies and regulations create constraints for situations where (potential) spatial-economical developments might jeopardise the conservation of an area and its qualities.
- Utilizing spatial opportunities and allowing alternative developments are restricted and appointed to limited amount of areas. For example the development of the Eemshabour (logistics, fisheries, energy), agricultural areas, and to a certain extent the recreational developments on the Wadden Island and on the fringes of the Lauwersmeer (recreation, tourism).

**Figure 8: Framework for spatial-functional developments**



*In grey: spatial themes for the WSR*

Overall the greater part of Wadden Sea Region its spatial structure is characterized by a functional divide, represented by the extremes on the dotted arrow in figure 8. Though some changes in the spatial structure have been recognized that break with this divide. Earlier it has been argued that the functional approach in spatial planning is increasingly substituted by an approach oriented on qualitative-embedding. For the Wadden Sea Region obstinately clinging to a functional approach might lead to a negative lock-in situation, at least for some areas. This can be further explained by looking at the discussion about macro level ‘autonomous’

developments and area specific characteristics. Macro level 'autonomous' trends are able to create a development potential. The extent to which such a development potential is utilized depends on an area its specific qualities and its ability to embed spatial changes demanded by macro level trends. An example is provided by the increasing demand for tourism and recreational activities and facilities. This macro level autonomous trend creates development potential for local and regional level of scale because the tourism and recreation economy entails a demand for landscape, natural and ecological qualities. These elements are area specific and often considered as vulnerable to (human) perturbations. But when we start to recognize such (macro level) trends and understanding the conditions for embedding such as trends we might be able to induce spatial changes and contribute to planning goals and strategies. Consequently it becomes possible to utilize the development potential of the observed trends, and to redirect alternative, new developments away from high pressure, high tension areas characterised by development constraints (for example areas such as the natural areas of the Lauwersmeer and the Wadden Islands).

For these areas maintaining a functional divide between land uses hampers the potential to adapt to, and profit from macro level trends at the local (and regional) level. For such themes and areas a mixture of functions instead of a functional separation can be interesting. Referring back to figure 8, for several areas other situations become more preferable next to the traditional functional divide. This statement accounts especially for areas where economical and ecological qualities can be interconnected that subsequently strengthening each other. But when trying to utilize development potentials, we must also take development constraints into account aimed at quality preservation resulting from institutional rules and regulations and organisational agreements. Looking at both development potentials and constraints, together they create an opportunity to interconnect spatial-economical developments and preserve (new) natural, ecological and cultural-historical qualities in surrounding areas. Qualities that otherwise might experience a decrease or downturn of their characteristics under the current spatial system. Whereas utilizing development potentials can create a new (spatial-economical) impulse for an area. It also provides an opportunity to revitalize or to add new qualities to forgotten, underutilized and neglected areas and locations. These observations lead to several follow-up questions. Next to tourism and nature, which other themes can be interconnected? How can interconnections be utilized as a spring board for further spatial development, and thereby becoming a spatial strategy for area specific spatial opportunities?

#### **4.4 A mosaic of separated and integrated spatial functions**

Beside of developments on the fringe areas in the Wadden Sea Region, the stark contrast between protection or development and avoiding risks and utilizing opportunities can be contested for several other areas and locations. Here, we are targeting areas that neither have explicit natural or ecological qualities nor a high economical potential. Areas that do not attract much attention or many visitors compared to other parts of the region, and are located outside of economical and ecological concentration zones, making these areas relatively

underutilized and underappreciated. Examples can be found in areas where spatial-economical development is lagging behind, demographical shrinkage occurs, diminishing quality of the area and of the liveability, and the degradation of the landscape and cultural history occurs. For the WSR, the following situations can be summarized:

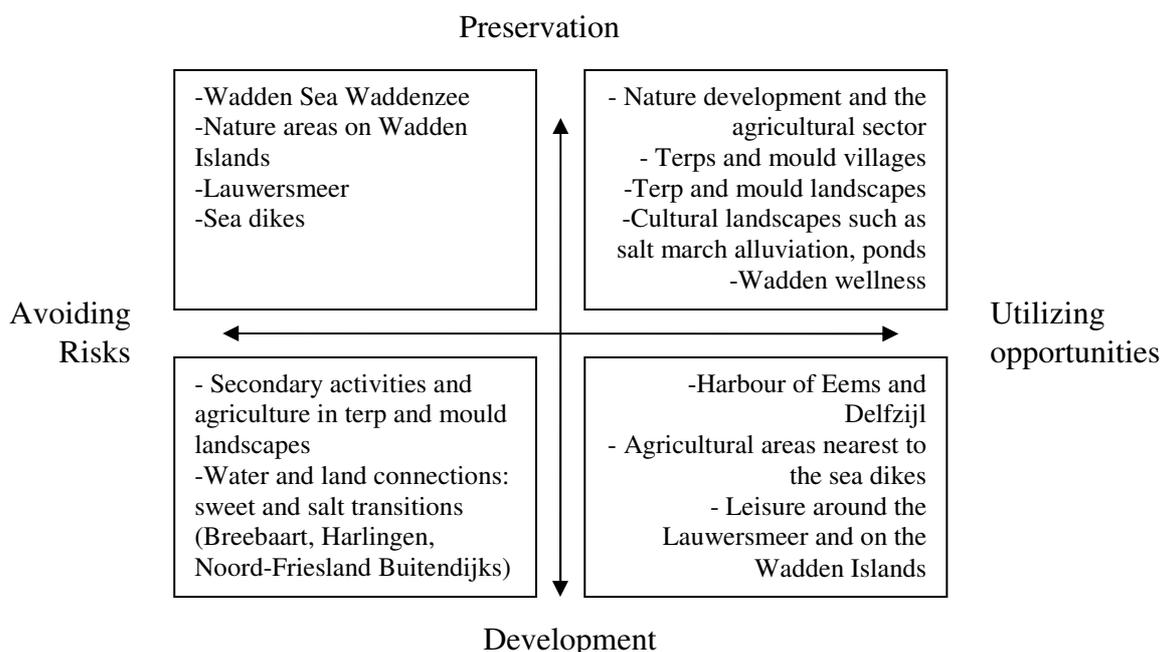
- Earlier, the fringes of the Lauwersmeer have been mentioned. The fringe area increasingly becomes a concentration point for developments. Yet connections to the hinterland are generally missing, while similar developments are occurring on a small, micro level of scale. Examples are provided by the lacking connections between the Lauwersmeer developments and the National Landscapes of 'Friese Wouden' and 'Middag en Humsterland'. A similar situation can be distinguished for the leisure hot spots on the Wadden Island, which is currently not utilized to create spinoff effects for the Wadden Sea coastal zone.
- The Eemsharbour, as a result of '60 functional planning era, is heavily contrasting with its surroundings. The energy and sustainability related developments are currently roughly limited to the borders of the harbour, while such developments offer opportunities for the surrounding area. Utilizing the area its specific characteristics (such as the relatively remoteness and the openness of the area) might lead to an integrated energy and sustainability landscape.
- Small, micro level spatial developments are occurring in the Wadden Sea Region, but are only scarcely present. Examples are the village of Pieterburen where initiatives as tourism, recreation, care and wellness can be found and around Sexbierum and Berlikum where glass houses are concentrated. In these areas the spatial developments are separated from its surroundings, though it provides some sense of the area its potential development trajectory of the (near) future. With the increasing demand for nature and ecology in relation to recreation, water retention areas might become comparable point of concentration for further regional development.
- Preservation of cultural history of the spatial structure is recognized (already in the Nota Belvédère, Ministry OC&W, 1999) though currently efforts are mainly aimed at conservation. In recent policy documents such as the program 'Mooi Nederland' by the Ministry of VROM (2009a) and the Landscape Agenda by the Ministry of LNV & Ministry of VROM (2009), the importance of integrating cultural history into a broader spatial framework increases. The economical and financial importance of utilization is more and more essential to preserve historical buildings, landscapes and precious city centres. Combination of living in historical farmhouses and extensive recreation around and even in ecologically important landscapes might be possible and might even contribute to the strengthening of these areas, unless the proper conditions for developments are met. The Wadden Sea Region also contains many villages, churches, terps, moulds, historical sea dykes, etc. though an integrative and interconnecting spatial strategy on a future development trajectory is missing.
- In the Wadden Sea Region, nature and ecological development occurs by reinstating connections between sweet and salty water. Examples can be found in the

Breebaartpolder, around Harlingen, the Westerwoldse Aa, the Amstelmeer and the project ‘Noord-Friesland Buitendijks’ (RIKZ, 2002). De Leeuw & Backx (2001; p29) also argue that these connections offer a potential solution for autonomous developments as sea level rising, and as basis for water retention. These developments are designed as mainly mono-functional, only focussing on nature and ecology. Though combinations of nature, water and recreation/housing as well as nature, water and energy are promising (Lenselink & Gerits, 2000).

- The agricultural sector increasingly has to compete with, and take into account, spatial claims such as the preservation of cultural and landscape history. Space for expansion and up scaling is getting scarcer, already resulting in individual initiatives to broaden business activities such as combinations with nature development, care and recreation. Certainly, the need for large scale mono-functional agricultural areas will not disappear. Though upcoming (autonomous) trends and processes are raising questions about how to balance up scaling with broadening of activities while incorporating the preservation and strengthening of local spatial qualities.

Based on these observations and the information derived from chapter 3, we are able to allocate areas and locations of the Wadden Sea Region into the framework, as presented in figure 8. The results are given in figure 9. It must be noticed that the figure is not meant to show an *exact* positioning of areas, but as examples of how different areas are related. Following this line of reasoning the box on the top left and bottom right show examples of the traditional spatial structure, where functions and areas are relatively divided or separated from its surroundings. The box on the top right and bottom left show examples of more recent spatial developments occurring, that do not fit the traditional image of *either* preservation *or* development but fit the contemporary image of *both* preservation *as well as* development.

**Figure 9: Spatial-functional allocation within the WSR**



Currently, examples of integration of multiple spatial-functional developments are only modestly available in the Wadden Sea Region, resulting in the underutilisation of potential spatial synergies. The examples given in figure 9 show the mosaic of the spatial structure within the Wadden Sea Region. Spatial developments are currently ad hoc initiatives, appear on fringes, or are limited to isolated concentration points. Though considering the (contextual, autonomous) trends, the market-driven developments and the properties of areas within the region including these changes into planning strategies might be possible. This means putting developments into a broader spatial frame and in an integrative perspective (at the regional level). Interconnecting crystallization points of spatial development with their surroundings, including the spatial issues in these surroundings, might then contribute to the spatial and environmental quality of these areas as a whole. Though utilizing the potential of spatial dynamics does demand changes in spatial strategies. Mainly, the observed spatial dynamics (figure 9) occur due to the possibilities of integration, interconnection and due to trends and processes at the contextual level. Instead of clinging onto the division of spatial functions, spatial dynamics should not be treated as marginal phenomenon, but as an opportunity to create a development momentum aiming to increase area specific qualities in, and around, a location. This will be addressed more in-depth in the following paragraph.

#### **4.5 Trends & opportunities; towards thematic spatial planning**

Summarizing earlier findings, the functional divide between economically and ecologically oriented developments and the maintenance of monofunctional areas are weakening at certain points. Autonomous and contextual driving forces cause change in development potential and a revision of development constraints. The main driving forces of changes in the spatial structure are given in table 1.

**Table 1: Autonomous and contextual trends**

<p>1. Institutional:</p> <ul style="list-style-type: none"> <li>- Focus on peaks and developments with a high rate of success</li> <li>- European Union CAP reform</li> </ul> <p>2. Organisational:</p> <ul style="list-style-type: none"> <li>- Planning responsibilities are decentralized when possible</li> <li>- Increasing the focus on local and regional potentials</li> </ul> <p>3. Material:</p> <ul style="list-style-type: none"> <li>- Increase in tourism and leisure demand attracted by, and concentrating around, natural areas (Islands and Lauwersmeer)</li> <li>- Economical and demographical shrinkage</li> <li>- Quality of life: demand for activities (or housing) related to greens, landscape and water as well as interests in renewable energy production and sustainability.</li> <li>- The agricultural sector as the economical backbone of the region is declining; the inability for up scaling and expansion is a consequence of the increasing amount of spatial claims cultural and landscape history, nature development, scarcity of space.</li> </ul>
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These processes influence the occurrence of regional spatial changes as well as the potential to induce changes in the spatial structure. By actively accommodating spatial demands resulting from these autonomous processes, changes in the spatial structure can be induced. Examples are the developments within the Eemsharbour, the developments on the fringes of the Lauwersmeer areas and the recreation and leisure initiatives resulting from the growing interest in landscape, nature and ecology; qualities that can be found in the several areas within the Wadden Sea Region. Overall there are possibilities and initiatives to induce (new) spatial structures, looking the examples where autonomous trends and demands are utilized for spatial and economical development in relation to area specific qualities. But currently these initiatives are still ad hoc and fragmented as we can derive from figure 9. It is striking that these developments are only occasionally guided by planning policies. Therefore, utilizing development potential and the occurrence and inducibility of spatial changes into spatial strategies seems to be the next step, bearing in mind the development constraint of at least strengthening and perhaps even enhancing spatial qualities.

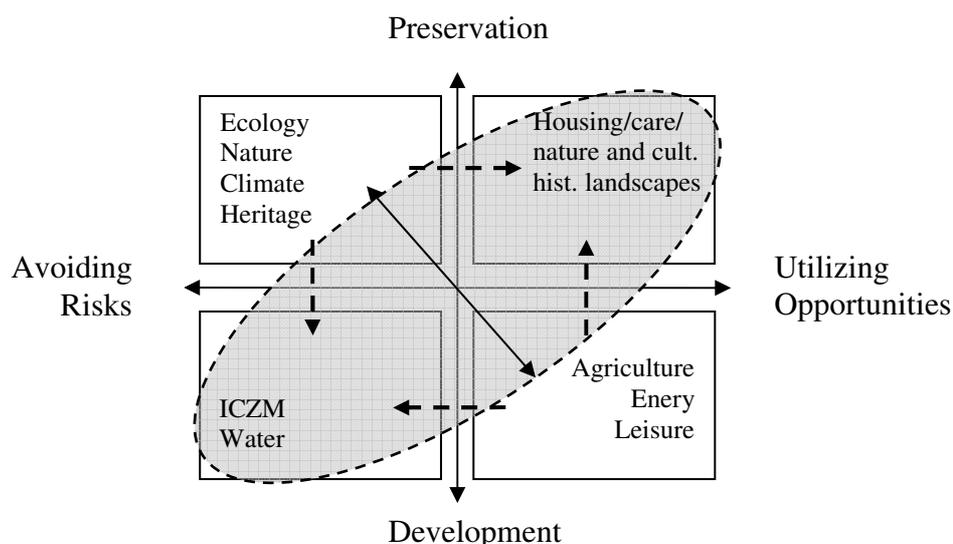
In the previous paragraph we have noticed that the emphasis and maintenance of the functional divide focussing either on preservation or on development, offers few opportunities for structural (or fundamental) spatial changes. Moreover, local opportunities can be utilized when adaptation to macro level trends is possible. Several processes, previously referred to as autonomous trends, can be distinguished that influence the region its spatial structure. At the macro level, examples are climate change and its potential consequences, the effects of globalization for the agricultural sector causing the need for a continuous demand for up scaling and expansion. Also trends can be distinguished that originate out of autonomous societal developments, such as the demand for leisure, wellness and care, water for housing and recreation, water retention areas as well as the growing importance of environmental quality, the quality of life and (space for) sustainable and renewable energy production. In general, these functions demand a high quality spatial environment. This high quality is formed through the presence and availability of tranquillity, open space, cultural history, ecology, characteristic villages and landscapes. For acquiring spatial synergies, strategies should use the potential of economically related trends to strengthen or enhance qualities that would otherwise not attract investments on its own, while these investments have the potential to add (both economical and ecological) value to an area or activity. Implicitly, this is the essence of 'area oriented, integrated development'. Based on the conclusions drawn in chapter 3 and findings presented in figure 9 and table 1, potentially interesting connections can be thought of for (macro level) trends and (area specific) qualities. The following connections lead to several spatial themes which can function as 'umbrellas' for spatial developments;

- *Energy*: Synergies between energy production and climate, climate change and climate adaption;
- *Leisure*: Connecting the up coming and increasing demand for leisure, recreation to the maintenance and development of nature and the quality of the landscape;

- *Scale of agricultural landscapes*: Balancing mono-functionality, up scaling and expansion of agriculture on the one hand and multifunctional and area oriented developments on the other hand;
- *Creating flows*: Utilizing the momentum in the high pressure areas (Lauwersmeer, Eemsharbour, Wadden Islands) in a strategic manner, to create spin off in other areas that experience less spatial dynamics, but which could benefit from increasing spatial dynamics;
- *Living*: Connecting housing and living to water, the landscape and cultural history;
- *Water*: Utilizing the presence and the image of the Wadden Sea more prominently as a connecting element for the Wadden Sea Region in a mental, physical, organisational and spatial-economical manner.

Overall, by identifying and connecting trends to area specific locations, qualities and issues of the Wadden Sea Region, strategies can be formulated to initiate and develop spatial synergies. Overlooking the analysis presented in this paragraph, figure 10 show an overview of the traditional functional divide (diagonal arrow) and the spatial themes that provide potentials for area oriented planning approaches for the Wadden Sea Region (see the dotted arrows in figure 10). Controversially, the current organisational and institutional elements affecting the spatial structure of the Wadden Sea Region are still oriented at the traditional functional divide, causing a lock-in situation for various locations. In order to grasp spatial opportunities, provided by a combination of contextual trends, global development and local ad hoc emergent development, current planning strategies have to be altered, changed and reoriented. Organisational and institutional adaption and co-evolution is needed to keep up with contemporary spatial dynamics in order to utilize these developments for less favourable, neglected or forgotten spaces and issues.

**Figure 10: Analytical framework for tension between spatial themes**



#### **4.6 Conclusion; spatial strategies for complex rural areas**

In this chapter we have argued that behind a façade of a relatively stable and static spatial structure, dynamics are occurring and increasing at least for particular spatial themes. The period where agricultural land use was able to develop autonomously and unilateral without having to pay attention to other types of land use is part of the past. Nevertheless, it did contribute to the characteristic development trajectory of the Wadden Sea Region. The spatial-functional focus led to a spatial structure with strong divides between agricultural, ecological and economically oriented areas. Though we have distinguished several, mostly recent, changes that break with the predominantly functional divide, being a combination of both macro level trends and micro level, bottom up developments. These developments are in line with trends in societal demand, supported by governmental policy, aiming at the preservation of nature, ecology and cultural and landscape history. In order to meet up to these aims, combinations with economically oriented developments are increasingly needed. Also at the regional level, economical and demographical changes are occurring, changing the liveability and the support for services in villages. Overall, these trends are indicators for (a demand for) a changing spatial structure within the Wadden Sea Region. Currently, the result of these processes is a divers and fragmented spatial structure of the Wadden Sea Region where mono-functional areas alternate with ad hoc and rather un-guided multifunctional developments.

Utilizing the relatively scarce and ad hoc developments as dynamos for area oriented development strategies, given the contextual trends, seem to provide opportunities for keeping the Wadden Sea Region socially and economically viable. This strategy is derived from an analysis of the development trajectory of the region, incorporating trends on multiple levels of scale and subsequently translating the influences of these trends into potential future trajectories for the spatial structure of the Wadden Sea Region. This implies that current planning strategies need to be reoriented in order to adapt to recent changes. While the spatial system is changing quite fundamentally in terms of area and quality orientations, there is relatively no co-evolution with regard to planning strategies. In this chapter we have presented several spatial-economical themes and appointed several locations and areas that can be of interest for these strategies.

The method used for the regional analysis of spatial dynamics provided a broad overview of issues, mechanisms and relations between elements with respect to the spatial system of the Wadden Sea Region. The triad *The Area* (§ 3.2), *The Material* (§ 3.3) and *The Narrative* (§ 3.4) provided information to construct a feeling for sequences in developments. This made it possible to relate the current spatial structure to historical developments, decisions, contexts and ideologies. Thereby gaining an understanding of path dependent processes and being able to distillate potential future development trajectories. Especially the inclusion of the narrative provided an added value in terms of information richness. More and more discourses of different (groups of) actors have become important for spatial planning and therefore for the consequences for spatial structures. Perhaps for future use of the method (as well as for more

in-depth analysis of the Wadden Sea Region), it should be considered to put more emphasis on the data collection of 'the narrative'. Overall, the difficulty of the method is bringing all elements together in a clear, understandable manner, mainly because the causality of relationships is sometimes difficult to pinpoint exactly. Nonetheless, the information provided by using the method was useful to gain an understanding of spatial dynamics regarding both (autonomous) spatial-economical developments and environmental qualities. It allowed us to be able to discuss the implications of these processes for spatial synergies and planning strategies in the Wadden Sea Region (sub question two). Additionally, the observations and conclusions drawn from the method and the analysis allow us to discuss the concept of transitions. In the next chapter we will reflect more in-depth on the usefulness of the concept of transitions for the analysis of spatial dynamics in general and for formulating spatial strategies for the Wadden Sea Region in particular.

## Chapter 5: Conclusions – The Wadden Sea Region in Transition?

### 5.1 Introduction

In this final chapter, we will discuss to what extent of the concept of transitions is a useful analytical framework for understanding spatial change and to what extent it can contribute to spatial strategies for the Wadden Sea Region. First we will elaborate further on how spatial changes in the Wadden Sea Region can be understood in terms of transitions. Conclusions will be drawn to what extent the concept of transitions is useful for understanding spatial change and strategies for the case of the Wadden Sea Region. Based on the findings provided by the case study of the Wadden Sea Region, conclusions will be drawn regarding the usage of transitions, spatial planning and spatial strategies in a more general manner. Finally, we will reflect on the methodology used and give some final remarks about the implication of using the concept of transitions as a planning instrument or planning tool.

### 5.2 Theoretical and case study results; transitions and the Wadden Sea Region

From a theoretical perspective as presented in chapter 2, the concept of transitions has the potential to provide an understanding of complex, interrelated spatial changes occurring at multiple levels of scale. By also taking the element time in to account, an analysis of an area its development trajectory is possible. Overlooking a period of time allows us to identify trends, dynamics and drivers of change that affect the spatial structure and therefore influence spatial strategies. In this paragraph we will draw conclusions from the case study of the Wadden Sea Region in order to reflect on the concept of transitions.

When we consider historical spatial changes over the last few decades, a fundamental change in the spatial structure of the Wadden Sea Region as *a whole* has not been apparent. The character of a large part of the region can be considered as a rather static and stable situation. Overlooking the last few decades and even the last century or two, the agricultural sector provided a positive spatial-economical development situation. Large parts of the region were especially designed for the needs of this sector. As long as the functional technical approach dominated and while the agricultural sector was economically viable, agricultural land was continuously reclaimed from the Wadden Sea. The influence of the Wadden Sea was diminished by building large sea dykes, preventing floods and protecting areas of production. Consequently, the inland area became largely dominated by mono-functional agricultural usage and was cut off from the Wadden Sea. Only the Lauwersmeer area (former Lauwers Sea) formed an exception to this monofunctional agricultural area. Nevertheless, the main driver for keeping the Lauwersmeer open was strongly linked to the agricultural and functional structure as well. Keeping the area open was better for water run off and water retention (see Louman, 2007). The process of land reclamation had been on the agenda as long as the functional and anthropocentric orientation dominated in the minds and works of planners, policymakers and politicians. Also the embankment of the entire Wadden Sea has been discussed quite often, from the nineteenth century onwards. But from the 1970's and

onwards, the dominant anthropocentric influence was supplemented by a more ecocentric influence, due to the works of the commission Mazure (1974) and the commission Staatsen (1976). As a consequence, the proposal for further embankment of the Wadden Sea was definitively rejected half way the 1970's due to the acknowledgement and recognition of unique ecological, natural and physical characteristics by organisations and institutions. From this point on, the influence of anthropocentric developments on the ecological system were increasingly debated.

Hence from this period and onwards, the dominant anthropocentric approach had to deal with a (qualitatively oriented) ecological focus. In order to protect the ecological qualities, rigid rules and regulation were prepared to minimise human developments and interventions. Consequently, a physical and institutional divide was created between anthropocentric, agricultural areas and ecological areas. In an effort to protect nature and ecology, the governmental influence reinforced the rigid and sectoral-functionally oriented divide. Due to the rigidity of the governmental rules and regulations occurrence of structural spatial change were largely restrained. Even now, this system of rules, laws and regulations is still dominating the configuration of most spatial structures in the Wadden Sea Region. But the introduced focus on the protection of nature and ecology differed from the traditional (pre-1970's) anthropocentric, economically and technically driven approach. Instead of functionality alone, issues regarding the quality of the environment entered spatial planning practice and planning thought. From a planning perspective, planning issues were more seen as interconnected. The dominant spatial structure in terms of material, organisational and institutional characteristics has somewhat changed, in an effort to adapt to the protection of spatial qualities resulting from societal and political demands. In retrospect the protection of the region its characteristics, as a consequence of contextual, macro level demand, can be seen as a predevelopment phase (see figure 3) in a transition towards an integral approach, combining developments and the preservation of spatial qualities.

We have argued that the stable, functionally oriented situation gradually became unbalanced due to macro level, autonomous trends in society and economy. Signs of a movement away from anthropocentric and functionally oriented situation dominated have been identified in the previous section. From the 1970's onwards, more and more additional land use claims emerged next to agricultural demands. The increasing amount of land use claims is increasingly creating impossibilities for interventions in the spatial structure such as additional land reclamation, expansion and the rationalisation of the landscape. Interventions that where/are needed for the traditional agricultural sector to keep up with the globalizing markets. Competing land use claims are a result of the (contextual) demand for protection of valuable nature, ecology, landscape, water, and cultural history. These land use claims are supported by the up coming urban societal demand for leisure and recreation, which is strongly related to, and even dependent on, natural, landscape and cultural historical qualities. These demands are increasingly supported on the institutional level by the (inter)national government and ministries. Overall, the amount of spatial claims on land use within the

Wadden Sea Region increases. Although up to this moment (2009) this has not yet led to a complete, fundamental spatial change of the whole region, we can recognize several niche developments. Ad hoc initiative emerged responding to macro level demands for nature, leisure, water and tourism. Multifunctional developments are occurring, utilizing already present area specific qualities for example on the Wadden Islands, the fringes of Lauwersmeer and smaller scale care and wellness developments. Developments that are breaking with the regime in terms of activities, initiatives and innovations, as Van der Brugge (2005) puts it.

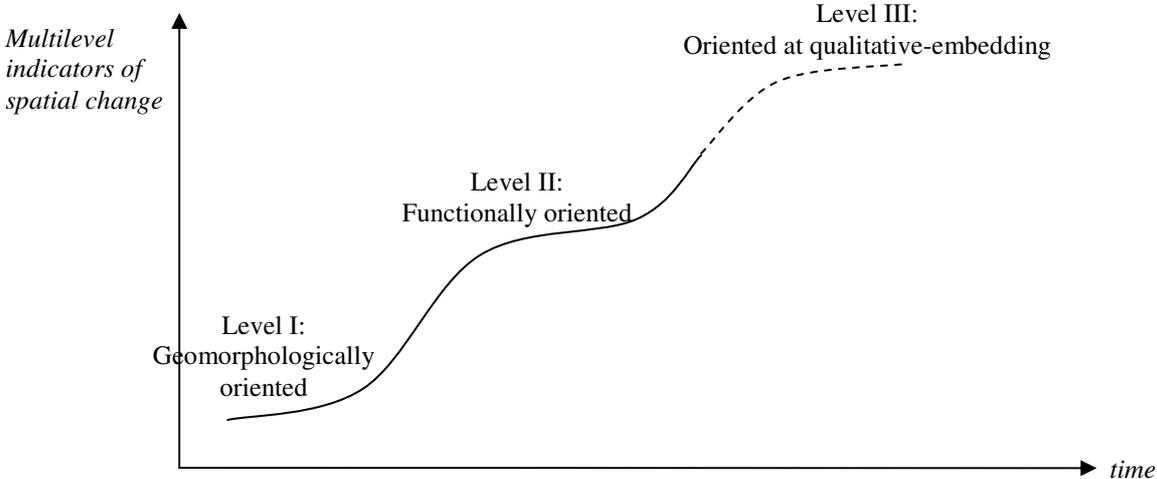
Next to material influences, also organisational and institutional influences on spatial change have also been identified. Large scale governmental investments as an effort to spread spatial-economical development equally throughout all regions in the Netherlands such as the Eemsharbour, have decreased. Currently, large scale investments are mainly focussed on projects with a high chance of success. Next to this trend, the most recent national policy document on spatial planning Nota Ruimte (VROM, 2006a) aims at decentralising responsibilities whenever possible (principle of subsidiarity). For the Wadden Sea Region, several consequences can be distinguished. First, large scale governmental investments are unlikely out side of the (economical and ecological) concentration zones. Second, the area is assigned to utilize its own characteristics and qualities more prominently to deal with spatial issues. Third, the relation between opportunities for spatial and economical development resulting from macro level trends and the local characteristics and qualities becomes more important; the micro level co-adapting to changes and trends at the macro level becomes increasingly beneficial, and even essential. Considering these indicators, the functional oriented approaches are supplemented by area oriented approaches aiming at qualitative embedding of new developments. But even though multifunctional, area specific and quality oriented spatial developments are occurring, they are currently scarcely recognized by spatial policies and strategies. The spatial system has not been able to proactively adapt to spatial dynamics, therefore lacking the capacity of utilizing development potential to its full extent. Current development constraints are based on a spatial system, which has been subject to change in the mean time. As a consequence, current strategies are reactive to emergent developments or are almost linearly extrapolating developments (still being ad hoc, predominantly sectoral, etc). Coordination is missing to utilise the quality-oriented tendencies in a broader geographical, functional and thematical manner. Combining developments with other qualities existing in, and around crystallization points of spatial dynamics on the one hand, and emerging (negative) spatial issues on the other hand, seems to be the next step. Moreover, this could mean a *policy induced* acceleration towards a regional, qualitatively oriented spatial system.

As we can derive from ‘the narrative’, spatial planning in the Netherlands seems to have moved from a geo-morphological orientation to a functionally-oriented ‘era’, and is increasingly moving towards a planning era oriented at qualitative embedding. As argued earlier, the functionally oriented situation where the spatial structure was functionally designed and divided can be considered as a static, stable situation (represented in figure 11 as

level II). Recently, due to several (autonomous) processes at the macro level and changes in the spatial structure at the micro level, lead to a more qualitative-embedding-oriented approach of spatial planning. The main consequence of these trends is that areas have to identify their own qualities and strengths. Subsequently economically utilizing these area specific qualities in an area-oriented and integrative manner to, first, strengthen and enhancing these qualities and, second, create an upwards moving spiral of qualitative oriented spatial developments for a broader area (also see Healey, 2001). This is represented in figure 11 as level III.

In order to do so, Healey (2001; p153) argues that strategic planning for places and territories involves ‘*identifying possible trajectories and patterns in emergent tendencies and imagining ways to enhance or counteract them*’. For the Wadden Sea Region the ‘patterns in emergent tendencies’, means that the optimal utilization of spatial properties at the local level is becoming increasingly important. Healey continues arguing (2001; p153) that ‘*the key strategic “trick” is how exogenous [macro, contextual] and endogenous [micro, area specific] forces can be linked together*’. Following this line of reasoning, evidence of a movement towards a planning approach aimed at qualitative embedding of (new) developments can be derived from macro level trends, and micro level emerging developments in the Wadden Sea Region, as already shown in figure 11 (also see Spit & Zoete, 2003; p249).

**Figure 11: Transition path of spatial planning, derived from case study**



(Source: based on schematic representation for peri-urban change, by Hudalah & De Roo (2007))

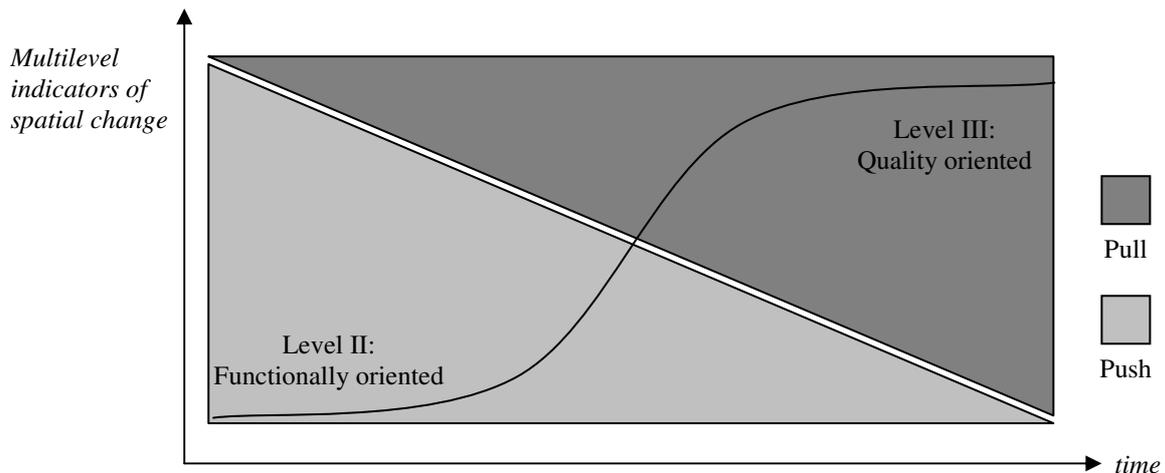
In general, the concept of transitions allows us to understand macro, meso and micro level changes in an interrelated manner. It helps us to reflect on current spatial policies and provide an understanding of the kind of spatial (lock-in) situation of a particular area. Relating and comparing micro level and macro level dynamics shows (non-linear) tendencies and potential development trajectories. In that sense, the transitions perspective helps to provide information about the local and/or regional level its *plural-potency*. Or in other words, the extent to which a local level spatial system is able to co-adapt to and benefit from dynamics at the macro, contextual level. Consequently, insight in these spatial dynamics can help to create

spatial strategies, enabling flexibility within a spatial structure. Flexibility is important to be able to accommodate changes and trends and foster innovations, preventing areas to become negatively locked-in a spatial structure. In order to keep control over a spatial system, constantly monitoring interrelated spatial changes, their origin, their drivers and their (potentially autonomous) spatial implication is crucial. Identifying and accommodating such dynamics helps to keep control over dynamics within a spatial system, while holding out the possibilities for innovation and spatial change. Reflecting on the material/areal indicators of change in the Wadden Sea Region, institutional and organisational co-adaption, expressed in terms of spatial strategies and (collaborative) governance, is currently lagging behind. In the Wadden Sea Region, several macro processes are occurring that might lead to a structural change, at least at the micro and even at the meso level of scale. Already, occasional micro level initiatives show co-adaptive behaviour to changes at the macro level. In the next paragraph we will look more in-depth into the consequences and potentials for spatial planning and strategies.

### **5.3 Transitions, spatial planning and spatial strategies**

One of the main elements of the concept of transitions is acknowledging non-linear change; spatial changes are the result of the continuous interaction and adaptation between the contextual (macro) level and the local or regional level (micro and meso). As presented in the previous paragraphs, the interrelated changes on multiple levels show a tendency towards spatial quality and area-oriented planning approaches. To recapitulate, we distinguished a push away from the static, functional oriented spatial structure driven by the following indicators (light grey area in figure 12). First, macro trends of globalisation and related up scaling of agricultural sector, increasing demand for leisure, recreation and nature, regional responsibility for spatial developments, governmental investments from equal spreading to concentrated development. Second, a decline of the traditional demographical and economical structure is recognized, which (in)directly related to the provision of facilities and services at the meso level. Third, incidental and ad hoc multifunctional and quality oriented spatial developments have been identified at the micro level. These niche developments form opportunities for relatively new spatial strategies. Also a pull can be distinguished towards a quality oriented spatial structure, driven by the following indicators (see dark grey area in figure 12). First, the macro level demand to preserve spatial qualities such as ecology, nature, landscape, cultural history, open space and tranquillity in relation to recreation, leisure and living. Second, the meso level becomes more important as the level of coordination as regions at the supra-local level have to deal with similar spatial issues in an integrative manner. Third at the micro level, more and more initiatives are breaking with the functional divide, creating multifunctional spatial-economies reliant on areal qualities. Currently, emergent multifunctional, area specific and quality oriented developments are still ad hoc and fragmented. An organizational and institutional adaptive capacity seems to lag behind, within the Wadden Sea Region. Also, most initiatives are limited to nature, ecology and recreation or landscape and recreation. Given these findings, how can the concept of transition be of use for spatial strategies?

**Figure 12: Push and pull between levels of relative stability during a period of transition**



(Source: based on schematic representation for peri-urban change, by Hudalah & De Roo, 2007)

We must bear in mind that, as Rotmans et al. (2001) already argued that a transition process can take many years. Due to the fragmented character of areas within the region, the speed and the extent to which spatial changes might occur can differ. Therefore we must not discard the functional approach. A functional approach might be essential for some types of land use, such as the core area of the most precious ecological areas, and for areas and activities where integration does not create mutual benefits such as the conventional energy production within the Eemsharbour (several of the extremes as shown in figure 9). For such areas a functional approach might be preferred to maintain a predominantly mono-functional area. But instead of maintaining ad hoc islands of spatial dynamics, spatial themes can be interconnected within a broader, regional structure. Then, mono-functionality can be contained when desired, but the functional divide can be turned into a regional dynamo for a qualitative impulse. For example, for areas such as the Eemsharbour, Lauwersmeer and the vast agricultural areas, a functional divide is possible to maintain. But by expanding and interconnecting the spatial themes of energy, ecology and agriculture might create new, alternative spatial structures, new types of landscapes and innovative economies. The development potential might in addition create opportunities to deal with spatial issues such as the preservation of cultural history, landscape, demographical decline. A spatial-economical sector such as energy can create an impulse for a thematic landscape, oriented on multiple and different kinds of (innovative) energy-related developments (combining water, nature, landscape and energy). While occasional micro level developments are occurring, in most cases institutional and organisational co-adaptation is missing. Consequently, in areas where there is a spatial-economical development momentum, it is not used to deal with pressing spatial issues using an (broader) integral and area-oriented approach. Focusing on spatial quality is therefore closely related to an area-oriented (regional) approach.

Pressing spatial issues increasingly demand an economical component, such as the preservation of landscape, ecology and cultural history. This leads more and more to multifunctional spatial constructs. Spatial-economical developments that are attracted by the

characteristics of nature areas (e.g. tranquillity, greens, ecology) are increasingly important to pay for the preservation, maintenance and development of these natural and ecological elements. Under current national and regional governmental policy and investment strategies, it might even become a necessity to utilizing these spatial qualities. This accounts both for economical reasons as well as to create an opportunity to increase, strengthen and enlarge the unique and qualitative characteristics of such areas. Overall it is possible to maintain the functional divide, but given several pressing spatial issues (economical and demographical shrinkage, high pressure on nature and ecology) opportunities might then be missed.

Implicitly, we have been arguing that utilizing high spatial and economical dynamics as dynamos for larger areas might increase the plural-potency of surrounding, less dynamic and sometimes forgotten or neglected areas. Increasing their plural-potency is an effort to break with a lock-in situation. It also allows being more able to adapt to (future) spatial dynamics. Overall, it is important to gain knowledge about contextual, macro level trends that influence a spatial structure top-down. Also knowledge about micro level niches, ad hoc developments as bottom-up indicators of spatial change is crucial. Being open to changes (in terms of complexity theory, being on the edge of order and chaos) is about allowing innovative, small scale, ad hoc developments to take place that potentially form new spatial-economical activities for future spatial structures. An important precondition for these small scale changes is identified; the strengthening and enhancement of spatial qualities. Accordingly, identifying the appropriate level of scale is crucial, when interconnecting development processes with occurrence of pressing spatial issues. We have argued that planning increasingly puts emphasis on utilizing available spatial qualities (cultural, landscape, ecological, economical) in the most optimal manner. Yet these elements often cross or exceed formal, institutional area boundaries. Most spatial and economical characteristics, as well as most of the identified issues in the Wadden Sea Region are not limited to one municipality only. Therefore the sub-local, regional level consequently becomes a focal point for spatial strategies for the Wadden Sea Region. This observation, in turn, raises questions regarding the legitimization of spatial planning strategies. In the next paragraph, this issue will be briefly discussed.

#### **5.4 Discussion; about legitimization, decision-making and governance**

In this study we have analysed spatial dynamics and addressed changes in the spatial structure of the Wadden Sea Region. We have focussed primarily on the consequences of these dynamics for spatial planning and planning strategies. To a lesser extent, attention is given to the *exact* consequences for decision-making and the governance regarding these processes of spatial dynamics. Here lays an interesting field for further research, in terms of who to involve in the planning process and conceptualization of space, land uses and structures in the future. Referring back to the case study, it has shown that the preservation and strengthening of spatial quality should be dealt with in integrative, area specific and regional strategy. A strategy which combines macro, contextual level trends as well as micro level, niche developments. The case study showed in terms of decision-making and governance that identifying local qualities is a bottom-up process: the narrative of users, inhabitants, visitors,

policy-makers and other stakeholders. Contextual and macro level dynamics affecting the spatial structure can be ‘trend watched’, by planners for example. Though pinpointing which trends and dynamics offer a potential for spatial-economical development is, again, a collaborative process. It involves combining both bottom-up (micro level) as well as top-down processes and influences (from the macro and contextual level) (De Rynck & Voets, 2006). Planners therefore become managers of, potentially long-term, transition processes and are burdened with the tasks to identify and incorporate multilevel dynamics. They also become managers in terms of bringing together actors responsible for the historical, but maybe more importantly, the future narrative of an area. Thereby implicitly acknowledging the bounded rationality of planners, but on the other hand increasing the legitimization of planning, according to De Jong & Meijerink (2006). In terms of (democratic) legitimization, they argue to look beyond moments of input, such as elections and installations. Integrating the visions and ideas from multiple actors in the ‘throughput’ phase, legitimizations can be increased due to interactive planning and implementation (De Jong & Meijerink, 2006). Such an approach has the potential, at least in theory, to incorporate the narrative of an area as a construct of actors at multiple level of scale (also see Lurks, 2001; p101). Regarding this collaborative processes a follow-up question derived from this study is; how to involve stakeholders, inhabitants, media and the government in the identification of the historical and future narrative of the area, so that this narrative becomes enclosed and embedded into the minds and practices of these same stakeholders? In other words, how do we create a collaborative process that leads to actual (organisational) performance? Undertaking efforts to answer these questions might increase the usefulness and legitimization of spatial strategies. It can also lead to the creation of new concepts for spatial structures due to the confrontation of bottom-up and top-down planning insights and thoughts. Nonetheless, additional research on these topics will be beneficial considering current debates in planning practice and planning thought.

## **5.5 Final remarks**

At first sight, mentioning complexity and the Wadden Sea Region in one sentence seems a bit awkward. For an outsider, not knowing the area, the material and its context, the Wadden Sea Region might just be nothing more than an agricultural area with some nice islands. Controversially from a planning perspective, and especially when discussing potentially interesting spatial strategies, the area is rather complex. Using the case study method by combining information from *the area*, *the material* and *the narrative* of the area, we tried to identify and incorporate possible and potential influences on spatial strategies. It was not the intention to create an all-inclusive analysis of the region, but to identify spatial dynamics and provide a better understanding of these dynamics related to spatial planning. In this respect, the case study method proved to be successful in generating sufficient information. Using the concept of transitions as a means to understand spatial change, demands an addition to the ‘narrative’ of the spatial planner. The concept of transitions, as presented in chapter 2, requires planners to take a step back from their daily practice, and consider spatial dynamics in a more abstract manner. The main consequence of thinking in terms of transitions would be

that planners do not see the spatial structure as static and unchangeable. Instead, they should approach the spatial structure as a dynamic system. Overall, the planning system should be plural-potent: being able to change and adapt to opportunities provided by an interconnection between autonomous changes, macro level influences and area specific qualities. In other words, a planning system should be able to respond to change rather quickly before getting tangled up in a lock-in situation. By increasing the plural-potency of areas, makes responding to future trends and changes easier. This increases coordination over spatial processes; being able to allow flexibility while still maintaining some control over spatial dynamics. When a planning system is able to respond (quickly) to changes, it is more likely to be able to benefit from opportunities. Then a pull is created where an area oriented planning approach can qualitatively embed spatial developments, and potentially revitalize the social and economical viability (sustainability?) of the Wadden Sea Region.

To conclude, by using the concept of transitions as a tool for spatial analysis, we are forced to interconnect the context and the case specific situation. For the Wadden Sea Region, we came across a lock-in situation caused by relatively traditional spatial strategies. By thinking in terms of transitions, we were able to distinguish multiple spatial changes that point towards a more qualitative oriented direction instead of a functional orientation. Given these findings, the current spatial system (physical, organisational and institutional) is gradually changing under driving forces at both the macro level and niche developments on the micro level. But still the organisational adaptation and the institutional co-evolution is lagging behind, creating a demand for a revision and reorientation of planning strategies and spatial structures.

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