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Conference Paper

The need for more variety in Dutch spatial planning policies - The case of the Rotterdam Port

45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Van Gils, Marcel; Huys, Menno (2005) : The need for more variety in Dutch spatial planning policies - The case of the Rotterdam Port, 45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/117459>

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The need for more variety in Dutch spatial planning policies: The case of Rotterdam port

**Paper 45th European Regional science association 23-
27 august 2005 Amsterdam**

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Abstract

The aim of this paper is gaining insights in the diverse spatial quality requirements in the port of Rotterdam. The focus is purely on the contents of the policies, and not on the decision making process. We identified the spatial requirements of the different stakeholders that are active in the port area and port environment. After this we have matched the variety of spatial requirements, with the variety as described in the national planning documents of the Netherlands. We conclude that the spatial reality, that is the complex and uncertain international environment in which the port has to operate, is not adequately expressed in the national policies concerning the port. The focus is too narrow, and the ignorance of the spatial variety can undermine the effectiveness and legitimacy of national port policies.

Key words: spatial planning, spatial variety, port of Rotterdam, policies

Abstract

The aim of this paper is gaining insights in the diverse spatial quality requirements in the port of Rotterdam. The focus is purely on the contents of the policies, and not on the decision making process. We identified the spatial requirements of the different stakeholders that are active in the port area and port environment. After this we have matched the variety of spatial requirements, with the variety as described in the national planning documents of the Netherlands. We conclude that the spatial reality, that is the complex and uncertain international environment in which the port has to operate, is not adequately expressed in the national policies concerning the port. The focus is too narrow, and the ignorance of the spatial variety can undermine the effectiveness and legitimacy of national port policies.

1. Introduction

The port of Rotterdam is one of the linking pins between worldwide transport networks and the Dutch national, regional and local economies. The recent growth of the Dutch national economy is often related to the growth of the export of Dutch products and services. The port of Rotterdam is one of the main nodes in the export chain of products and services and is of great importance for the contribution of the export growth to the growth of the national economy (ANP, 2005). The estimations of the total contribution (direct and indirect) of the port to the Dutch economy vary. The Havenmonitor 2004 indicates that the port of Rotterdam “creates” 123.400 jobs and about 12, 5 billion of added value (Ecorys, 2004). These examples indicate the high importance of the port for the Dutch national economy. In recent national policy documents, the different ministries involved highlight this strong economic position and the mainports are accentuated as the cornerstones of the Dutch economy (Nota Ruimte 2004, Nota Mobiliteit 2004, Kiezen voor Groei, 2004).

But the story above is mainly oriented to the economical benefits of mainports. Nowadays many more stakes come together in port areas. Besides the requirements of stakeholders representing the economic view, there are nowadays strong social movements and environmental pressure groups with their own view on the port. The aim of this paper is gaining insights in these diverse spatial quality requirements in the port of Rotterdam. We try to find out if the spatial requirements of the different stakeholders on the port of Rotterdam are adequately expressed in the recent Dutch

national policy documents and by some in depth interviews. The recognition of this variety is necessary to make national policies as effective and legitimate as possible. The analysis of the port policy is done by reviewing the most recent policy documents of the three ministries mostly involved in the spatial planning of the port. The following three questions shall be addressed in this paper:

- *Is there the presumed gap between the variety in port policy and in port area and environment?*
- *Why is it important to have port policies that incorporate the described variety?*
- *What should a revised port policy look like?*

The focus of this paper is on the content of the policies and not on the process of policy making, or shared content formulating. This means that only the substantive part of the policy is researched.

In the second paragraph the spatial variety in port areas is described theoretically. We will shortly introduce the notions used in the paper and present the methodological aspects. In the third and fourth paragraph the spatial quality requirements of the stakeholders are presented. After the description of the spatial requirements of the stakeholders, the spatial requirements as represented in the main Dutch planning documents will be identified in paragraph five. In paragraph six a matching takes place between the requirements of the stakeholders and the spatial policy documents. In the concluding paragraph we answer the three questions.

2. Spatial variety and the Rotterdam port

Only variety can control variety (Ashby, 1956).

Ashby's Law of Requisite Variety states that a system can only have complete regulation of its own state if it has variety of control measures that matches the variety of the possible disturbances. The law is an exponent of the hard systems thinking theory developed some decades ago. Although the Law of Requisite Variety (LRV) can be criticized because of its mechanistic and oversimplified view on the organization of systems, the more generalized form of the LRV takes edge off this possible criticism. This more generalized form incorporates the context of systems

and makes clear that it is not restricted to mechanistic forms of organisation (Gazendam, 1993). This more generalized form of the LRW comes close to the view the authors have on ports. On meta-theoretical level we see the port as a complex adaptive system of which the variety of stakeholder spatial requirements should be incorporated in the main Dutch planning documents. Or translated in Ashby's terms; *Variety in spatial planning seems necessary to counterpart the observed variety in port areas*. This does not mean that we see policy documents as constructivist or positivist works with power to control all variety. We merely want to show that having a port policy or vision for port development is one of the crucial elements in trying to cope with the observed variety in the ports, in this case the Rotterdam port. The *variety* we research in this paper results from all kinds of spatial requirements in the port area by many stakeholders. In the third and fourth paragraph we will elaborate on this variety of stakeholder views on the spatial development of the port. Here we start with briefly introducing the port as a complex adaptive system and indicate why we think this is fruitful in respect to the purpose of this paper.

The Rotterdam port as a complex adaptive system

As described above Ashby's law dates back to the hard systems thinking period. The hard systems approach started from a mechanic worldview in which for example mathematics could help to find out all kinds of laws for theory-building. This hard system thinking has its value but does not seem to be adapted for the use in the contemporary society. Nowadays a new variant of systems theory has entered the scientific domain. The notion of complex adaptive systems was introduced¹ as a new variant (close to soft and critical systems thinking and resulting from physics). Complex adaptive systems consist of many actors that behave according to some set of rules. These rules require the actors to adjust their behaviour to that of other actors. In other words, actors interact with and adapt to each other and their environment (Stacey, 2003). The complex adaptive systems have an open character and strongly interrelate with other systems of actors. This intertwined ness is often expressed in the nested character complex adaptive systems have. This means that every system is nested within other systems and interrelates with that system. The port of Rotterdam

¹ For more detailed information on systems theory in all variants we refer to authors like Flood, Jackson, Stacey and Checkland.

can be and is seen as a complex adaptive system. In the port of Rotterdam many stakeholders in the port area and environment interact and adapt continuously.

This theory is only introduced to present the frame of reference for the authors and to give the reader some idea of how we see the port of Rotterdam and ports in general. One of the key questions in this frame of reference is how do such complex adaptive systems function to produce orderly patterns of behaviour? This question is partly addressed in this paper. The authors want to indicate why having some kind of vision (read port policy) is a starting point for producing more orderly patterns of behaviour. It is about the role a vision can have in complex adaptive systems, like the Rotterdam port area.

The need for visions

Before starting with describing the developments in and around ports, we shortly describe the need for good port policy (vision). Many people talk about the necessity of developing visions. But why is this so important? As Costanza (2000) notes *'Yet we must recognize that action and change without an appropriate vision of the goal and analyses of the best methods to achieve it can be worse than counterproductive. In this sense, a compelling and appropriate vision can be the most practical of all applications'*. Another example comes from Joseph Schumpeter. He shows the importance of vision for science itself. He states (1954):

"In practice we all start our own research from the work of our predecessors, that is, we hardly ever start from scratch. But suppose we did start from scratch, what are the steps we should have to take? Obviously, in order to be able to posit to ourselves any problems at all, we should first have to visualize a distinct set of coherent phenomena as a worthwhile object of our analytic effort. In other words, analytic effort is of necessity preceded by a preanalytic cognitive act that supplies the raw material for the analytic effort., this preanalytic cognitive act will be called Vision. It is interesting to note that vision of this kind not only must precede historically the emergence of analytic effort in any field, but also may reenter the history of every established science each time somebody teaches us to 'see' things in a light of which the source is not to be found in the facts, methods, and results of the preexisting state of the science."

Besides these comments on why visions are necessary it is important to realize that visions are always related to stakeholders. In this paper we combined the different visions of Dutch ministries. Together they represent the long-term spatial policy for the port of Rotterdam. So there seems to be agreement about the necessity of developing visions and that the vision we focus on here is related to the Dutch ministries. But the question why visions are so valuable remains. In other words which functions can visions have? We identify two functions and briefly describe them here².

1. Vision can be used as a guiding principle. In the port policy a direction is set in which the port of Rotterdam should develop the next decade. This is important to prevent chaotic situations in which everything can happen everywhere.
2. Vision can be used as an instrument to build coalitions: A vision can provide values as a listening device, an integrator of conversations, a means to converge dreams with reality. The process of developing a collective vision, and seeking its expression in reality, is central to adaptive management. Vision provides the first step in integrating social values, scientific knowledge, and management experience in a multi-party system (Rogers and Bestbier 1997).

But we should also pay attention to the “dark side” of visions here. Visions can be used as instrument in exploiting power. In other words organizations or coalitions of organizations can use vision to push their stakes to the fore and dominate the debate. Another example of problems with visions is that many stakeholders can have their own vision and that these visions are not very compatible. This discussion on the need for visions and the more counterproductive aspects is far from complete, but indicates the potentials and non-potentials of visions in complex adaptive systems, like ports. Our view on vision lies somewhere in between the positivist view in which knowledge is seen as the problem-solving instrument and the post-positivist view that nothing can be planned anymore. Visions can be helpful in developing orderly patterns of behavior. However, the visions (here port policy) should then at least incorporate the variety observed in the port area and environment. We shall now apply these general theoretical insights to the port.

² Many more functions of visions can be identified (e.g. see Cervero, 1998; Gerrits, 2003)

Ports in the network society

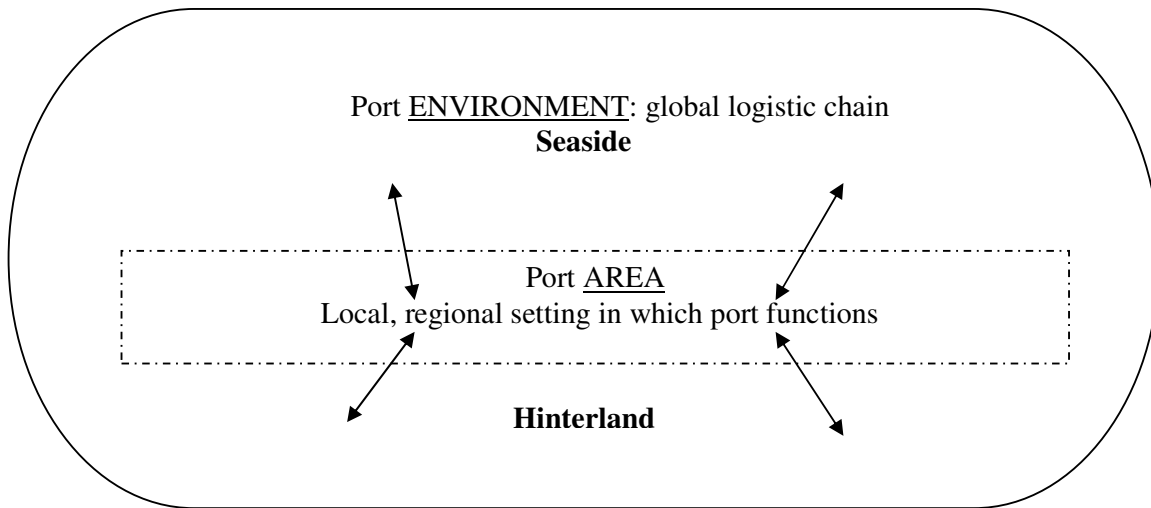
The last decades many authors have written about the changes in the context of spatial planning in general and more specific on ports. Many of these changes in context are often related to the influential work of Manuel Castells on the network society. At first we will shortly introduce the network society and translate this picture to the port of Rotterdam in the following paragraphs.

At the end of the second millennium dramatic changes occurred in the technological, economical and social domains. Castells argues that some kind of bipolar controversy exists between global networks and local identities. He indicates that the Information Technology Revolution is as important for the contemporary society as the Industrial Revolution was in the 18th century. The information technology made it possible for enterprises to act globally and for individuals to participate in local arenas (Castells, 1996). Both developments of globalisation and localization have had consequences for spatial planning (of ports).

Ports are increasingly part of global markets and have become embedded in the worldwide logistic chains. The port *environment* is very dynamic which has increased the uncertainties surrounding its spatial planning. Besides this the local actors are more actively participating in the port area and try to influence the spatial planning. This has increased the variety in stakes further, which has increased the uncertainties some more. In the third and fourth paragraph we give a more detailed description of the external developments and the more place-bounded developments. We will end this paragraph with a visualisation of the contemporary port *area* (see fig. 1).

This figure is meant to visualize the interplay in port areas between the port area and the port environment. As already been said, we use this representation of the port as frame of reference for describing the variety in both arena's and the incorporation of that variety in the Dutch main planning documents on ports (the vision for the ports future). The distinction between port environment and the local and regional setting is arbitrary but necessary for description of the variety in the port area and environment. The degree of inclusiveness of stakeholders will be used as the demarcation variable.

Figure 1 Ports in the network society



Other notions in this paper

The distinction between port environment and port area was already introduced above and is worked out more in-depth in the next paragraphs. It is very important define what we mean with environment and area. The port environment is here composed of the stakeholders operating internationally. The port area is composed of the stakeholders acting more locally and regionally and more directly linked to policy-making processes in the port area.

We focus on the spatial requirements of the stakeholders involved. Stakeholders are defined here as actors actively participating in the spatial policy-making process. All stakeholders defined in paragraph two and three are or have been participating in these processes. Their different views are translated here as the spatial requirements they want to pose on the port area. Of course the views are developed in interaction with other stakeholders, but the focus is not on that process of interaction. We use the degree of inclusion in the port area is crucial here as the variable to categorize the stakeholders (are they area or environment players or both?). The degree of inclusion is defined as the degree in which the stakeholders actively participate in the Dutch policy making process. International companies and the EU for example are only indirectly included in the formal policy making procedures and are seen as port environment stakeholders. Generally speaking they define the conditions in which the policymaking process takes places at certain places. The Dutch governmental layers, localized companies and all kinds of other organizations or individuals like citizens

can directly participate and are seen as port area stakeholders. *In order to gather enough valuable information we extended the research of policy documents with interviews with the planning authorities (involved ministries, port authorities).* By this we verified if the theory presented above is a justified representation of their perceived port reality.

3. Port environments

In this paragraph we try to relate the concepts from the network society with the practical reality in the port of Rotterdam. First we shall elaborate further on the network society and the port environment.

Since the 1970s the economic structure has changed. The old economic structure of vertically integrated enterprises has gradually been replaced by a network economy. A network can be described as a set of interconnected nodes, wherein the node is a point where the curves intersect themselves (Castells, 1996). In the emerging networks the different nodes are interconnected and interdependent. Processes of deregulation, privatisation and globalisation were triggered by the evolution in the use of information technologies. Spatial contiguity is nowadays no longer the only prerequisite for social and economic interaction. This means that certain activities are no longer bound to specific places. Castells views this emerging new economic structure in terms of flows and spaces. He argues that capital, information, technology and organizational interaction assume the form of flows. They are able to circulate around the world in just a few seconds. He envisions the flows in terms of 'timeless time'. People and goods are also witnessing a boost in mobility. A consequence is that the society as we know it is not exclusively organised around places anymore. Castells stresses the emergence of a new reality, one in which actions, organizations and decisions are constructed around flows⁴. Next to the traditional world of places the powers and forces that structure the flows are gaining dominance in the shaping of society. The space of places and the space of flows can be seen as two parallel realities, both responsible for the shaping of society, but with different logics, ratios and laws (Boelens, 2003). This introduction is an extension of the concepts in the previous paragraph, and brings us to the questions we want to answer here

⁴ The question remains whether this reality is really new. The economic structure is evolving from earlier structures rather than as being a discontinuity.

1. Which developments can be seen in the port environment?
2. Which stakeholders can be related to these port environment and what are the main spatial requirements of these actors

Port environment

Zacher and Sutton address the changes in the shipping regime, which are crucial for the context in which ports operate. Until 1970 the international shipping regime was very stable. Agreements on price and market shares, safety were executed in bilateral agreements between the countries all over the world. The liberalization of markets changed the regime very suddenly (Zacher en Sutton, 1996). The cartel norm of bilateral agreements was put aside and this made it possible for international companies to make new agreements without being bound to their national regulations. The international shipping lines were free to negotiate themselves. This led to increased competition between firms they introduced new strategies suitable for the new competitive environment. Most shipping lines reacted by optimizing their activities. The most prominent firm strategies aimed at rationalizing their activities by founding worldwide hub en spoke networks, forming worldwide alliances and increase the ship sizes⁵. These strategies have had serious implications for ports.

Ports also have to compete more to attract shipping lines. But the market power of the shipping lines has increased and ports are becoming a commodity. Fast and efficient throughput is the leading variable and this makes ports vulnerable to the behavior of shipping lines. The shipping lines are acting more and more as organizers of the whole logistic chain, in which ports are only one node. Besides this, terminal operators have followed a similar strategy and are acting more globally as well. This means a complete new situation in which ports compete as nodes in logistic chains. A port is no longer a specific place (as in bilateral agreements) but a commodity for global players in the chain (Van Gils, 2003). This picture has to be specified for certain types of activities and the type of actors.

The container shipping lines are most footloose. They have no home base and have no facilities in ports, so they can easily choose to shift their activities to places where there's enough capacity. Other types of goods like bulk goods (e.g. oil) need big

⁵. It reaches to far to illustrate these three strategies; these are broadly documented in (Van Gils 2003, Vlaamse Havencommissie 2003, Welters en de Langen, 2003).

refineries that are located in the ports, which make these shipping companies less footloose. For international terminal operators the degree of footlooseness is lower as well. They have facilities in ports and so they can't move away as easy as container shipping lines. Besides this, factors as the history in ports, safety, fiscal regime, employment are countervailing forces against the behavior of the shipping lines and terminal operators. The interplay of all these factors makes it difficult to find out how footloose different companies in the different sectors are. This interrelationship can only be investigated by intensive empirical research that is not conducted for this paper. Here the only purpose of the empirical part is to show the spatial requirements in port systems by different stakeholders.

Actors and spatial requirements

Two main groups of actors that are active in the port environment can be distinguished. We have already pointed out these two groups; the shipping lines and the terminal operators. We also indicated that the degree of inclusiveness depends on the installations they have in the port areas and the type of goods handled.

Table 1 inertia for firms and inclusiveness

Goods	Actors	Inertia	Degree of inclusiveness
<i>Dry bulk goods</i>	Shipping lines	<i>low</i>	<i>Low</i>
	Terminal operators	<i>middle</i>	<i>Middle</i>
<i>Liquid bulk goods</i>	Shipping lines	<i>high</i>	<i>High</i>
	Terminal operators	<i>high</i>	<i>High</i>
<i>Containers</i>	Shipping lines	<i>low</i>	<i>Low</i>
	Terminal operators	<i>Middle</i>	<i>Middle</i>
<i>Conventional general cargo</i>	Shipping lines	<i>low</i>	<i>Low</i>
	Terminal operators	<i>middle</i>	<i>Middle</i>
<i>Roll-on roll off</i>	Shipping lines	<i>low</i>	<i>Low</i>
	Terminal operators	<i>Low</i>	<i>Low</i>

The table above is not meant as a comprehensive overview of the goods handled in ports, but is only meant to illustrate the variety in the relatively footlooseness of different companies handling different types of goods. The table reveals a great variety in inclusiveness depending on inertia. It is not difficult to understand that in

reality the variety will be much higher. Within each type of goods one can distinguish many more subgroups. An example is the dry bulk goods. Within that group ores and scraps, agribulk, coals and other dry bulk goods can be defined (this is the standard distinction between goods).

When referring to the relation between the signaled developments and variety and the spatial requirements we would like to make the following statement: *Port environment stakeholders mainly put economic demands on port areas (in all their variety)*. To attract port environment players and remain the largest port of Europe Rotterdam has to reconcile these economic pressures with the other stakes in the port. The companies (shipping lines and terminal operators) want as many and efficient throughput as possible. This is an economic requirement that is strongly related to the spatial configuration of port terrains. The increased market power of international players and the decreased steering position of port planning authorities have led to strong competition between ports in the same range. For example the port of Rotterdam is nowadays mainly competing with the ports in the Hamburg-Le Havre Range⁶. In short this means that the port with the most optimal configuration of terrains is the most competitive. This picture is all too easy in respect with the variety shown above. Inertia, tradition, geographical location etc. are factors that influence choices of shipping lines and terminal operators as well.

4. The system internal quality requirements

In this paragraph the next two questions will be answered:

1. Which developments can be seen in the port area
2. Which stakeholders can be related to the port area and what are the main spatial requirements of these actors?

We want to focus on the most recent developments in port areas. The main point is that people have more access to networks of information due to the rise of the ICT sector and the welfare in general. This has led to an increase in citizen participation and all kinds of other organizations, like the environmental pressure groups, social pressure groups and other non-governmental organizations. The national, regional and

⁶ For more detailed description of competition in and between ports see Van Gils, 2003, Blomme 2003

local level stakeholders are more actively engaged in policy-making processes and have the ability to make their contribution heard.

One of the main problems for management in the emerged network society is that today's governance structures are bound to specific territorial places. This while the role of territory has diminished, as will be shown further on in this paragraph. The relative autonomous and territorial based management is not sufficient in such a context (Salet, 2004). As we have seen, the game is now played in a multi-level and multi-actor context (Rotmans, 2003). Both the global and the local factors and actors are involved in the policymaking process. So there is the problem of a mismatch between administrative entities and the territory. There is a lack of a governance structure that provides connectivity between different spheres of planning. We now turn to the description of the broad variety of port area stakeholders and their requirements. We start with the functional evolution that has taken place in the port of Rotterdam since the end of the 1960's.

Port Areas functional evolution

The port of Rotterdam has a long history. For a detailed reconstruction of the functional evolution of the port of Rotterdam we want to refer to Van Klink 1995 en Edelenbos et al, 2004. Here we briefly show the main characteristics of the functional evolution from 1960 onwards.

The port of Rotterdam has roughly evolved from an inner-city port to the largest port of Europe nowadays, with many outer city westwards extensions. The functional evolution is split into five phases here:

- 1960-1970, port as industrialized site, huge growth, introduction as container for mass goods
- 1970-1980, westward extension port with Maasvlakte, continuing growth, oil crisis and environmental pressure
- 1980-1990, reduced growth and extension, strengthening relation port-city.
- 1990-now, renewed growth and extension, Maasvlakte 2, port in logistic chain, port and city come together

This growing variety can be clarified in different ways. At first the number of functions in the port area has increased. Ports have been changing from mainly transshipment nodes towards nodes in logistic chains with many value added activities. This does not mean that many new products were transshipped in the ports. Of course one can see a change in kinds of products transshipped (nowadays computer elements are transshipped). But the main stream of products has not changed; oil, ores, scraps and coals are in terms of volume still the main products transshipped in the port. Only the sudden entry and growth of container can be seen as an important shift. Containers nowadays ship much conventional cargo. The container replaced older forms of traditional cargo units. In this respect the standardization of transshipment in general cargo can be seen as decreasing variety. The main element is that the port of Rotterdam appears to have been able to accommodate more functions during the successive stages. In current times the port shows a deepening of existing functions and widening towards new functions (Van Klink, 1995). Industrialization and all kinds of logistic activities, like the opening of different distriparks are excellent examples of these new functions. So the main evolution in transshipment concerns the huge growth (little increase in variety of goods) and the extension of functions with respect to the value adding in ports.

A more important and space influencing aspect of the functional evolution is that the 'spatial reach' of the port has been increasing. By the increase of activities and changes in the locational preferences, the occupancy of space increased, or to put it in other words the port-related activities are located at an increasing distance of the ports quays (Van Klink, 1995). The port has been extended and the borders are of a quite dynamic and open character. What is important as well is that the functional evolution reveals an increased intertwinement between port and city. This means that all kinds of port and city related functions and requirements should be incorporated in planning contents. This means a further increase in spatial requirements and the variety of stakeholders incorporated in port planning processes. The implications of this are discussed below.

At first from 1960 onwards the territory of the port authority and the functional port region appears to have diverged increasingly. The port slowly outgrows the administrative territory of Rotterdam port authority. As a consequence the port

authority cannot exercise influence over the area outside their administrative territory (Van Klink, 1995). To influence developments in this area the port authority has to participate in policy making with other municipalities, the province of South Holland and with the different municipalities.

Besides this increased public intertwinement, many other parties have entered the port functional region. On the one hand because of new products and growth of value adding activities on the other hand because of the growing participation of citizens and all kinds of social and environmental pressure groups. It is not difficult to understand that the increase of stakeholders, which is closely related to information distribution in the network society, poses new spatial claims on the port system.

Actors and spatial requirements in places

The overview we present here is only meant as a general picture that indicates the spatial requirements of groups of stakeholders discussed. We want to show that the scope of parties (public/private/citizens/other organizations) involved is very broad and that each of those stakeholders has different views. It is very important to stress this is only an overview. A short analysis of the different stakeholders is conducted this way because of several reasons. At first, the Dutch policy planning documents only indicate the general developments in ports. Those indications are on a generic level and for that reason the table below is of a very generic character as well. This allows us to make a balanced comparison between the spatial quality claims of stakeholders and the requirements described in the main planning documents.

Table 2 Stakeholders and spatial requirements

Stakeholders	Spatial requirements
Municipalities Rotterdam/Schiedam/Vlaardingen	Sustainable development port system
Port authority Rotterdam	Multi-qualities in port.
Port related firms	Generating maximal revenues
Environmental pressure groups	Decreasing negative environmental influences, like pollution, noise
Social pressure groups	Employment, good working conditions

The stakeholders were selected after a very brief network analysis. These stakeholders seem to represent some of the most important domains of spatial requirements in the port. These requirements are economical, environmental and social. In this table the variety of stakeholders and their requirements is already shown. It's important to realize that this variety is rather simplified. Many more stakeholders participate in the policy making process, they all have their views on how specific areas should be planned.

The spatial requirements of the different stakeholders in the table are conducted from their operative individual planning documents: For the municipalities, the PMR document (signed by all three municipalities) and for the port authority, the Port Plan 2020 is taken as the guiding document. The year reports of some companies in the port (logistic companies, facilitating services) are briefly reviewed for their spatial requirements. They do not have a specific plan for the Rotterdam port, but the different companies focus on generating maximal revenues. For environmental and social groups we have briefly reviewed documents of Dutch unions and environmental groups (Stichting Natuur en Milieu), of which the focus is on remaining employment, fine working conditions and attention for environmental issues. In short we can draw the following picture: *port area stakeholders put very varied spatial requirements in the port area*. The main requirements are linked to economical, societal and environmental domains. This general picture of the variety in port environment and area is now compared with the way in which is dealt with this variety in the national port planning documents.

5. Dutch spatial port policy

In this fourth paragraph we want to describe the contents of the main Dutch planning documents. The description will be split in two parts. At first we present the contents of the planning documents the last decade and second we take a more in-depth look at the most recent policy documents.

This two-step description will be done for planning documents written by the ministries responsible for the spatial planning in general and more specific for planning the port of Rotterdam. In the Dutch planning tradition the ministries of Economical Affairs, Housing, Spatial Planning and the Environment Spatial, and

Transport Public Works and Water Management have been and are doing most planning practices around the port of Rotterdam. We start with a description of the port policies in the period from 1960 until now, following the same time-line as with the functional evolution presented in the paragraph before.

- (1966-1973) Documents dominated by the optimistic growth expectations, economic view and focus on transshipment, Nota Zeehavenbeleid (1966).
- (1973-1979) Economic view as reaction to oil crisis
- (1979-1985) Gateway to Europe, transshipment function, Eerste Structuurschema Zeehavens (1984), sustainability firstly introduced.
- 1985-1995, economic view remains, government less prominent in planning
- 1995-now, shift towards multi-dimensional policy, commercialization port authority

This very brief overview reveals some interesting developments. Firstly the view on the mainports of the Dutch national government seems to have a dominant economic viewpoint. Mainports are seen as gateways to Europe and powerhouses for the Dutch economy. From the 1980's on the term sustainability is gradually introduced. This indicates a shift away from pure economic contribution of the port towards a focus in which environment and social aspects are increasingly entering the spotlights.

The role of the government is also changing in the different phases. From 1960 onwards the governments designed port policies in a rather top down and authoritarian manner. This strong steering role loosened in the period 1985-1995, but returned afterwards. This steering position is particularly interesting with respect to the debate of the role of governments in the network society and the growth of the functional port region, which cannot be grasped in traditional administrative structures.

The last phase (which has not ended yet) shows a hesitant shift in the mainport vision to a more dimensional policy. The mainports were expected to become centers in the knowledge economy. The Nota Ruimtelijk Economisch Beleid (1999) marks this shift. The rise of the network society and the impact on the economy was written down for the first time. The government recognizes her diminishing role in this world of international flows and approaches the port authorities as a normal company, by

starting to accept commercialization of both mainport authorities (Tweede Voortgangsnota Zeehavenbeleid, 1999).

This short description of the evolution of the contents of different planning documents is an illustration of the generic pattern that has emerged the last decades. We now take a closer look at the current policy contents. We do this by reviewing the most recent documents of the ministries and will accentuate the main aspects by indicating some important phrases. The most recent planning documents used are the Nota Ruimte (ministry of Housing, Spatial Planning and the Environment) Nota Mobiliteit (Ministry of Transport, Public Works and Water Management), Pieken in de Delta, Kiezen voor Groei (Ministry of Economic Affairs) en Zeehavens ankers voor de Economie (Ministry of Transport, Public Works and the Environment). In short the Nota Ruimte (Space) and Kiezen voor Groei (Choosing for Growth) and Pieken in de Delta (Peaks in the Delta) are seen as framework, the Nota Mobiliteit (Mobility) and more concrete the Nota Zeehavens (Seaports) are seen as documents filling in the framework.

These policy documents are not written separately but form a multi-layered overview of the Dutch spatial planning. The Nota Ruimte and Kiezen voor Groei emphasize the economic importance of the port of Rotterdam. This economic importance should be strengthened by optimizing the infrastructural links between the port and the metropolitan area (Randstad) in the Netherlands and other metropolitan areas in Europe (Kiezen voor Groei, 2004). This inhibits a choice for extension of the economic potential of the mainports. This is also accentuated in the Nota Pieken in de Delta, in which the port of Rotterdam is described as cornerstone of the Dutch economy. Another interesting aspect is the phrase that the economic importance and the spatial pressure of the port is so strong that the national government has to coordinate the large-scale aspects of port spatial policy (Pieken in de Delta, 2004). The construction of Maasvlakte 2 and the improvement of the accessibility are seen as the most important factors to increase the competitive position. Creating space for these developments in cooperation with public and private stakeholders is an important addition in the Nota Ruimte, in which the port is seen as a key element in the national spatial central structure (Nota Ruimte, 2004). In the Nota Mobiliteit different kinds of the accessibility of the port are highlighted. The main elements are

good accessibility in the international environment, by optimizing existent waterways, rail and road projects. The aim is to increase capacity instead of building new ones. Besides this the attention is focused on for example the use of Information and Communication Technology in the port and transport (Nota Mobiliteit, 2004). In the Nota Mobiliteit the attention for the seaside of the ports is accentuated as well. The growth of the Chinese market is for example indicated and the proposal is to increase the liberalization of the market to adapt to this environment (Nota Mobiliteit, 2004).

These contextual developments are further described in the Nota Zeehavens. The growth of the container market and for example the growth of the average container ship size are described. The pressure of different spatial requirements is also addressed; especially the sometimes contrasting economic growth and the quality of living environment is highlighted. The Dutch national government wants to steer on headlines and guarantee the public stakes. Some policy measures presented aim at reinforcing innovative power, increasing transparency on state aid, strengthening conditions for international firm establishments, increasing attention for safety measures and the commercialization of the port authorities (Nota Zeehavens Ankers voor de Economie, 2004). These policy measures encompass a broad scope of activities, and reveal the more dimensional approach in the current policy documents.

These policy measures are worked out in an agenda port policy 2005-2010. This agenda will be evaluated after in the period between 2005-2010. After this short analysis we start the matching between the spatial requirements and diversity discovered in the theoretical model.

6. Matching: port policy documents and quality requirements

In this paragraph we try to find out if the spatial requirements resulting from the view of the different stakeholders on the port of Rotterdam are adequately expressed in the recent Dutch national policy documents. This analysis will be conducted on two levels. At first we overlook the recognition of the port environment and port area in the main planning documents and after that we focus on the variety of spatial requirements of stakeholders in both arena's and the Dutch planning documents.

The different policy documents seem to be aware of actual developments around ports on a general level. The policy documents all point to the increased involvement of international players in the Dutch spatial planning system and in the planning of the port in particular. They all point out the changing spatial conditions and they all indicate the increased spatial pressure. In short, the general theoretical model resembles the developments the ministries identified in their planning documents. This is a justification of the model, which was already based on some interviews with responsible representatives of the ministry of Transport. But there is one point of difference that is particularly striking. The Dutch planning documents all point out the international developments at first but they hardly pay attention to the increasing influence of local actors. The focus in the planning documents is mainly on the economic growth potential and how to embed these economical developments in the port area. The variety in the port area as such seems to be forgotten. Only in the Nota Zeehavens, one very brief paragraph is assigned to the societal part of the port area. But this description is dominated by full paragraphs on market forces, pressures and possibilities. The vision is pretty one-dimensional on the port environment and on how to facilitate the international transport market. As we have been trying to show in the second paragraph, the local, regional dynamics within the port area are very high and should not be ignored in the policy documents. The vision is too narrowly focused on the competitive position of port of Rotterdam and the economical benefits. This leads to the ignorance of serious countervailing forces and powers in the policies, which can further reduce the effectiveness and legitimacy of the policies.

Another “mismatch” between actual developments and policy is the variety discovered in both the port system and the contextual developments. The National Port Council of the Netherlands points this out in their reaction to the Nota Zeehavens. According to the Council the description of international developments the focus is too narrowly on the container sector (Havenraad, 2004). Developments in ship size and worldwide organization of the logistic chain are not worked out for the different types of goods, e.g. for bulk and liquid goods the description fully absent. We agree on this point and want to indicate that some of the developments in the port environment are incorporated in the policy documents, but not all of them. It seems to us that it is of crucial importance for the effectiveness of port policies to further investigate the variety in goods and the inclusiveness of international firms in the port

area. The growing interrelatedness between port and city, which is ignored in the policy documents, is a good example of this. The multiple-land use and differing requirements ask for innovative policies, but this development is not recognized in the national port planning documents.

When discussing the huge growth of transshipment and added value of many we see also some shortcomings. The huge growth is described in all policy documents and accommodated by indicating that more space has to be created for port terrains. The Maasvlakte 2 and Hoeksche Waard are already pointed out as the next terrains on which port facilities can be build. The increase in different functions is not addressed there. The main focus is on accommodating volume but this is not specified for what type of activities. This is an important missing element in the port policy documents. The variety of functions for adding value on transshipped goods is also not recognized in the policy. Again, the policy documents are focused on one function (transport) and not on the wide range of other functions incorporated in port areas nowadays.

Related to this are the notions that the pressure of different spatial claims is very high in port areas. This is described in the Nota Ruimte and the Nota Zeehavens but a solution is not found yet. The Port Council advises to investigate the possibility to give the port of Rotterdam a separate status in which ports have more activity room to employ their activities in set boundaries regarding the environment (Havenraad, 2004). The signaling of the increasing numbers of pressure on the port space is a first step. But the documents remain rather superficial. In more theoretical terms, the analysis shows that the multi-level, multi-actor setting is not adequately addressed in the policies and so the variety as such is not incorporated effectively. Here we can say that the focus is too much on the port environment and not on spatial powers and forces from inside the port area.

The separate status for the port area advised by the Dutch port council also indicates that administrative problem is partly ignored. As described in paragraph three the functional port region has outgrown the administrative structure. Today, besides the port authority many more public organizations are responsible for the port (municipalities of Vlaardingen, Schiedam, Rotterdam, province South-Holland and the different ministries). Besides this increased public participation, many private and

other stakeholders have entered the domain. So the variety of functions and stakeholders is very high, but this is only loosely recognized and incorporated in the port planning documents. In summary, we have signaled an increase of attention for the international dynamics in planning documents, but there are lots of more adaptations necessary to make the policies more varied and able to cope with the described developments in port area and environment.

7. Conclusion

In this conclusion we shall answer the three questions as posed in the introduction.

1. Is there the presumed gap between the variety in port policy and in port area and environment? From our analysis we can conclude that there is a gap indeed. Many different aspects of variety in goods, functions, port region (port-city relationship as well) and different stakeholders are in our opinion not adequately addressed in the main Dutch port planning documents.

2 Why is it important to have port policies that incorporate the described variety? Here we refer to Ashby's Law again (variety controls variety). Although we do not put as much trust in vision (port policy) as Ashby did, we acknowledge the utility of vision in the contemporary society. Policy making in ports in the network society is about the interplay of many stakes that strongly interrelate. These stakes were divided here in a port environment and port area, between which the interrelatedness is very strong as well. The representation of ports as complex adaptive systems is very useful as frame of reference for the analyzing the variety of stakeholders in a port. Besides this, viewing the policy making process in a complex adaptive system can be related to the function of visions. Knowledge is not absolute anymore and visions cannot be seen as the blue print for long-term port development. The variety of stakeholders, functions and goods is simply too complex, resulting in high uncertainties for developments in the future. This does not mean that vision is not necessary anymore. The function of visions as guidelines and generators of consensus is still important. Without visions anything can happen, most probably resulting in spatial disappointment. Of course visions cannot predict the outcomes of the spatial planning, but they are useful means to try to reach the desired situation.

3 What should a revised port policy look like?

As Ashby states variety should be at the centre of the control mechanism. We translate this by stating that variety should be the starting point of the contents of port policy. As already mentioned, this does not mean that all variety can be handled by developing sound visions. The vision is simply not more than a building block to deal with the variety, but an important one. The vision has to incorporate the variety surrounding ports in the contemporary network society. In other words, the varied multi-layer character of the contemporary society should form the starting point for spatial planning the next decades (see also Boelens 2005, Voogd, 2004).

The research on variety is relatively new. The rise of the network society has changed the traditional societal constellation and has led to many new planning questions. A combination of new research and already ongoing research is necessary to find ways to cope with this variety. The interrelations between port area and port environment are only marginally studied yet, but it seems crucial for the development of legitimate and effective port policies. Another point of interest is that the knowledge should be shared between different private, public and scientific people. So a first step to make proceedings is to share the available knowledge for the port policy makers. After this new research should be conducted on the degree of variety and complexity in spatial planning and ports. Gaining insights in the perceived complexity, and the underlying logics of the complexity could bring interesting information to the fore on how to deal with complexity in the network society. As De Roo puts it (2004): *Accepting uncertainty as a reality means a fundamental change in our belief system. If so we will be able to open up new options to cope with the reality of the twenty first century, no doubt an exciting century of complexity and change.*

We realize that changing a belief system is a long struggle especially when noticed that the direction in which the port policy should be changed is not very obvious yet.

References

- ANP (2005), Foreign export grows fastly. Den Haag: ANP
- Ashby, W.R. (1956), Self-regulation and Requisite Variety, in: Ashby: Introduction to Cybernetics. New York: Wiley
- Blomme, J. (2002), Toekomstperspectieven voor de haven van Antwerpen: een discussienota. Antwerpen: GHA
- Boelens, L. (2003) The mobile life; the quest for new concepts and instruments.
www.urbanunlimited.nl
- Boelens, L. (2005), up to fluviology, inaugural speech University Utrecht.
- Castells, M. (1996) The rise of the network society. Cornwell: Blackwell publishing
- Cervero, R. (1998), The Transit Metropolis: a global inquiry. Island Press, Washington.
- Ecorys (2004), Economische betekenis Nederlandse zeehavens, ten behoeve van de havenmonitor 2003. Rotterdam: Ecorys/NEI
- Costanza R. (2000), Visions of alternative (unpredictable) futures and their use in policy analysis. Conservation Ecology 4(1): 5. [online] URL: <http://www.consecol.org/vol4/iss1/art5>
- Roo, G. de (2002) Coping with change, uncertainty and a growing complexity of our social and physical environment: Adaptive responses and new concepts to tackle difficulties in the physical planning of the Netherlands, Paper presented at the XVI Aesop Congress in Volos, Greece, 10-15 July 2002.
- Edelenbos, J, Van Gils, M., Gerrits, L. and M. Huys (2004 forthcoming). Change and continuity in the Dutch mainports. Rotterdam: Erasmus University.
- Gazendam, H.W.M (1993), Variety controls variety: on the use of organizations theories in information management. Groningen: Wolters-Noordhoff
- Gerrits, L. (2003), Dromenstrijd. Visievorming en bestuurlijke inertie. Rotterdam: Erasmus Universiteit Rotterdam, vakgroep Bestuurskunde
- Havenraad (2004), Reaction to nota seaports: Den Haag: Havenraad.
- Ministry of Transport, Public Works and Water Management (2004), Nota Mobiliteit: Den Haag: Ministry
- Ministry of Housing, Spatial Planning and the Environment (2004), Nota Ruimte: Den Haag: Ministry
- Ministry of Transport, Public Works and Water Management (2004), Nota Zeehavens ankers voor de economie: Den Haag: Ministry
- Ministry of Economic Affairs (2004) Nota Kiezen voor Groei, Den Haag: Ministry
- Ministry of Economic Affairs (2004) Nota Pieken in de Delta, Den Haag: Ministry
- Ministry of Economic Affairs (1999), Nota Ruimtelijk Economisch beleid. Den Haag: Ministry
- Rogers, K.H. and R. Bestbier (1997), Development of a protocol for the definition of the desired state of riverine systems in South Africa. Department of Environmental Affairs and Tourism, Pretoria, South Africa. (Available online URL: <http://www.ccw.ac.za/knprp/index>)

- Rotmans, J. (2003), Transitie management: sleutel naar een duurzame samenleving. Van Gorcum Uitgeverij, Assen.
- Salet, W. (2004), Procesmatige en inhoudelijke condities voor ruimtelijke regelgeving. In Stedebouw en Ruimtelijke ordening 03/2003. De Haag: NIROV.
- Schumpeter, J. (1954), History of economic analysis. London, Allen and Unwin.
- Stacey, R.D (2003), Strategic Management and Organisational Dynamics. The Challenge of Complexity. Essex: Prentice Hall.
- Van Gils (2003), The container cluster of Antwerp, a long term perspective. Utrecht: University of Utrecht
- Van Klink, A. (1995). Towards the borderless mainport Rotterdam; an analysis of functional, spatial and administrative dynamics in port systems. Rotterdam: Erasmus University.
- Vlaamse Havencommissie (2000), Ontwikkelingen in de containervaart, kansen of bedreigingen voor de Vlaamse havens. Brussel: Sociaal Economische Raad van Vlaanderen.
- Voogd, H. (2003), [Omgang met diversiteit in ruimtelijk beleid en onderzoek](#), Paper nav presentatie op 'Nethur Stadsdag 2002' van onderzoeksschool Nethur.
- Welters, H. et al (2002), Port Economics. Rotterdam: Erasmus Universiteit, Capgroep Regionale Economie, Haven –en Vervoerseconomie.
- Zacher, M.W. en C.J. Sutton (1996), Governing global networks. International regimes for transportation and communication. Cambridge: Cambridge University Press.