

Van Gils, Marcel; Klijn, Erik-Hans

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## Complexity in decision-making - the case of Maasvlakte - Connecting decisions, arenas and actors in spatial decision-making

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# **Complexity in decision-making: the case of Maasvlakte II**

*Connecting decisions, arenas and actors in spatial decision-making*

Marcel van Gils, Erik-Hans Klijn

*Paper for the 45<sup>th</sup> Congress of the European Regional Science Association*

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## **Abstract:**

Decision-making about spatial projects is very complex. Decisions to develop the Rotterdam harbour are being taken in a network of local, regional, national, European and international actors, both public and private. These decision-making processes show a lot of complexity and the outcomes are of great importance for the development of the harbour. The complexity results from interactions between actors connected in different arenas all thinking about the same project. In this paper we use network theory and especially the concepts actors and arenas to highlight the complexity of decisions and the connections between various separate decisions. We also show the outcomes of the decision making process are a result of the various connections that are being made. The spatial project at the core of the paper is a harbour expansion project called Maasvlakte II.

**Key words:** complexity, Maasvlakte II, actors, arenas, interactions,

Drs. Marcel van Gils  
Erasmus University Rotterdam  
Centre for Public Management  
Room M8-13  
P.O. Box 1738  
3000 DR Rotterdam  
E-mail: [vangils@fsw.eur.nl](mailto:vangils@fsw.eur.nl)

Dr. Erik-Hans Klijn  
Erasmus University Rotterdam  
Centre for Public Management  
Room M8-30  
P.O.Box 1738  
3000 DR Rotterdam  
E-mail: [Klijn@fsw.eur.nl](mailto:Klijn@fsw.eur.nl)

## 1. Introduction

Decision-making in the modern network society is complex. Decision-processes take place in networks of actors, which are tied by interdependencies in a society where resources and knowledge is spread among a variety of actors (Kickert/Klijn/Koppenjan, 1997; Castells, 2000). Besides these societal groups increasingly try to get involved in decision-making, which also makes the decision-making process more complex. The history of the case on which this paper focuses, the expansion of Rotterdam harbour by creating additional space (Maasvlakte II) illustrates this complexity very nicely.

After the introduction of the project in 1993 we are now 12 years further and 2013 is seen as the year in which the first ships can be handled at the terminals for different types of cargos (Press Release Port of Rotterdam, 21-04-05). Until now we have witnessed a very complicated process with many actors involved. Despite this the main actors involved thought the decision-making had been concluded satisfactory until at the end of 2004 the atmosphere suddenly changed. The Council of State (Raad van State) judged negatively on the project-proposals because they felt a lack of research about ecological aspects. The juridical procedures to implement the proposals (the so called zoning procedure), which were almost ready, and to be presented in parliament were stopped. It is expected that it will take an additional one and a half year to execute the restarted zoning-procedure.

### *The case: the expansion of Rotterdam harbour*

As mentioned above the Maasvlakte II was officially introduced in 1993 as one of the alternatives to deal with the shortage of space for the Rotterdam harbour expansion. The Port Authority of Rotterdam (at that time a municipal organisation) and the Dutch Ministry of Public Works, Transport and Water Management introduced the spatial project and embedded the project in the ROM-Rijnmond agreement<sup>1</sup>. The involved actors introduced several projects and the Maasvlakte II was one of these projects. The actors decided to create a project organisation to coordinate the decision-making process. The Port Authority and the provincial part of the Ministry of Public Works, Transport and Water Management lead this project organisation Maasvlakte II. One of the first recommendations of the project organisation was to shift the lead to the Ministry. The reason given for this was that the project is of national interest and because the Port Authority and provincial department cannot generate sufficient financial means to realise a project like this (Weggeman, 2003)

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<sup>1</sup> In the period in which the Port Plan 2010 was prepared, the public organisations (national level, provincial and local) and some private economic stakeholders organised in the ROM-Rijnmond. This covenant for Spatial Planning and Environment was meant to research an integrated framework for a sustainable spatial policy in the Rijnmond Area (the area in which the port of Rotterdam is mainly situated). The Maasvlakte II was presented in the covenant as one of the projects that could contribute to a sustainable ROM-Rijnmond.

With this decision the first round of four rounds in the decision-making process came to an end. In the analysis of the case in this paper we focus on the second round (the interactive phase that took place from 1996 till the end of 1997) and the third round (from 1998- till mid 2001 somewhere in 2002). We describe the fourth round with the decision of the Council of State as a postscript but do take this round along in the analysis at the end (for the concepts of rounds in decision-making see section 2). The second and third round are however very interesting because they both show an attempt to cope with complexity in the decision-making

*Outline of this paper: a network perspective on complexity*

In this paper we focus on the complexity of decision-making using a network perspective to describe and analyse that complexity (see Koppenjan/Klijin, 2004). The question we tackle in this paper is: “how can we analyse complexity from a network perspective and how can we explain the outcomes of the decision-making process on the expansion of Rotterdam harbour from this perspective”. So we have a theoretical aspiration and an empirical aspiration. In section 2 we first outline our theoretical perspective and show how complex decision-making can be analysed using concepts like networks, games, decisions and arenas. With these concepts we analyse the decision-making process in the two rounds, which are called the VERM and PMR round (section 3 and 4). In the analysis we focus on the intertwining of different decisions, arenas and networks to analyse the character of decision-making and its complexity. We also show how decision-making receives its dynamics by the connection and disconnections of various decisions and arenas. And we analyse how decision-making proceeds and stagnates because of different connections and how these connections are being managed (section 5). We end with some conclusions about how to deal with the complexity in decision-making (section 6).

## **2. A network perspective on complexity**

We use the network perspective to conceptualise complexity and analyze the case. The network perspective assumes that policy is developed and implemented in networks of organizations (Kickert/Klijin/Koppenjan, 1997; Klijin/Koppenjan, 2000). These policy networks can be defined as “changing patterns of social relationships between interdependent actors which take shape around policy problems and/or clusters of resources and that are formed, maintained and changed by an ecology of games”. One could also say that these networks are complex systems of organisations.

Networks come into being and remain in existence because actors are dependent on each other (Aldrich, 1979; Negandhi, 1975; Milward/Wamsley, 1985). Actors cannot achieve their objectives without

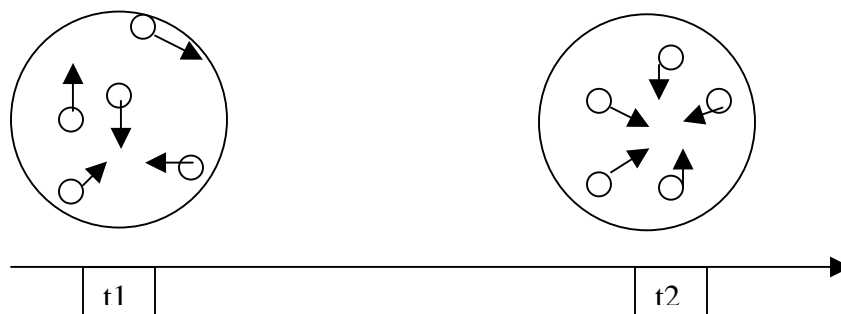
resources, and other actors possess these. Networks are thus characterized by a limited substitutability of resources, which ensures that sustainable social relations between actors are created. Essential for a good understanding of a case like the expansion of the Maasvlakte II is that the interactions around these decisions, which we call a game, not only take place within networks of organisations but that separate decisions are often situated in separate arenas. These arenas can be situated in one network but sometimes more arenas in different networks are involved which enhances complexity considerably. We elaborate on the theoretical perspective and the notion of complexity in policy interactions below.

*Arenas and Game: the setting for interaction*

The game of problem solving, in this case the decision on Maasvlakte II, takes place in and between arenas. The actors present their strategies in one of more arenas. The arena is the place or field where actors meet and play their game. It is the place where a specific group of actors make choices on the basis of their perceptions of problems and solutions (Cohen, March and Olsen, 1972). The evolution and outcomes of decision-making processes in policy networks is determined to a large degree by the mix of strategies brought into the arena and the interactions between arenas. An arena consist of a set of actors, a choice situation and some more or less well designed organisational arrangements (Koppenjan/Klijn, 2004)

Figure 1 presents the policy game as a mix of actors' strategies in an arena that form a game type at a given moment (t1). In the course of time, the game type may change: after a while (t2) actors may have coordinated their strategies. And then later (t3), changed strategies may again result in a new game type.

*Figure 1: The Policy Game as Mix of Strategies that Actors bring to the Arena*

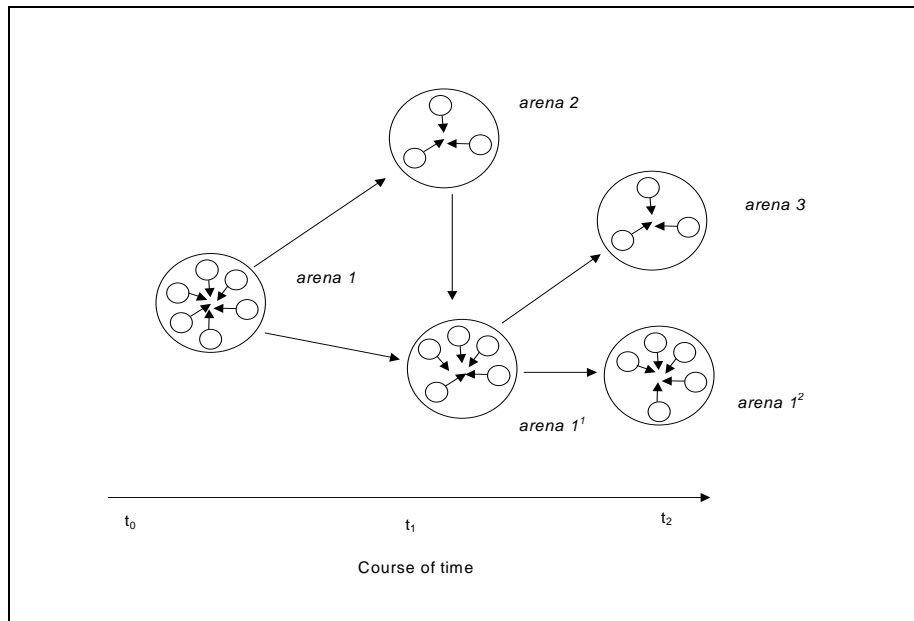


*Adapted from Koppenjan/Klijn, 2004*

*Complexity: strategic actions of players in multiple arenas*

Policy games are complex not only because there are many players making unpredictable strategic choices, but also because they are often simultaneously involved in more than one *arena*. This is because most problems have different dimensions and thus touch upon different types of policies and actors. For instance, in decision making on harbour expansion, issues such as transport, economy, employment, planning and zoning, noise, safety, and so forth, play a role. As a consequence, decisions about the future of the harbour are made in the context of various types of policies in various arenas and at various government levels. As a result, the policy game acquires a highly fragmented character with decisions being made in different arenas at different levels and times. Figure 2 gives an image of that situation.

*Figure 2 Policy Games as a Series of Decisions in Various Arenas*



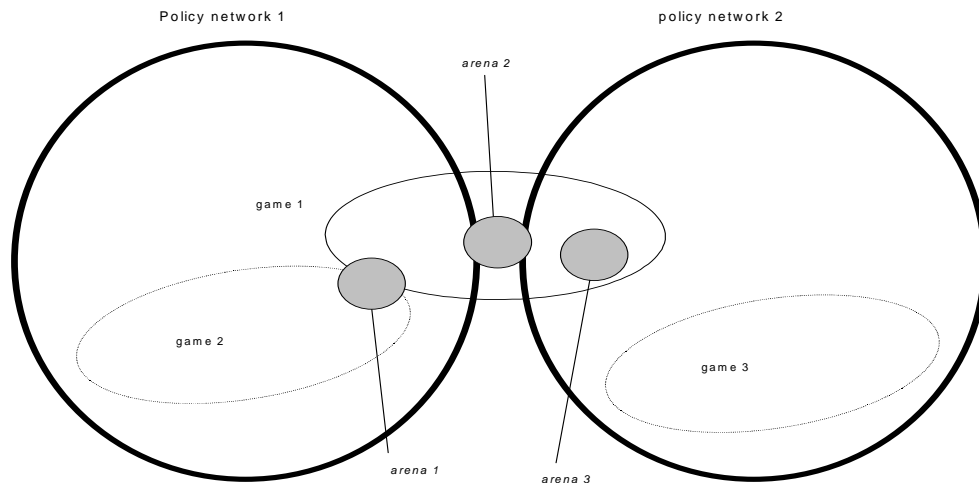
*Adapted from Koppenjan/Klijn 2004*

*More complexity: the relation to other games and networks*

The complexity of policy games is also enhanced because games are not played in a vacuum, but amidst other games. Within an arena, actors can play more than one game. As a consequence these games influence one another. A loss in one game can be compensated by a gain in the other, or vice-versa. And different arenas play games to try to couple the arena internal problem solving with problem solving processes in other arenas. Policy games thus can influence each other. Through couplings new trade-offs can be realized between games. Because of this, it is conceivable that in the one game, support for unpopular measures is created because there is compensation in another game. Furthermore, coupling of

games may have a mitigating effect upon conflicts and strategies that actors use. The costs for strategic misbehaviour in one game will become due in another (Allison, 1971). Policy games will be even more complicated if they occur in arenas that are situated in different networks. Figure 3 presents a graphic representation of this notion.

Figure 3 Policy games in different arenas in different networks



*Adapted from Klijn en Koppenjan, 2004*

Not only is it difficult to connect the various interactions, but it is also likely that different networks are characterized by different rules. This means that in arenas that are composed of actors and interaction activated from different networks, different sets of rules are used. This again increases complexity of the game.

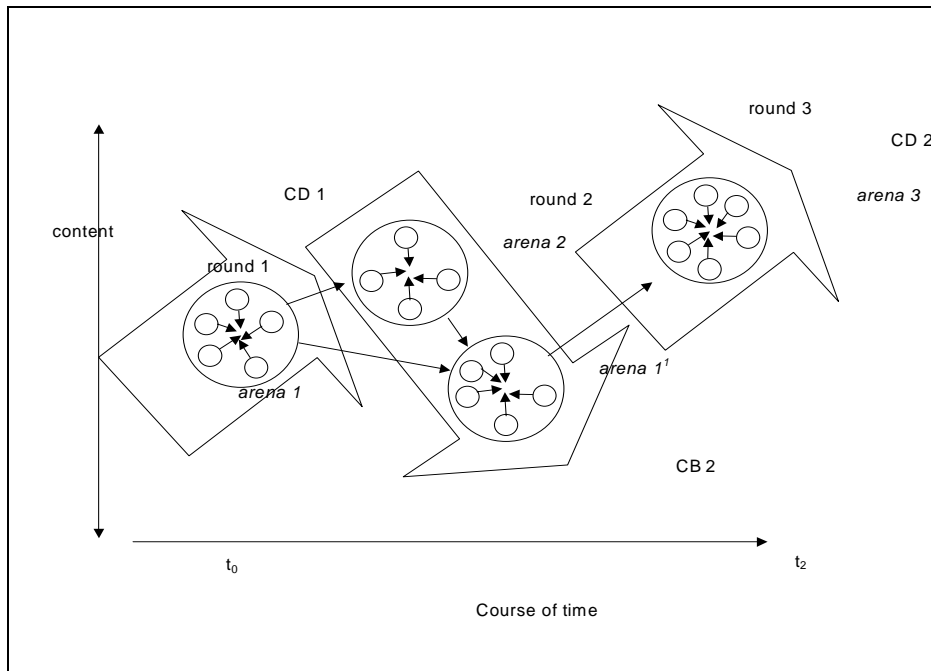
#### *Outcomes of policy games: result of many interactions*

The evolution of policy games is not that of a linear process where a problem is solved on the basis of authoritative ex ante problem formulations or objectives. Policy games develop through a series of successive decisions about the nature and content of a problem, about solutions and about how these matters are being decided. Just as there is no central decision maker, there is no central decision. The policy game looks more like a sports match played in a number of rounds (Radford, 1977; Teisman, 1992). A round opens with an initiative or policy intention of one of the parties that serves as 'trigger' to the others. What follows is that in an initially unclear or conflictual situation, parties discuss with each other and negotiate about what is to be done (March and Olsen, 1976). Then, through a series of steps, parties will search for mutual adaptation or joint solutions.

### *Impasses and breakthroughs*

This process is not without problems. *Impasses* are in the way of achieving satisfactory solutions for all parties. Impasses may emerge because actors are unwilling to invest in the process (*stagnation*) or because there is a conflict where some use their veto power (*blockage*). Impasses may eventually lead to terminating the policy discussion, but may also result in a *breakthrough*. Breakthroughs can come about by crucial decisions that reformulate the problem conciliate opposing solutions or change the group of those involved. Each round ends with a ‘*crucial decision*’, a decision that offers a solution for the question that is central in the particular policy round. The content of such a solution is often quite unexpected: it is frequently based in a redefinition of the original problem and a transposition of earlier positions and objectives, so that the scope for solution is changed or enlarged. The game then assumes an unexpected direction. A crucial decision heralds a *new round* or leads to a restart of earlier rounds. Thus, a ‘whole new ball game’ emerges with stakes, perceptions and strategies. Figure 2.5 visualizes a policy game through different rounds. The vertical axis provides the development of the content of plans, the horizontal axis the development over time. The direction of the arrows indicates the degree to which the process zigzags (substantively) and evolves by fits and starts (in terms of time). The total policy game is composed of different games between actors in the arena, between the arenas and between the rounds. In all these games and sub games impasses and breakthroughs can occur.

*Figure 4 Flow of Policy Game: Problem Solving as a Zigzag and Erratic Process*



*Adapted from Klijn et al. 2000*



### *Complexity and explanations for policy processes*

From a network perspective complexity is an inherent character of problem solving and decision-making processes. Complexity is the result of:

- Various actors with different perceptions which each act strategically (and thus can not be predicted accurately, although knowledge of their position and perceptions gives some idea of the range of their strategies)
- The interactions of different strategies of different actors within arenas
- The interactions of various decisions made in different arenas within a policy round
- The interactions of various decisions made in different arenas between policy rounds
- The fact that interactions may occur in different arenas, which belong to different networks, create the possibilities that different rules will be used and taken for granted by involved actors.

Policy processes are dynamic complex interaction processes, which sometimes produce unexpected results like we can see in the introduction. Network theory provides a variety of explanations for reaching successful outcomes (see Koppenjan/Klijn 2004). The most important are:

- Achieving interesting solutions that satisfy the various values at stake
- Coupling of interactions of actors and arenas
- Shared institutional structures (like network rules)
- Systematic management efforts

In this paper we focus specifically on three *explanations* for success of outcomes in decision-making. These three are:

- The actor dynamics and positions,
- The activated arenas and flow of the decision-making process
- The achieved couplings and managerial activities.

With *successful outcomes* we mean outcomes that:

- Generate support among many involved actors and of which actors are satisfied
- Outcomes that are clearly developed in terms of content (this can be judged from the fact that new ideas have been developed, by the fact that plans meet earlier criticism etc.)
- Outcomes which have been realised through open processes where cost are not transferred to other actors or networks

### 3. The VERM-Round (1997-1998): actors, arenas and interactions

In April 1996 the Cabinet decides to shift the responsibility for the project (Maasvlakte II) to the Ministry of Public Works, Transport and Water Management. The first action undertaken by the new ministerial project organisation is to start the VERM (Exploration Spatial Need For Mainport Rotterdam). The VERM is meant to discuss the necessity and urgency of the expansion of the harbour area. The crucial decision marking the end of the VERM is the decision to start the formal preparation of the zoning-procedure<sup>2</sup>.

At first a project team was created for the organisation of the interactive decision-making process or open-plan process. This project organisation consisted of civil servants from four departments (Public Works, Transport and Water Management; Economic Affairs; Agriculture, Natural Resources and Fisheries; Public Housing and Zoning). Besides the project team various groups of actors can be distinguished in the open plan process (Videler, 1997 / De Vries, 1997). The main actors present in the VERM are presented in table 1. The degree of participation of the actors is indicated as well and is meant to figure as input for the description of several arenas below.

*Table 1: Actors in the VERM-Round*

<b>Actors</b>	<b>Characterisation</b>	<b>Moments of participation</b>
Citizens	Individual citizens (generally interested)	Especially in the workshops and the round table meetings (also the surveys)
Interest groups (economic)	Nationally organised economic interest groups (labour unions, employers organisations, Association of Dutch chemical industry)	Especially in sounding board group, also in national presentation, the workshops
Interest groups (environmental)	National and regional environmental groups (Society for Nature and Environment, World Nature Fund etc.)	Especially in sounding board group. Modest participation in workshops, round table groups
Regional administrators	Mayors/Aldermen of municipalities and counties involved; representatives and directors of harbour companies	Dominant in consultant discussion, amply represented in round table meetings, more modest in workshops
Experts/researchers	Scholars/researchers with	Especially in expert meetings.

<sup>2</sup> Zoning procedure is a free translation of the Dutch term PKB (Planologische Kernbeslissing or Spatial Core Decision in English). The PKB is a zoning document (made in several steps) on which spatial decisions are based and find their legal basis

	expertise in relevant fields (regional economics, public administration environment etc.)	Less intensive in sounding board groups, workshops
National administrators	Ministers	Minimal involvement
Departments (units and people not in VERM)	Public Housing and Zoning; Public Works, Transport and Water Management, Finance; Economic Affairs	Minimal involvement, but active in interactions around VERM
Parliament	Political parties (national level)	Very limited participation

*Adapted from Klijn, 2003*

Given the participation of various actors and the organisation of the VERM process, we can conclude that there were really two groups of arenas interacting in two different games. On the one hand, there was the policy game around VERM itself, the interactive process in which various actors interacted concerning the question whether there was lack of space in Rotterdam harbour and how that could be solved. This was done in two closely related arenas and a loosely linked arena: a *discussion arena* with workshops and panels which were very open for all actors (especially individual citizens); an *expert arena* parallel to the first and dominated by expert meetings and research; and a *condition arena* where the conditions of the process organisation of participation) were discussed. The project group VERM dominated the first two arenas, which as network manager, linked decisions and arenas. The third, more loosely linked arena was more a regular contact between project group and departments in which national interest groups also participated. In these three arenas almost all of the actual interaction of the various actors in the VERM project took place. For that reason they are called the *central arenas*<sup>3</sup>.

In addition to the arenas in which the VERM game took place, there were two important arenas for decision making in the VERM process. First, there was the departmental arena, the *initial decision arena*, in which the results of the VERM discussion were transformed into an initial decision (the cabinet decision was prepared in this arena before it went to Parliament). The Department of Public Works, Transport and Water Management was the most important actor in this arena, but actors from other departments were involved as well. Second, there was a *political arena* for the political decision about the subsequent course of action. The parliament and the ministers played a prominent role with the departments in the background (see Table 2 for the most important arenas). In these two *peripheral* arenas the interactions took place after the VERM process had been finished.

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<sup>3</sup> The concepts central and peripheral thus refer to the density of interactions in the game

Table 2: Arenas in VERM

Arena	Central actors	Organisation and linkages of interactions in arena	Task/activities
<b>Central arenas</b>			
1. Discussion arena	Citizens, regional politicians, regional interest groups (economic and environmental)	Organisation: through round table meetings, workshops and sounding board groups Linkages: by project group VERM	Discussion about nature of problem, types of solutions, interests etc.
2. Expert arena	Scholars, national interest groups, CPB, Port Authority	Organisation: expert meetings, sounding board groups and research (CPB) Linkages: by project group VERM	Reflection on process and substance, development of solutions
3. Condition arena	Project group VERM, departments, monitoring committee and (sometimes) national environmental organisations	Organisation: loosely coupled Linkages: mostly initiative of project group	Discussion about VERM design, about types of product, about participation
<b>Peripheral arenas</b>			
4. Initial decision arena	Departments (Environment, Economic Affairs, Agriculture and Fisheries and Public Works, Transport and Water Management), project group VERM	Organisation: usual interdepartmental co-ordination mechanism Linkages: through Public Works, Transport and Water Management	Preparing initial decision for cabinet and Parliament (both substantively and procedurally)
5. Political arena	Second chamber, cabinet, departments	Organisation: usual formal procedures	Political decision and its preparation (by cabinet)

*Adapted from: Klijn 2003*

*Interactions in and between central arenas;*

There are varying degrees of intensity in interactions in and between the arenas. At first the interactions in the condition arena can be considered a meta-game for the actual interactive process. At the beginning (mid 1997) it appeared that there was limited support from the civil service for the open plan process. The Maasvlakte II project group continued to co-exist with the VERM project group and civil servants from various departments continued to work on the development of the Maasvlakte II. This meant that while they continued to work on policy solutions for the shortage of space in Rotterdam, they were also

discussing the nature and urgency of that problem and alternative solutions.

There were also those within the Ministries who objected to the VERM discussion. They questioned a procedure that involved so many citizens. They preferred a greater role for interest groups during the discussion. At a meeting with the top civil servants of the Ministry of Public Works, Transport and Water Management in September 1997, the question of whether the real problems had emerged was explicitly raised. "Societal talk is not yet societal support" was the argument. Also, it was made clear that the minister and members of Parliament could not join in the discussion because - it was argued - they had their own responsibilities. This also meant that the project decision might differ from the outcome of the discussion. Thus the top civil servants of the Ministry maintained the right to determine the project decision for itself; they refused to be bound by decisions in the interactive arenas in any way. This point of view was repeated in subsequent discussions between project group VERM and the top civil servants of various Ministries. The open entry rules in the interaction arena conflicted with the closed nature of the arenas outside the VERM discussion. Formally the VERM interaction arenas are not a threat to the position and authority rules of Ministries and politicians because in the interactive arenas no final decisions can be made. The results of the interactions in these arenas have only the status of advice and information. In practice they are however a threat because it is not easy for politicians and civil servants to neglect the results of the interactive phases in which much time and energy has been invested. It is precisely to take away this pressure and modify the expectations that politicians and civil servants stress their own responsibilities at the beginning.

Interest groups also tried to influence the utility and necessity discussion during this meta-game. The environmental organisations were discontent with the design of the discussions in the workshops and the round table meetings. They withdrew because they felt that the real discussion about utility and necessity had not taken place (we will show this in the fourth paragraph). Furthermore, they would have liked for the Environmental Impact Assessment (EIA) Committee to be involved for the substantive monitoring of the environmental objective and the support for it. Both the ministers of Traffic and Water Management and the monitoring commission had signalled the VERM project group that it was important for the environmental organisations to stay involved. A meeting resulted in the decision to ask the EIA Committee for advice and the formation of an extra sounding board group. The environmental organisations would have the opportunity to comment on the structural policy of the cabinet (strengthening the mainports of Rotterdam and Schiphol).

*Toward the crucial decision: interactions outside the central arenas*

On the basis of the findings from the open plan process, the project group advised the cabinet to construct a smaller Maasvlakte than initially proposed by the project group Maasvlakte II. For the time being, the Maasvlakte II should be about 500 ha. 'dry area' (that is without harbour facilities) or 1000 ha. with a direct link to water. Also, a new nature area of about 750 ha should be developed. The project group thus concluded that smart 'expansion solutions' were almost as expensive as the construction of a new area of some 2000 ha. so the choice for a new area that respects nature values was obvious. After the discussion in the open plan process, the preparation for the project decision was returned to the departments. The final project decision conveyed the cabinet's point of view that an economic growth of 3% was necessary in order to guarantee sufficient growth of employment, and a well functioning Rotterdam port was important for that goal. According to the cabinet, research supported the idea that there was a lack of space for the mainport. It proposed the initiation of a zoning procedure that would focus on land creation of about 1000 ha. of contiguous harbour and industry area with its own access to the sea. The possibility for the alternative of 500 ha. dry area would also have to be investigated, and future expansion should be possible. Furthermore, this procedure should investigate how the 750 ha. of nature and recreation area could be realised.

In December 1997 the Parliament discussed the proposal to initiate the zoning procedure. The discussion was dominated by the question whether there was enough material to start this procedure the minister indicated that she assumed a lack of space and that expansion was necessary, but that the zoning procedure may show otherwise. After discussion, all motions to delay the zoning procedure were rejected. Only one motion of the social democratic party, the PvdA (social democrats), was accepted. This motion indicated that the objectives of developing the mainport and improving liveability were equal and that the various alternatives with respect to such issues (i.e. required acreage, the balance between private and public investments, the transport and environmental actions, and the nature conservation area) were to be worked out simultaneously. The cabinet parties of D'66 (liberal democrats) and PvdA supported the motion based primarily on a concern about the environmental component in the decision-making. The cabinet party VVD (conservative liberals) supported the motion because it did not want to be surprised at a later stage with alternatives, which were not discussed earlier - as happened with the high-speed train. The decision to start the zoning procedure is the crucial decision that marks the end of the VERM-Round. We will elaborate on the dynamics in the zoning procedure in the next paragraph.

#### **4 The PMR-Round (1998-2001): actors, arenas and interactions**

On the 14<sup>th</sup> of July (1997) the Project Mainport Rotterdam was started. PMR got two main tasks, research the alternatives for expansion and research and describe the influences on the quality in the surrounding living environment. PMR was organised by the different governmental layers, the following public organizations were incorporated; The ministries of Public Works, Transport and Water Management; Living, Spatial Planning and Environment; Economic Affairs; Agriculture, Natural Resources and Fisheries; and Finance. The province of South-Holland, municipality of Rotterdam and the city-region of Rotterdam were incorporated in the project organisation as well. This project organisation got the responsibility for the preparation of the zoning procedure that started at the end of 1997 (December 1997/January 1998).

Besides all these public actors, many others were participating in this part of the policy game (see table 3). Societal groups like the Society for Nature and Environment, firms and intermediaries participated in the Consultation Non-Public Actors (ONR)<sup>4</sup>. Some representatives of the PMR joined the ONR regularly to relate the discussion made in the ONR to the public arena, which is called BOM<sup>5</sup> (Public Consultation Mainports). The PMR project organisation actors were mostly represented in the BOM. The BOM focused on the Public Consultation whereas the PMR was meant to coordinate between the arenas. In other words the PMR is the framework in which the interactions between the different arenas were structured. This is why we have called this Round the PMR-Round. This does not mean that the PMR project organisation stopped when this Round ended, but PMR offers a goods characterisation for the interactions during this Round.

The BOM and ONR are the most central arenas in the PMR. Both arenas were connected by the organisational arrangement called the Top Council<sup>6</sup> (Top Beraad). The Vision and Heart group also influenced the ONR and is described as arena in which some actors were actively participating. This short introduction is meant to clarify the different terms that will be used in the following table.

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<sup>4</sup> Consultation Non Public Actors will be named ONR (Overleg Niet Rijkspartijen in Dutch) in the following of this paper. The ONR is the forum where the non-public actors met each other and discussed about the alternatives of port expansion and tried to make some advices heard within the departments and the ministers. The ONR was formalised in 2000

<sup>5</sup> Public Consultation Mainports will be named BOM (Bestuurlijk Overleg Mainports) in the following of this paper. The BOM is the forum in which the public actors met each other and discussed about the alternatives of the harbour expansion. They were directly linked to the departments and ministers.

<sup>6</sup> The Top Council (Top Beraad in Dutch), was an organisational arrangement, which was directly linked to the minister of Water management, Transport and Public Works. In the early years of this round, only the BOM was directly linked as well, later on the ONR was incorporated as well.

Table 3 Actors in the PMR Round

<b>Actors</b>	<b>Characterisation</b>	<b>Moments of participation</b>
Interest groups (economic)	Nationally organised economic interest groups (labour unions, employers organisations, Association of Dutch chemical industry)	Especially in intern coordination and partly in the regular sessions of ONR.
Interest groups (environmental)	National and regional environment groups (Society for Nature and Environment, Consept etc.) Representatives of Port Authority	Especially in ONR and partly in Vision and Heart. Discussion about incorporation of environmental values
Regional administrators	Mayors/Aldermen of municipalities and provinces involved; and the association of Water Boards	Especially in Public Consultation Mainports (BOM) and some separately in Vision and Heart
Project coordinators	Project organisation PMR and individuals (Hans Alders/Roel in 't Veld)	Active in and between different structures, like in ONR, between ONR and BOM
National administrators	Ministers	Minimal involvement, until latter stages of PMR Round
Mixed interest groups	Like the Automobile Drivers Association, intermediaries	Incorporated in ONR, representing mixed values.
Departments	Public Housing and Zoning; Traffic and water Management, Finance; Economic Affairs	Involvement in Public Consultation Mainports and informing the ministers
Parliament	Political parties (national level)	Very limited participation, in approval of zoning procedure

adapted from Weggeman, 2003.

These “PMR-actors” functioned in five different arenas playing in two distinct games. On the one hand there was the policy game in which the alternatives for harbour expansion were discussed. This was done in two closely related arenas. The ONR-arena was characterised by regular meetings in which the consequences of the different alternatives for expansion were discussed. Then there was the BOM arena composed of the ministries, province and municipality. Although the conditions of the process were discussed here, the focus was on discussion of the alternatives as well.

Besides this an arena called Vision and Heart (Visie en Durf) developed parallel to the ONR. Three environmental pressure groups worked together with the municipality of Rotterdam to discuss the environmental compensation measures developed in the port expansion plans. This is a closely coupled arena as well.



The fourth and the fifth arena were loosely coupled. The fourth arena is called the private-consultation arena. Parallel to the discussion of the alternatives a group of private firms was consulted to discuss possibilities for Public-Private Partnerships (PPP) for the realisation of the alternatives. It is particularly striking that the discussion about the PPP focused on the realisation of the Maasvlakte II. This indicates the ongoing dominance of this alternative in the discussion.

The fifth was a *political arena* for the political decision about the subsequent course of action. The parliament and the ministers played a prominent role in the latter stages of this round and afterwards, but were really absent in the discussion. The five arenas are indicated in table 4. In and between these arenas the transformation of the discussion towards an decision took place.

*Table 4: Arenas in the PMR Round*

<b>Arena</b>	<b>Central actors</b>	<b>Organisation and linkages of interactions in arena</b>	<b>Task/activities</b>
<b>Central arenas</b>			
1. ONR arena (formalised in 2000)	Interest groups (economic and environmental)	Organisation: through monthly meetings Linkages: by ONR	Discussion about, alternatives, representation of interests
2. BOM Arena	National, provincial and local public stakeholders	Organisation: Through regular meetings Linkages: by BOM	Reflection on process and substance. Discussion on alternatives.
<b>Peripheral arenas</b>			
3. Vision and Heart	Interest Groups (mainly environmental) organized to discuss environmental aspects more prominently than in ONR	Organisation: regular meetings Linkages: via Municipality of Rotterdam	Discussion about how to incorporate environmental aspects in expansion of harbour
4. PPP Arena	Firms and Ministry of Public Works, Transport and Water Management	Organisation: Some meetings Linkages: by project organisation	Thinking about possibilities for Public-Private Partnerships
5. Political arena	Parliament, cabinet, departments.	Organisation: minister Linkages BOM/Topberaad	Political decision and preparation (by cabinet)

*Adapted from Weggeman, 2003.*

### *Interactions in and between the central arenas*

There are varying degrees of intensity in interaction in and between the arenas. At first the linkages within the ONR-arena were loosely (from 1998 on). Only when the arena got a more prominent position (after formalisation in 2000) in the discussion with the public organizations the organisation got relatively more related. The BOM arena was relatively well organised because it was linked very strongly to the actors in the project organisation.

The dichotomy between the economic and environmental stakes is at the heart of the discussion about the open plan process and of an ongoing character. The environmental groups express their feelings of misrepresentation regularly and the tension between economic and environmental interests dominates the decision-making. This tension seems to be captured by the formalisation of the ONR at the beginning of 2000. The agreement is quite unique, in the sense that it is the first time environmental interest groups receive such a strong position in decision-making, and offers the potentials for balancing the economic and environmental stakes. But soon after the start of the ONR the same tension becomes actual again. The environmental stakeholders want to leave the ONR because they feel neglected. Instead of joint fact-finding the environmental groups feel like they can only react on the facts. The environmental groups are not happy with the communication as well and indicate that their advices do not reach the minister at all (Weggeman, 2003, Doe, 2005<sup>7</sup>).

The civil servants working and thinking together in the BOM were rather hesitant of the open plan process again. They went on with the preparation of the plans for the Maasvlakte II and this led in turn to the resistance of the ONR. They wanted a joint decision-making process about the choice of one of the alternatives for the expansion of the Rotterdam harbour.

Under the lead of a mediator Hans Alders the stakeholders were brought on talking terms again. The main action was the evaluation of the ONR. The evaluation resulted in an advice to the minister in which Alders indicated that a Top Council could be a solution for the negative feelings of the different stakeholders. This Top Council is composed of representatives of big interest groups (ONR and BOM). The environmental stakeholders remained pretty negative about the chances. They wanted full participation in the dialogue about the options for creating additional space for port activities. The document PMR on Course (Koers) at the end of 1999 feeded the negative feelings again, because the

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<sup>7</sup> Doe, 2005, this source is an interview with the project leader of the Second Maasvlakte within the Harbour Authority in Rotterdam.

option of expanding the port in the South Western part of Holland is described as not possible. The environmental stakeholders refused to sign the process covenant. The environmental groups even leave the ONR again. The stakeholders directly reacted to a letter in the Dutch paper (NRC) in which the scientific board of the PMR indicated there no justified reason why the third option is seen as impossible to realise.

An advisor In 't Veld is approached to resolve the impasse. He indicated trust should be rewon to bring the stakeholders closer again. The minister asked Alders again to mediate, he advised to come together. Finally there is agreement on the (formalised) ONR new style in which the ONR can play a more active role and advise the minister more directly. This advice is the result of a process in which joint fact-finding is placed more centrally. The ONR was placed more centrally besides the BOM in the Top Council and has a new direct link and consultation to the minister of Public Works, Transport and Water Management.

#### *Interactions in the peripheral arena's*

Some of the actors did not actively participate in the first policy game. At first those actors that were disappointed about the openness of the plan process. Some environmental interest groups decided to leave the discussion arena, because they felt, their stakes were not represented strongly in the discussion. These stakeholders finally returned partly in the ONR, after the ONR got a more central role in the interaction process in the beginning of 2000. In the meanwhile (the end of 1999) the municipality of Rotterdam invited three environmental interest groups (Consept, Natuurmonumenten and the Society for Nature and Environment to discuss the incorporation of the environmental stakes (the 750 ha compensation). This arena, called Vision and Heart, composed of the actors presented above is advancing parallel the ONR. In June 2000 the actors come with an advice that is called Vision and Heart. This arena was known by the actors in the ONR and influenced the outcomes of the ONR discussion indirectly. Only the publication of the advice some weeks before the official advice of the ONR created some tensions. But these have not had the potential diverging influence on the stakeholders in the ONR. We have decided to call this a peripheral arena, because the actors could only reach the final deciders via the ONR.

The second peripheral arena was loosely coupled and not participating actively. This is the initiative to explore the possibilities for private contribution to the financing of the project. This economic arena was founded to search for financing options for the Maasvlakte II. This arena represented the economic stake and expected the Maasvlakte II to be realised. In other words, they were already preparing with some public organizations the execution of the project. This indicates that the doubts of the environmental

interest groups about the real choice between the alternatives can be seen as justified (BOM, 1999 Marktconsultatiedocument). This arena was linked to the BOM, but could not reach many results in 1999 and 2000.

The political arena was relatively absent in this round, only the minister was regularly informed by the Top Council and project organisation and got advices from the BOM and ONR arena, but was not actively participating in this Round. The same goes for the parliament, which only judged the zoning procedure after completion.

#### *Towards the crucial decision in the political arena*

The crucial decision taken in this round was the choice for the Maasvlakte II as the solution for the Lack of Space for the expansion of the Port of Rotterdam. The minister and the parliament finally made this decision. The preparations of the zoning procedure were made in consultation of ONR and BOM. Around the crucial decision the linkages between the political arena and the ONR-arena were intensified in the Top Council. The crucial decision was laid down in the zoning procedure document part 1, which was sent to the parliament on the 11<sup>th</sup> of July 2001. In this document the contents of the plan were describe.

### **5. Complexity in expanding Rotterdam Harbour: outcomes, arenas and actors**

In this paragraph we will look at the dynamics and complexity of the decision making process about the expansion of the Rotterdam Harbour. We focus on the two important rounds of the decision-making process that have been analysed more in detail in the previous sections: The VERM and PMR-Round. We first compare the achieved outcomes in each of these two rounds and then try to find explanations for the differences

#### *Outcomes of the VERM and PMR round*

If we compare the achieved outcomes of the two most important decision-making rounds in the game around the expansion of the Rotterdam Harbour we see some striking differences. In general the evaluation of the outcomes of the PMR round is more positive compared to the evaluation of the VERM round. The number of actors that is satisfied with the decision is higher in PMR than in VERM. Although the VERM process in the core (the interactive process) is very open, this openness of the process is not present in the last stage of the VERM where the decision is being prepared for Parliament. The PMR process is mainly open for well-organised interest groups but less so for individual citizens.

One can say that in the PMR round a real intertwining of goals is achieved (Koppenjan/Klijn, 2004): the achieved solutions are inclusive in the sense that they satisfy various values at stake and are reasonable enriched and actors are satisfied while in the VERM process no real enrichment is achieved and only a part of the actors is satisfied. An overview of the evaluation of the outcomes can be found in table 5 (the dimensions are conducted from the theory in second paragraph).

*Table 5: outcomes in the VERM en PMR round*

<b>Dimension</b>	<b>VERM</b>	<b>PMR</b>
<b>Satisfaction of actors</b>	(+/-, -) Satisfaction rather low with environmental groups, and individual citizens, reasonable with economic interest groups, mixed feelings in parliament, reasonable satisfaction with departments	(+) In general relatively high satisfaction with all actors that have been present in the process (environmental and economic interest groups, public actors) Very satisfied parliament
<b>Enrichment</b>	(+/-,-) Limited enrichment. Much information was only available at the end of the process. The proposal at the end did not differ much from the beginning of the process and the argumentation did not always refer to the findings of the process (or sometimes even conflicts with it)	(+, +/-) Some interesting ideas to combine economic development with environmental values (compensation). Not necessarily new ideas but making the combinations was essential.
<b>Process (openness, participation)</b>	(+/_ )The VERM process itself was very open and with participation of a wide variety of actors, the decision-making after the organised VERM process within the department was however rather closed	(+/-, +) Limited open process (mainly accessible to organised interest groups but not for individual citizens or less well organized interest groups)
<b>Conclusion</b>	(+/-, -): many involvement of actors but a lot of dissatisfaction and limited enrichment	+ Reasonable involvement, many satisfaction with actors a good enrichment

An interesting question is how we can explain the differences in outcomes of the two rounds. We search for the answers by paying attention to actor dynamics and positions, the activating and deactivating of arenas and the management efforts as we explained in section 2.

#### *Actor dynamics and positions in the VERM and PMR rounds*

If we look at the actor analysis of the two rounds we find only a limited number of differences in the actors and involvement in the two decision rounds. Most of the actors involved in one round are also involved in the other round. The main difference is the strong involvement of individual citizens and not well-organised interests groups in the VERM (due to the interactive character of the process) that are largely absent in the PMR-Round. In the PMR-Round more intermediary actors were involved.

There is however difference in the way non-public actors (mainly societal interest groups) were tied to the decision-making process. In The PMR-Round the influence of the non-governmental actors was more secured than in the VERM-Round. Or to phrase it differently: the level of participation was more intense (See Edelenbos/Klijn, forthcoming). This enables a process that was more intense and achieved positions of actors that were more equal than in the VERM process. This certainly created a stronger interdependency between the actors and a need to combine ideas and develop solutions that satisfied various actors (Weggeman, 2003). This cannot be seen apart from the presence of some intermediary actors. It seems that the PMR-Round was better designed for interaction.

*The flow of decision-making: activating and deactivating arenas*

After the round in which the project was initiated, the decision-making process expanded strongly in the VERM-Round, where many actors entered the game and more different arenas were created and/or activated. One could say that in the second round the game expanded enormously compared to the first initial round. As can be observed from the analytical description of the VERM- and PMR-Round every round has its activated arenas. And each arena has its own temporarily constructed organisational arrangements. So just as the VERM-Round has its special organisational arrangements (organised by the project bureau VERM) the PMR-Round (as The Top Council) has its arrangements.

The arenas interacting in both Rounds are like the actors relatively similar. The only difference that the discussion of the VERM took place in two separate arenas, where in the PMR, the ONR and BOM arena came together in the Top Council. It is striking that the discussion arena in the VERM had relatively little influence on the crucial decision whereas the ONR, BOM and Vision and Heart arena in the PMR influenced the political arena in direct (advising minister) (BOM/ONR) and indirect ways (advising minister via ONR). So we can say the active discussion arena of the VERM-Round split up in two of even three arenas in the PMR. The project organisation (condition arena in VERM) changed into an intermediary mitigating actor binding the three other arenas. The political arena only changed internally and was as active in both Rounds, but more influenced in the PMR-Round. The expert and initiating arenas of the VERM were incorporated more or less in the other arenas in the PMR. These switches of arenas indicate the dynamic character of the policy game. In the first round only the departments and the port authority were active as initiators. During the VERM and PMR Round arenas got active and deactivated again, the dynamics were high but the linkages between the arenas grew especially in the PMR-Round. After the PMR-Round, the policy game lost its dynamics largely. The formal juridical zoning procedure started and the ONR was only loosely coupled.

*Managing the connections: a multitask job*

As we compare the two rounds we can observe in the first place that the connections between the different arenas and decisions were connected better to each other in the PMR phase. The political actors (both Ministers and members of Parliament) were well connected to the other decisions in the PMR compared to the VERM case which showed a rather sharp demarcation between the open interactive phase of the round and the departmental and political decision-making afterwards (Klijn 2003).

The job of managing the interactions in the decision-making process is not the job of one actor. In the VERM round we can at least find two network managers which take care of managing (part of) the interactions: the project group VERM and the ministry of Transport. The last actor only manages the procedure of preparing the proposal for the parliament. For the PMR the project organisation PMR is one of the managers. This is the only actor, which participated in BOM and ONR and coupled some results. The same goes for in 't Veld and especially Alders. He managed the process to combine the public wish to incorporate the non-public actors in the plan process. In short we can conclude the network management activities in the PMR round were more intensive and more aimed at connecting actors and arenas than in the VERM round and that we have to find at least partly the explanation for the greater success of the PMR round in this network management activity.

**Table 6: Network managers and network management activities in VERM and PMR round**

<b>Round</b>	<b>Managers</b>	<b>Activities</b>
VERM	Project bureau VERM (VERM arenas) Ministry of Transport (for the initial decision arena)	VERM project group: coordinating interactions, organising research/information process
PMR	PMR project bureau individuals ONR	PMR project organisation, joining discussion in BOM and ONR. Managing process between non public and public actors

*Postscript: After the PMR-Round, unforeseen impasse:* The offering of the first part of the zoning-procedure to the parliament in July 2001 marked the start of a political process. In this round the cabinet proposals were discussed in the parliament and open for public consultation. The discussion on and the preparation of the second, third and fourth part took a time (until half 2003). In the meanwhile the Top Council was regularly informed and asked for advices, but no real interactions were taking place.

From the 30<sup>th</sup> of September 2003 until the 30<sup>th</sup> of November organizations and individuals were able to object to the concrete decisions laid down in the fourth part of the zoning documents. Twenty-six

objections were made by different individuals (farmers, fishers) and organizations (people of Oostvoorne, Consept). All these objections were dealt, some were rejected, some approved. After that the Council of State made a final decision that they were in doubt of the research done to some environmental aspects (like the transport of plankton, gulf streams along the Dutch coast). These doubts made them reject the fourth part of the zoning document.

This does not mean the whole process of interaction has to be redone. Only the last part of the zoning procedure starts again. The zoning procedure documents have to be changed, according to the guidelines of the Council of State and afterwards new objections can be made and the Council of State decides again, if the project can be approved or not.

If we analyse the grounds on which the Council of State based its rejection we come to some interesting explanations. First that many of the objections came from actors who were largely neglected in the process: farmers and fishermen. Second that the objections of the farmers and fishers were related to the compensation measures taken in the project. Because of the interaction between the actors and arenas in the second and third round the compensation of 750 ha of natural areas was incorporated in the project plan on the Second Maasvlakte. This new and second project raised some doubts with some fishermen and especially the farmers and eventually resulted in the objections. So in fact the decision on the Maasvlakte II was widened to achieve a win-win situation in the conflict economy-environment but at the same time give the start to a new game in which environment has to be weighted against fishery and farmer interests. This new game also activates new and other networks, which had not been present before. So increasing complexity solves complexity and that results in new complexity: an interesting paradox

## **6. Conclusions**

In this paper we have explored two round of a complex decision-making in spatial projects and their outcomes. At first we have tried to identify the complexity in the policy process. We did this by using concepts from network theory (actors, arenas and interactions). After that we tried to identify factors that contribute to potential successful outcomes of the complex decision-making game. From these exercise we can draw some interesting conclusions.



1. *Complexity in policy games is (partly) caused by the expansion of a policy game.*

As we have seen in the policy game around the Second Maasvlakte, the game is composed of different actors and arenas. The decision-making expands from the first round to the second round and shrinks again in the fourth round. This analysis by means of games and arenas allows us to picture the complexity of decision-making, and gives us an image of who and what is connected in decision-making.

2. *This expansion of the policy game is necessary to manage the complexity*

The size of projects like the Second Maasvlakte and the impact of the project on many actors, makes them complex when looked at the number of actors. Interestingly enough this complexity also allows for solutions, which cannot be achieved without the complexity. Because the problems and the value conflicts that are tied to them themselves are complex only the involvement of many actors and resources makes a satisfactory solution possible. As we see from the PMR round this is far from an easy job. The conflicts between actors and their values is a constant tension in the process which has to be managed very carefully and takes a lot of time and energy

3. *The interaction process cannot guarantee successful outcomes*

The interactive character of the policy game, made the policy process of a relative smooth character. As Weggeman indicates the Maasvlakte II is a good example of a typical Dutch interactive decision-making model (Weggeman 2003). As a Dutch politician remarked;

*The interactive decision-making around the Second Maasvlakte clearly illustrates that interactions can result in quality, commitment and speed.(Feenstra from Weggeman, 2003).*

In this respect the rejection of the zoning procedure of the Council of State seemed to be a complete surprise. But we saw that this rejection is connected to actors who are not intensively connected to the decision-making. In that sense afterwards the management did show some flaws.

4. *How to come to successful outcomes*

Of course it remains a hard job to satisfy every actor. So good management does not guarantee a good outcome but no management efforts likely will result in bad outcomes or stalemates. And good management can achieve better solutions which have more support and that certainly enhances the chances that the solution will be adopted. But the complex character of decision-making cannot be 'tamed' complete

Important for the managerial effort is as we saw in the case at first *strategic management* in the policy game. The ONR, BOM, VERM and Top Council were examples of arrangement with interactive powers that were intensively managed. Besides this an *interesting content* of the project seems to be crucial for the interaction process. The possibility to change the contents during the process (enrichment) and by that way to interest and satisfy various actors is important..

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[www.portofrotterdam.com](http://www.portofrotterdam.com)  
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