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Public Management Review

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713926128>

BUILDING PUBLIC-PRIVATE PARTNERSHIPS:

Assessing and managing risks in port development

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Online Publication Date: 01 December 2001

To cite this Article: Van Ham, Hans and Koppenjan, Joop , (2001) 'BUILDING PUBLIC-PRIVATE PARTNERSHIPS: Assessing and managing risks in port development', Public Management Review, 3:4, 593 - 616

To link to this article: DOI: 10.1080/14616670110070622

URL: <http://dx.doi.org/10.1080/14616670110070622>

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Abstract

In recent years increasing dependencies between public and private organizations lead to a growing need for public-private partnerships. However, cultural and institutional differences between the public and private domain and, in addition, the difficulties of bringing the two together, constitute a serious threat to successful public-private partnership. The formation of these partnerships is further hindered by confusion of the concept of public-private partnership. The predominant model of contracting out restricts rather than enhances public-private interaction.

This article deals with the difficulties and risks involved in building public-private partnerships and tries to answer the question of how to overcome them. The issue is illustrated by an analysis of the attempts made to realize a huge port expansion in the port of Rotterdam by means of establishing public-private partnership.

Key words

Public-private partnerships, process agreements, risk management, public-private arrangements, port development, port of Rotterdam

BUILDING PUBLIC-PRIVATE PARTNERSHIPS

Assessing and managing risks in port development

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Vol. 4 Issue 1 2002 593-616

Public Management Review ISSN 1471-9037 print/ISSN 1471-9045 online

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DOI: 10.1080/14616670110070622

INTRODUCTION

In recent years, the functioning of public and private organizations has been subjected to ever increasing demands from society. Individual organizations often possess insufficient expertise to deliver the high-quality products and services demanded of them. The necessary resources (expertise, money, information, personnel, management) are divided among different organizations. Exchange of resources is then necessary in order to meet targets, make investments and/or solve social problems. Dependencies thus lead to an increasing need for interaction and co-operation, particularly where transaction costs are limited and co-operation enables organizations to maintain their autonomy and limit bureaucracy costs. As a result of this, the significance of hierarchy within society is decreasing and that of horizontal relations increasing; society is taking on more and more the characteristics of a network society (Castells 1993). In the private sector, companies are increasingly seeking refuge in strategic alliances and the formation of industrial networks (Graeber 1993). In the public sector, forms of co-operation and co-ordination between and among ministries, levels of administration and semi-public organizations (next step agencies) are increasing. There is also a growing trend towards involving citizens and social groups in the formation of public policy (Kickert *et al.* 1997).

However, interdependencies do not stop at the border between the public and private domain: interdependencies are increasingly recognized between private and public parties. But at the same time it is uncertain whether parties are able to give shape successfully to a public-private co-operation in the short term. Cultural and institutional differences between the public and private domain and the risks attached to bringing the two together constitute a serious threat to successful public-private partnership (Jacobs 1992). New role divisions, working practices and arrangements are needed to bridge the gap. The development of successful public-private partnerships will form one of the most important challenges facing organizations in the public and private domain in the first decade of the new millennium. This article deals with the need and options for creating public-private partnerships but also with the difficulties and risks involved. This problem will be illustrated by examining the public-private partnership relating to the expansion of the port of Rotterdam.

PARTNERSHIPS IN THE POLDER

In the 1980s, the first wave of attention to private involvement in infrastructure and urban development in the Netherlands started. The second Lubbers administration explicitly mentioned public-private partnership in its government statement of 1986. As a follow-up to this, the Ministry of Housing, Spatial Planning and Environment supported more than twenty partnerships in the field of urban renewal. Two major

investment projects by the Ministry of Transport and Public Works, however, became the most renowned examples of public–private partnership in the Netherlands during the 1980s: the construction of two road tunnels, to be precise, the ‘Wijkertunnel’ and ‘Noordtunnel’. The private financing of these projects was intended to improve the national infrastructure without increasing the national budget deficit. The private partnerships that were set up to build and exploit the tunnels officially took on the risks involved in the operational costs. In the contract between the parties involved and the Dutch government many of these risks were transferred to the Government. Basically, for every car that uses the tunnel, the Government had to pay a shadow toll to the private parties. When the Dutch national court of audit scrutinized the projects, they claimed that private financing of the Noordtunnel had proved to be 21 per cent more expensive than public financing. In the case of the Wijkertunnel this was even higher: 41 per cent (Giebels 1993: 161–70).

Teisman (1999a) concludes that this was due to the fact that the Government was not really seeking a partnership. Because private banks were not able to influence the characteristics of the project nor the cash flows that were generated, they focused on security and risk avoidance. And judging from the outcome of the contract negotiations, they did a far better job than the Dutch government. But they were also helped by the prevailing economic situation. At that time the private banks did not feel the need to enter the public market. As a result the Government had to make a great many concessions in the negotiations in order to have the tunnels built.

The criticism of the Dutch national court of audit represented a major setback in the development of public–private partnership in the Netherlands (Hörchner 1999). It was not until 1997 that public–private partnership in infrastructural projects regained its political agenda status. In this second wave, financial reasons again played an important role. The second Kok administration was faced with huge investments in transport infrastructure. But this time the approach was more reflective, more cautious and interactive. In the words of Hörchner (1999: 27–8), more typically Dutch. At this time the economic situation was different from that of the 1980s. Institutional investors had built up enormous financial reserves and were looking for projects to invest in (Teisman 1999a).

In late 1997 the Ministry of Finance, which is the main co-ordinating governmental force, launched a pilot project in public–private partnership. It was an extensive research programme into the various features of PPSs (Ministry of Finance 1998; Hörchner 1999). As a result of this project several activities were undertaken:

- Research was started into the planning and decision-making procedures and financial arrangements used in public–private partnerships.
- An expert centre on public–private partnership was established at the Ministry of Finance. This centre would function as a think tank and should develop expertise, for instance in the field of financial engineering.

- Several pilot projects were identified for which public–private alliances were created in order to get them off the ground. These projects contain motorways, subway systems, port projects and railway stations along the High Speed Line.

In addition to these projects, the Government expressed the ambition to get private parties to invest in the construction and exploitation of the High Speed Lines and the Betuwe Route (a freight railway line which will connect the port of Rotterdam with the German Hinterland).

The question arises whether this new approach to public–private partnership is typical for the Dutch consociational style of policy making. Is this a specimen of Dutch polder politics, in which policy formations take place in extensive deliberations between government and societal actors (Lijphart 1968; Hemerijck 1993)? We are not convinced. In our view, the trend towards horizontal links and networks is not specific to the Dutch system. Nor are the economic developments that create a favourable climate for private interference in what were formerly public markets. This institutional and economic background background to mutual public–private advances makes it clear why the first wave of interest in public private–partnership was followed by a second. The question is now whether the momentum of the second wave will be utilized or whether it, too, will end in disappointment. If this happens, it could take considerably longer before a new wave creates fresh opportunities to exploit the potential of public–private partnership (see Kingdon 1995 [1984]).

THE NATURE OF CO-OPERATION

Introduction

Limiting the Government's financial deficit by involving private investors is often the motivation for favouring public–private partnerships. This often does not live up to the expectations, however, since the nature of the products and services which are realized by means of this form of partnership are not suitable. The projects often have to be implemented in a densely built-up and populated environment which means a number of parties are affected and there is a considerable likelihood of social ('not in my back yard' type of) opposition. As a result, a whole range of requirements is imposed on the project. The realizing of such a high-quality project only becomes possible by means of a total design based on an integral view of spatial planning, economic development, mobility, environment, safety and habitability (AVV 1998).

For example, after an impasse of several years between the parties involved, the construction of a traffic link around the city of The Hague only became possible once the decision had been made in public–private partnership to construct that section of the route which ran through the neighbouring municipality of Voorburg underground. This solved the problems of noise nuisance and habitability and moreover allowed the

Table 1: Arguments for public–private co-operation

<i>Public parties</i>	<i>Private parties</i>
Private investments	New investment opportunities in new markets
Increased efficiency	Reduction of long-term uncertainties
Input of private market experience	Public contributions to uneconomic investments
Creation of surplus value and innovative solutions	

development of real estate close to the motorway which helped to co-finance the tunnel. This project is known as ‘Sijtwende’. Despite the private financial contribution, this version costs considerably more than the original public design that was based on a road at ground level. Nevertheless, it may be considered a successful project. The reason for public–private partnership lies not so much in limiting public expenditure but rather in achieving a project that is qualitatively better than projects which private or public parties develop alone.

For public parties, the involvement of private parties is desirable because on the one hand they operate more efficiently than public organizations but also because they possess the market experience and innovative creativity which public parties often lack. The real estate development in the Sijtwende project could not have been created by a public development company.

The reasons for private parties to take part in such enterprises are that they open up new markets and offer investment opportunities. Co-operation with public authorities is indispensable for this, given the long-term uncertainties and political risks involved in the exploitation of such facilities. Private parties on their own would be unable to get this type of project off the ground. The potential public contribution towards the uneconomic parts of major projects, the road infrastructure in the Sijtwende case, provides a motive for partnership from the private angle. In short: for public parties the reason to initiate such partnerships is the opportunity to create projects with a surplus value in relation to public projects. For private parties, public–private partnership offers new investment opportunities and opens new markets.

The nature of partnership

Whether the opportunities offered by public–private partnership will be utilized is another question. In the Netherlands the Sijtwende project is still a lone success story which is quoted at every occasion. But at the same time, private parties show little interest in investing in such major projects as the High Speed Line and the Betuwe Route. Similarly, little interest was shown by private parties when the private construction and exploitation of the Western Scheldt Tunnel in the province of Zeeland was offered for tender. Perhaps the Dutch business community is not yet ready for

partnership. But might it not also be the case that the conditions under which the Government invites private parties to participate in public projects tend to deter interest?

If public authorities unilaterally define projects, this limits the scope for the creation of partnerships. It is then more a case of contracting out: the Government acts as commissioning party, lays down the characteristics of the project and contracts out the construction and exploitation to a private contractor on the basis of a clear-cut and straightforward programme of requirements. This creates a principal-agent relationship: the principal wants the agent to realize fixed objectives as efficiently as possible. This is the relationship that has resulted from the private financing of the Wijkertunnel and the tunnel under the river Noord. But such an approach is hardly suitable for mobilizing the market experience and the creativity of the private parties. It might also be that public parties are not yet ready for partnership.

Partnership is essentially different from contracting out. It is a mode of operation that is suited to projects that are so complex and in which so many interests are involved that it is not possible for the Government to fix the objectives and limiting conditions unilaterally. In order to develop a project of the desired quality private parties should be involved to activate their expertise, resources and innovative capability. The objective is to realize joint products (Klijn and Teisman 1999; Teisman 1999b). A distinctive feature of a joint product is that through the combination of functionalities and the choice of the scope of the project, a product is realized which could not have been achieved by the parties acting individually. The Sijtwende project is an example of a joint product.

Public-private partnership assumes a different role for government. It has been argued that it transforms the role from that of public financier and public entrepreneur to that of buyer and director (AVV 1998). In our view, public-private partnership assumes that government takes on yet another role: that of an equal partner. Therefore, we define public-private partnerships as co-operation of some durability between public and private actors in which they jointly develop products and services and share risks, costs and resources which are connected with these products or services.

Type of projects

Two factors, specifically the characteristics of a project and the willingness of parties to reach a joint project definition, determine the likelihood of achieving a public-private partnership. The degree to which opportunities for partnership are seized depends of course on the creative capacity of parties to imagine a joint project and on their strategic and communicative skills in realizing it. The nature and definition of the project is, for example, to a great extent a social construction and not an objective fact. If the Western Scheldt Road Tunnel had not been defined as a straightforward

traffic link but as a regional development project including the new industrial sites in the near vicinity, then the opportunities for private involvement would have been considerably greater. However, point infrastructure such as railway stations, sea- and airports lends itself more to comprehensive developments than does line infrastructure. In this respect, a High Speed Line between Amsterdam and the Belgian border might offer fewer opportunities for partnership than the development of railway stations along the route. For the latter, a broad definition of the project offers the opportunity to utilize the increased value of the real estate resulting from the arrival of the High Speed Line for the development of the railway station facilities. But with regard to co-financing, it may be stated that the choice of contracting out had a negative effect on the interest shown by private parties. If they had also been involved in the planning phase of the project, then the opportunities for joint project development would have been considerably increased. The lesson to be learned here is: partnerships are not confined to the construction and exploitation phases but are also highly relevant during the planning phase of a project. Public–private partnership is not only aimed at achieving innovative, joint products with non-standard solutions but also assumes an institutional renewal: renewal in the field of working methods, procedures, arrangements and institutions.

Risks and barriers

First of all, risks and barriers are related to the fact that public–private partnership involves considerable risks for both public and private parties. As long as these risks are manifest, actors will be reluctant to enter into partnerships however enticing the perspective they offer. In addition to this, partners' perceptions of risks vary. Parties often have little conception of the way in which the others assess partnerships. They are often not even aware that others have a different approach and that the risks for them are of a different nature. Moreover, there is a danger that parties will try to transfer the risks onto each other. Thus, a first step on the way to a partnership is to get a clear picture of each other's approach and the different risks which are involved for public and private parties. These risks are specified below.

Public risks

Evidently, the risk for public parties is that they will be eclipsed by the superior expertise of the private parties. If joint development is chosen rather than using previously fixed specifications for design, how can they prevent themselves being saddled with a project they do not want? How can supplier domination be prevented? How can the public interest be protected for the short-term profit-driven strategies of the private parties? And how can these parties be prevented from transferring their financial risks to the public authorities and public money being used to generate private profits? (Bell 1998).

Furthermore: how can they cover themselves against the risks of private discontinuity? While private companies often complain about the capricious and indecisive nature of politics, risk for public authorities emerge when a private party, due to a change in company strategy, withdraws, or, as a result of bankruptcy or a take-over, no longer exists. And then there are the political risks: public organizations entering into agreements with private parties with the backing of their political superiors, to which the latter, whether or not as the result of an electoral shift, they do not consider themselves bound. But there is also the criticism to which co-operation can be exposed due to non-transparent relationships and erosion of the public interest and political primacy.

Private risks

For the commercial sector there are the risks of an insufficient cash flow and the oppressive costs of long-term investments. In addition, it must be recognized that if a company cannot fulfil its contractual commitments, even if this is a consequence of a change in government policy in another area, the Government has shown that it can be as hard as nails: many an erstwhile partner or supplier to the Government has gone bankrupt as a result.

A second risk concerns the uncertain transaction costs which a public-private partnership involves. Moreover, government is a capricious partner: with an appeal to political primacy it simply reneges on earlier agreements and switches the roles of partner, principal and regulator at will. In addition, government is compartmentalized: as one ministry enters into contracts with private parties, another announces measures which handicap the fulfilling of contractual commitments. This uncertainty regarding policy is reinforced by political discontinuity: the electoral cycle. Parties may come to power which do not agree with the agreements made within the framework of the partnership or which do not want anything to do with the idea of public-private partnership.

Then there is the administrative uncertainty: the question of whether government is able to complete the necessary administrative procedures in time to realize the project. These procedures often involve other, autonomous authorities whose agenda cannot be controlled by the public partner. Particularly if investments have been made and the interest is adding up, delays in the issuing of a licence, for example, can become an expensive or even life-threatening matter.

Finally, there is social uncertainty. Due to their public dimension, public-private projects often have a greater visibility than private projects and become more easily the target of social protest. The public-law procedures involved in this type of project often give social actors public consultation and advisory rights. In addition, citizens and interest groups can use their right to petition and appeal under administrative law to institute civil proceedings. This can lead to the private party being unable to keep to

its agreements or fulfil its contractual obligations on time. It is also conceivable that social pressure groups force the public partner to go back on its agreements.

Barriers

In short, there are considerable risks on both sides which hamper the development of successful public–private partnerships. Such partnerships can only be realized if parties recognize the mutual risks entailed and are prepared to explore them in consultation together, devise measures to reduce them and where this does not work to assign them to the party which is in the best position to manage them. Hence, risk management is an important aspect of public–private partnership.

Furthermore, risk management is greatly impeded by the divergent cultural orientations of and institutional differences between public and private parties (Jacobs 1992). These mean that there is a lack of knowledge and understanding about each other's interests and risk perceptions but also that the willingness to enter into partnership relations is limited anyway. For example, public and private parties have a different time horizon. Whereas private parties concentrate on short-term perspectives and the creation of cash flows, public parties focus on long-term investments and for them the issues of exploitation and cash flow are not involved. The financial system which public parties use is different from that of private parties: for example, central government in the Netherlands does not take the depreciation of its investments into account.

Also, the orientations within the private parties differ greatly.

- Project developers aim at optimizing the quality level in order to be able to make a profit.
- Construction companies wish to become involved in a project at the earliest opportunity with a view to continuity in the building production.
- The institutional investors are those who provide the funding for the project. They aim at a quality product or project because of the long-term return on their investment. They are often involved in a project at a later stage.
- Banks are interested in project financing. They seldom take risks. When they do, this is reflected in the interest rate.
- The user/operator wishes for a product tailored to his activities and involving the lowest possible investment and exploitation costs (Akro Consult 1997).

The different orientations make it all the more difficult to manage adequately and spread the risks described above. In addition to this, the question is not only what such a division of risks might look like but also how it can be created. The following section deals with these two matters.

Table 2: Risks and barriers involved in public–private partnership

	<i>Public parties</i>	<i>Private parties</i>
Risks	<ul style="list-style-type: none"> ● Substantive risks ● Financial risks ● Risk of private discontinuity ● Democratic risks ● Political risks 	<ul style="list-style-type: none"> ● Construction and exploitation risks ● Risk of high transaction costs ● Policy risks ● Risk of political discontinuity ● Administrative risks ● Social risks
Cultural and institutional differences	<ul style="list-style-type: none"> ● Long-term orientation ● Not geared to exploitation and cash flow ● Political primacy handicaps partnership 	<ul style="list-style-type: none"> ● Short-term orientation ● Fixation on returns and cash flow ● Lack of understanding of political and public processes

THE FORMATION OF PUBLIC–PRIVATE PARTNERSHIP

In order to create public–private partnerships, any uncertainty relating to content and strategy needs to be covered by means of an effective arrangement. It is not until actors have confidence in the joint project and their risks are adequately covered that they will wish to commit themselves and make investments. The arrangement that is chosen for this plays a crucial role. So the question is: how can a public–private partnership be shaped? The next section examines this issue.

The pre-public–private partnership phase: the creation of arrangements

If the consequences of co-operation are consistently enforced, this means not only that the content of the project cannot be defined unilaterally and in advance, but that the same applies for the form of the arrangement. There is no uniform blueprint for a successful public-private partnership. Central to this is that an arrangement should be chosen which is adequate. But also one in which the parties involved have confidence. The best recipe for this is that actors reach agreement in their negotiations with each other on which arrangement is best suited to their project and its concomitant risks.

This raises new questions such as ‘how do actors arrive at such an arrangement?’ and ‘how are public–private partnerships created?’. The formation of public–private partnerships is preceded by a consultation phase. During this phase, actors move forward step by step in a joint exploratory process from an uncertain situation in which matters are mainly voluntary and without obligation towards a gradual commitment to the joint enterprise. They explore the possibilities of the project, the group of those potentially involved, the risks involved and the options for managing these. The public–private partnership is preceded by the informal phase of a pre-public–private partnership.

Even during this informal phase the interests of those involved are considerable and conflicts of interest and competitive relations exist. It is unlikely that this process will spontaneously and successfully develop into a public–private partnership arrangement. This process must be supported by process agreements and process management. Process agreements are intended to reduce the risks of participation in the pre-public–private partnership. At the start of the process these agreements are minimal and are laid down in very flexible arrangements (e.g. letters of intent). During the process the agreements will become more comprehensive and less voluntary and will be laid down in more binding agreements (e.g. partnership contracts).

A party, assigned by the organizations involved, conducts process management and supports the interaction in which parties reach and lay down their agreements. Conflict management and arbitration is part of the job, too. The next paragraph examines how the partnership formation process should develop and which agreements must result from the pre-public–private partnership phase.

The pre-public–private partnership phase: process agreements and risk management

In the pre-public–private partnership phase the initiative, the participation, the scope of the project, risk analysis, risk management and role division are all of great importance.

The initiative

The process starts when an actor discovers that the realization of their project depends on a public–private partnership. They will make various efforts to involve others in their initiative by, for instance, setting down an attractive project proposal. This proposal is just an opening bid.

The participation

The next question that arises, is who will be accepted as partners and who will not. There is often no real choice in the matter. For example, a municipality that wants to develop a housing estate cannot ignore the project developers who own the land. Conversely, public parties often have powers, which make them indispensable. There will be a tendency to keep the circle of those involved fairly small. Parties are not keen to allow their competitors to participate. On the other hand, striving for quality and preventing monopoly positions argue in favour of a wider circle of actors. One of the first agreements that must be made concerns rules about entry into the process: on what conditions are newcomers welcome or can parties be excluded? If the process is already underway and parties have already incurred research costs, it is obvious that

newcomers should pay part of those costs. Similarly, those who leave should compensate parties that stay. So, there is a need for exit rules. It should be realized also, that participating parties do not automatically gain a place in the public–private partnership. Agreements can also be made about the conditions for entry into further projects. For example, participation in the public–private partnership will be determined via a tender procedure and parties that are eliminated in this process receive compensation for their development costs.

The scope of the project

An attempt can be made to reduce the complexity of the project by limiting its scope although at the same time this restricts the range of solutions. The very reason for public–private partnership is often because the standard solutions for public or private projects cannot be achieved. The plan to construct a section of the ring road running through the municipality of Voorburg at ground level resulted in a deadlock which lasted for several years. An innovative solution and, as a consequence, a more comprehensive and complex alternative was needed to break the deadlock. Expanding the scope of a project, which might mean spatial extension but could also include a combination of various functions (living, shopping, public transport, parking) within a strictly defined area, increases the possibilities for finding interesting project content for all parties. As mentioned above, the project content is not previously set by one of the parties but must be gradually devised in the course of a joint process.

Joint risk analysis

Usually, conducting a joint risk analysis is not part of the standard procedure. By doing so, parties might reveal their strategic interests in the project to their competitors, for example the wish to be allowed to develop a particular component of the project. They will only be prepared to do this if they are confident that any disclosures they have made will not be exploited. In other words, this cannot be one of the early stages in the pre-public–private partnership process. Specific analysis techniques can help. A cash-flow analysis can be seen as an instrument to trace potential cash flows but at the same time allows parties to familiarize themselves with their mutual interests and risk perceptions (Diderich 1998).

Risk management

Risk management consists of reducing risks by modifying the design and, if this is not possible, by allocating the risks to the parties best capable of handling them. This is done by reaching agreements on the project content, on game rules about how risks will be dealt with and on the appropriate role division. Perceived risks can lead to

modification of the project content. But it is also conceivable that the project will be divided into subprojects, which will then be delivered by particular actors. With regard to financial and economic risks it is conceivable that a public–private partnership will be split into public, private and public–private projects. The problem of the unprofitable part of investments in infrastructure can be tackled in this way, for example. In any case, it is an illusion to think that public–private partnership always results in cost-effective investments. For this reason, unprofitable parts of a project can be moved to a separate sub-project that will be delivered by a public party. Where surplus value can be created, project components can be developed in public–private partnership. However, this sub-division into projects entails the risk that private parties will go cherry-picking: i.e. that they invest in the profitable parts of the project (e.g. the construction of the more expensive houses in a new residential area) but put no effort into the public objectives (e.g. the communal facilities in the same area). This can be solved by setting up a co-ordinating public–private partnership which sees to the synchronization of sub-projects and spreading the profits and costs among project components (ABN-AMRO 1998).

Division of roles between parties

The complexity of this type of project means that actors play different roles at the same time. In addition to being a partner, public organizations will not be able to avoid playing a directing role and setting limiting conditions. Furthermore, different levels of government might mean different roles depending on their specific involvement. The same goes for private partners. The aim is thus not so much to limit the involvement of partners to a single role but to create clarity regarding the nature of their involvement and the way in which they handle their multiple roles. The division of roles is roughly as shown in Table 3. This broad division of roles acquires specific interpretation in concrete projects. This is linked with the division of the benefits, costs and risks among the various partners. Role division is thus an important element of risk management.

Table 3: Roles played by public and private parties

<i>Public parties</i>	<i>Private parties</i>
<ul style="list-style-type: none"> ● Determine the social utility of the project ● See to the co-ordination with politicians ● Monitor quality and safeguard public interests ● See to market orientation ● Make financially unprofitable investments 	<ul style="list-style-type: none"> ● Take care of project management ● Involve private parties ● Take care of technical specifications ● Estimate costs and attend to financial engineering ● Provide information

Arrangements

Arrangements allow parties to make agreements on how to cover their risks in such a way that they feel confident about investing in the project. In partnership these may be arrangements where at least the development function occurs jointly but where the partnership can extend to the construction and exploitation phase. Variations on this are possible, however. Joint ventures are the most common. The ABN-AMRO proposal involves the setting up of a co-ordinating public-private partnership that directs the overall development of a project in which various parties are responsible for delivering specific sub-projects of a public, private and public-private nature.

An important issue in the choice of arrangements is the question of how unilateral dependencies of private parties can be avoided. This is even more important since the aim is to involve the intended operator in the phases of design, the financing and the construction. This makes it possible to realize cash flows. Moreover, this may lead to extra investments during the design phase which result in a more efficient exploitation. The downside of this is the danger that partnerships will turn into private monopolies. This is perhaps the crucial challenge involved in public-private partnership: how to retain competitive relations in partnership without lapsing into contracting out.

In any case, it is clear that the partnership must be of a temporary nature, dependent on the strategic interests of the public and private parties involved (Niederkofler 1991). Before the exploitation phase starts the Government may decide to withdraw and, for example, grant the private partners a temporary concession for exploitation. This may be the case for the High Speed Line between Amsterdam and the Belgian border.

THREATS TO PARTNERSHIPS

Despite the enthusiasm about public-private partnership that accompanied the second wave of interest in this form of co-operation, successes have been few. Public-private partnership threatens to fizzle out before it even gets off the ground: if the present momentum is not used, it might be quite some time before a third wave presents itself. At the moment, public-private partnership finds itself at a critical juncture. Various reasons can jeopardize the success of public-private partnerships.

The primacy of politics

First of all, public parties find it difficult to enter into partnerships. On the basis of their political primacy and as guardians of the public interest they see themselves more in the role of principal.

Perhaps even more important is the difficulty which public authorities have in entering into partnership relations on the basis of their interpretation of the public interest and political primacy. There has been considerable criticism of striving for public–private partnerships, for instance, from those who believe that this enables government to avoid making the public investments in infrastructure which are needed from an economic viewpoint. Public–private partnership is then seen as a symptom of the Dutch culture that projects are discussed over and over again but do not materialize. For example, Welters (1999) warned that, as a consequence of public–private partnership, a vital expansion of the port of Rotterdam will not take place.

In a report to the Government, recommendations were made for disassociating government and private parties because hybrid organizations disturbed market relations. In the political sphere e.g. Liberal and social democratic parties, there has also been an appeal for a strong division between the public and private domain and the restoration of political primacy that may conflict with the pursuit of partnerships.

For partnerships to succeed it is crucial that the parties involved manage to develop arrangements which clearly define their relationships with each other, which are sanctioned by public bodies and which enable public parties to fulfil their political responsibilities towards representative bodies.

Public procedures

A second important obstacle is formed by the existing public procedures, which allow hardly any room for partnerships. For example, the EU directives require major public projects to be put out to public tender in order to ensure that all parties can submit their tenders on an equal footing. Moreover, it is stated that the involvement of one of the parties in the development of a project will exclude them from participating in the tender. The question is to what extent this directive offers scope for arrangements aimed at partnership.

But national procedures such as Key Planning Decisions, the Act on Infrastructure and environmental impact assessments can hamper partnerships, too. For example, major projects with spatial impact are subjected to Key Planning Decision procedures, which are similar to legislative procedures. This means that the formation of the project takes a long time, that numerous social parties are allowed to participate in the decision-making process and that at certain points the public actor will take unilateral decisions. Ultimately, parliament has the last word. Since these projects cause quite a lot of social commotion, experience demonstrates that parliament interferes with the proposals in great detail during the final phase and forces the parties involved to make far-reaching changes. This conflicts with partnership in which government is supposed to take up a more reticent position. For example, during the final stages of the formation of the Betuwe line, parliamentary pressure forced the project to numerous

adaptations (noise barriers, tunnels) for reducing noise pollution and for habitat and wildlife protection, which drove up the costs astronomically. It will be clear that such a procedure is not conducive to the formation of a public–private partnership. Furthermore, once parliament has taken a decision it is then difficult to introduce modifications. Often, the whole procedure has to be gone through all over again.

Private obstacles

As for the private parties, their lack of understanding of political processes and the complexity of public administration may be mentioned in this context. They often see government as a hierarchical organization and suppose central government to have options for managing local government which bear no relation to administrative reality. In addition, private parties are not always equipped to operate adequately in the public tumult which can surround major projects.

Furthermore, partnership assumes that private parties are regionally or nationally based. The question is whether the trend is not moving more towards international companies and consortiums which are footloose, are not particularly concerned about national borders and are not particularly willing to enter into local or national partnerships.

The need for institutional innovations

In any case, for a successful development of partnerships it seems that institutional facilities are needed which transcend the level of projects (Klijn and Teisman 1999; Teisman 1999a). These involve not only the modification of (financial) instruments, procedures and regulation but also the development of rules, conducting research and compiling and exchanging experiences in concrete projects. The, already mentioned, founding of an expertise centre is a first step in this direction.

This section leads to the conclusion that there are many threats to the formation of successful partnerships. By examining the decision-making process on the expansion of the port of Rotterdam some of the options for coping with these threats can be illustrated.

CASE: PORT DEVELOPMENT ROTTERDAM

Short history of the port

Although old archives mention a port, it was not until the Industrial Revolution that Rotterdam really became an important transhipment point for good flows. Between

1865 and 1880 a number of, more or less, simultaneous developments took place which turned out to be pivotal to the future of the port of Rotterdam (Rotterdam Port Authority 1982; van den Noort 1990; van Ham 1991). Since the maritime access was rather problematic, it was decided to excavate a direct link to the sea: the New Waterway. The construction started in 1866 and from 1872, after some initial problems, ships were able to use it. In order to expand the port, a move was made to the other bank of the river where new harbours were excavated. In addition, the construction of two bridges over the river provided the necessary road and rail connections. Moreover, in 1871, the Rotterdam Port Association was established by a number of entrepreneurs. Under the auspices of this organization, a large number of new port installations were constructed and Rotterdam became the best-equipped port in Europe (GHR 1982).

The above-mentioned changes heralded a lengthy period of growth. In the period up to 1925, three new harbour basins were constructed including the Waalhaven. This area ultimately comprised 219 hectares of which a large part was water to accommodate 'midstream' transshipment. The port expansion activities after 1925 were largely dominated by the transshipment and processing of crude oil. Before the outbreak of World War II, the 1st and 2nd Petroleumhavens were completed and the first oil refinery in the port was built by Shell.

While the reconstruction of the war damage was still in full swing, the municipal council already presented plans for a new port expansion: the Botlek (including a third Petroleumhaven). In an attempt to broaden the port's base, the location of port-related oil and petrochemical industries was encouraged. Soon after the plan had been implemented, the port management once again had to turn away applicants because of shortage of space. In order to develop extra acreage, the 15 kilometre-long Europoort project was launched. The benchmark was a ship carrying 100,000 DWT. In 1960, exactly three years after the plans were approved, the first tanker disembarked at Europoort.

Mainly as a result of the steadily growing oil flows, the port of Rotterdam became the biggest port in the world in the early 1960s and in 1973, a twenty-four-year high transshipment of approximately 300 million tonnes was realized. However, the first oil crisis brought an abrupt end to the steady increase in oil traffic. This had a substantial impact on the layout of the brand new Maasvlakte, which comprised a net area of approx. 1300 ha. of port acreage. As a consequence, the western-most port area holds a wide variety of port activities.

When the stock of port-related sites started to run low in the late 1980s, the Rotterdam Port Authority issued a warning statement. The Port Plan 2010, a future vision from 1991, anticipated that (until 2010) 1,250 hectares of port acreage would be needed. This space could be found through more efficient and intensive use of existing sites, by filling in harbour basins and the construction of new port areas. In this respect, the expansion of the Maasvlakte and/or construction of a second Maasvlakte 2 was introduced (GHR 1991).

Another factor at this time was a region-specific physical and environmental policy in the framework of the Fourth Policy Document on Physical Planning (VROM 1988). The aim of the policy was 'to achieve an environmental quality which is tailored to the desired functions in the area'. Obviously, Greater Rotterdam i.e. Rijnmond is an area with considerable environmental pollution caused by the port and industrial sites. The spatial-economic developments needed to strengthen Mainport Rotterdam can easily lead to additional environmental pressure. Therefore, the Rijnmond area was particularly applicable for the new ROM policy. The aim for the development of this area until 2010 is twofold i.e. strengthening the Rotterdam port and industrial area and improving the quality of the residential climate and living environment.

One of the proposed projects, the so-called Maasvlakte 2 study (Projectorganisatie Maasvlakte 2 1995), should examine the land reclamation and the consequences of a substantial port expansion adjacent to the existing Maasvlakte. In order to take both objectives of the ROM policy into account, the Maasvlakte 2 project focuses on two separate functions: the expansion of the port and industrial areas and the expansion of the nature and recreational areas. In the framework of ROM Rijnmond it was agreed that any land reclamation for the port must also provide 750 ha. of nature and recreational areas.

In April 1996, after earlier regional attempts, the central government stated their (favourable) Preliminary Decision on the problem of space in Mainport Rotterdam; the VERM (Exploratory Phase of the Mainport Rotterdam Spatial Problem) project organization was set up. The objective was to conclude the Exploratory Phase in twelve months by formulating a project decision. The project decision would include a statement on the nature, size and urgency of the shortage of space in the port of Rotterdam. The VERM project group only put forward two variations (500 ha. of 'dry' or 1,000 ha. of 'wet' infrastructure) of the construction of Maasvlakte 2. Ultimately, the project decision was submitted to the council of ministers and was subsequently approved by the Cabinet.

The planning procedure

On the basis of the national scope of the project, a Key Planning Decision procedure was chosen which resulted, in this case, in a Key Planning Decision Plus (KPD+). In this procedure the Government intends to reach a decision on integral measures that will:

- strengthen the position of Mainport Rotterdam by finding a solution to the shortage of space for port and industrial activities that exists in the Rotterdam docks, in Rijnmond and/or in the south-western part of the Netherlands;
- improve the quality of the living environment in Rijnmond by utilizing the options which solutions to the shortage of space offer.

These measures will have to be so concrete that any subsequent procedures can be run

Table 4: Space shortage in 2020 in the three CPB (Central Planning Office) scenarios

	<i>Global competition</i>	<i>European co-ordination</i>	<i>Divided Europe</i>
GHR (Explorations 2020)	1260	750*	0
CPB (Working Document 92)	610	370	0

Note:

* The EC scenario is not examined in 'Explorations 2020'.

Source: PMR (1999).

through as quickly as possible with the parties involved (Project Mainport Development Rotterdam 1998).

In a KPD+, concrete policy decisions are laid down about a project's utility and need and its actual realization. Furthermore, the way in which the spatial format will be implemented is specified in general terms. The '+' indicates that the policy decision is binding for other administrative bodies and interested parties. KPD+ part 1 contains further details relating to which components will be given 'plus status'. In addition, an Environmental Impact Assessment (EIA) must be drawn up.

The Project Mainport Development Rotterdam (PMR) was set up to co-ordinate and facilitate the activities of the KPD+ /EIA procedures for the initiators and the competent authorities. On 16 June 1998 the notification memorandum was discussed and the intentions accepted.

A year later the progress report *PMR on Course* (PMR 1999) was published. The Cabinet's conclusions with regard to the space discussion were based on predictions with a range between 0 and 1,260 ha. The upper limit was imposed by the Rotterdam Port Management. In order to cope with this uncertainty, PMR argued that the demand for space should also be able to be accommodated in the case of the high growth scenario. Not only the size but also the timing is important. The report *Explorations 2020* (GHR 1998) indicates that in the Global Competition and European Co-ordination scenarios, the last available hectares (strategic reserve) will be leased in 2004 and 2007 respectively. In the Divided Europe scenario, there is no space shortage up to 2020.

Towards public–private partnership

Private involvement now enters the picture for the first time. A working group, consisting of seven private and twelve public parties, studied the possibilities of public–private partnership in relation to the shortage of space. The Private Involvement Study Project looked at which forms of co-operation are possible, which game rules apply and what contribution private parties could make. The process was described as a voyage of discovery.

The sharing of the (financial) risks in the construction and exploitation phase is the basis for public–private partnership. Three types of risks were identified: political, construction and exploitation risks. Various options of public–private partnership were considered depending on the alternative under consideration i.e. make more intensive and effective use of existing sites in Rijnmond, use the south-western part of the Netherlands for expansion and the construction of a second Maasvlakte. In the latter case, it was recognized that private parties would not be able to realize the project on their own.

Based on their intention to co-operate, private parties wanted to be involved in the plan formation phase. Several options, ranging from zero commitment to equal partnership, have been discussed. Because private parties want to influence the construction and exploitation risks, zero commitment is left out. The option of co-makership focuses on designing, constructing and exploiting the new Maasvlakte together and according to the wishes of the Government. More partnership is apparent in the option partnering where parties also look for solutions together. Finally, the Combination Model was drawn up to interweave the public–private partnership in the existing planning procedure (Private Involvement Study Project 1999).

The Combination Model incorporates both the objectives of the Government and the business community and comprises a number of phases. Initially a public programme of project specifications will be drawn up. This programme is discussed with social organizations, private parties and then with the Dutch Lower House. After the first political decision-making step, laying down the specifications for design, the status changes into a sort of pre-KPD+ part 1. On the basis of this document, the European tender takes place in two stages. First the consortium profile is examined and then the submitted plan. Both content and credibility are scrutinised. Once the consortium and proposal have been selected, the public authorities will establish a public–private partnership with the consortium that then draws up KPD+ part 1.

Given the involvement of many parties in the preparation it is anticipated that it will be possible to run more quickly through the steps of KPD+ part 2 through part 4. Due to the possibility of modifications to the plans during these phases, modification and exit rules must be laid down in order to prevent any claims being made against central government.

A foretaste of what such an approach can produce appeared in November 1998 when a consortium comprising a constructing firm (Ballast Nedam), a container handling company (ECT) and a financial institution (ING Bank) launched the Binnenmeer concept (Ballast Nedam, ING Bank, ECT 1998). This plan is based on the phased construction of the second Maasvlakte. Such an approach had never been presented before and offers evident advantages. However, it remains to be seen whether the content side of the plan will altogether meet the specifications for design which has yet to be drawn up.

Moreover, the plan's financial format displays a very traditional notion of the role of public and private parties; the Government is held responsible for the construction of

the sea walls while the construction of quays and port sites can be largely financed by private funds. As a consequence of this role division, the Government must bear the greater part of the project costs and private parties enjoy the economic benefits of the project. In the report *PMR on Course* (PMR 1999), the project organization PMR chooses a different distribution of public and private investments than has been suggested. The government contribution requested by the consortium will be based on, among other things, a social cost–benefit analysis.

Assessing and managing risks with the Combination Model

In order to assess the effectiveness of the Combination Model, the risks and barriers as described earlier will serve as a guideline.

- **Discontinuity:** By selecting consortia during the first phase of the tender procedure, the risk of private discontinuity due to bankruptcy and the like will be minimized. Because exit rules will be established, even for the provisional Public Private Partnership, both public and private parties cannot leave without obligations.
- **Supplier domination and transaction costs:** Especially in the first stages of the project the danger of supplier domination threatens, because the know-how rests with private parties. However, the proposed bid-book offers the possibility for public parties to control the design and construction phase. As a consequence transaction costs may rise considerably.
- **Financial, construction and exploitation risks:** Cultural and institutional differences between public and private parties become apparent in relation to these risks. The long-term view of public parties contrasts with the cash-flow orientation of private parties. It is recognized by parliament that private parties should earn a fair return on investment, in this case: 8 per cent. In addition, the public contribution can be calculated (CPB/NEI 2000).

Obviously, uncertainties will influence revenues. On the one hand losses cannot be borne solely by public parties, on the other hand public parties must be guaranteed to share in the (unexpected) profits and/or increase of value of the project. The distribution of financial risks depends on negotiations; the Combination Model does not give a decisive answer about this.

- **Political risks and social uncertainties:** The starting point in the Combination Model is a politically authorized programme of specifications for design and public–private partnership. In this way, a firm legitimate base for co-operation is provided. However, the nature of public–private projects implies high visibility and therefore attracts social pressure groups. Modifications, due to the political process, are dealt with by exit arrangements. Ultimately, if parties enter into the final contract, they are bound to it.

- Administrative and democratic uncertainties: By integrating public–private partnership in the KPD+ procedure, administrative and democratic uncertainties emerge. The history of the project bears abundant evidence in this respect. Since these uncertainties are beyond the scope of the Combination Model, adequate process management by PMR is needed.

Epilogue

The Combination Model shows how public–private partnership can play a role in the development of the port of Rotterdam. In the proposed approach, public and private parties managed to find an arrangement that gives shape to the involvement of private parties within the existing national procedures and meets the EU directives for private tenders. Apparently, this removes two important barriers to public–private partnership. First clarity is created regarding the relation between the public–private partners and parliament. Although the primacy for this lies with the public partner, it allows early involvement of private parties in the project development. Second, by clarifying the voluntary nature of the consultation in the preparatory discussions and putting out the whole project to public tender the arrangement answers the question of how unequal treatment of private parties can be prevented.

The importance of the Project Mainport Development Rotterdam is not so much that it provides a model arrangement for this type of project. It is unlikely that the Combination Model is the only feasible arrangement and that it will solve every problem involved in partnerships. Its importance lies rather in the fact that it has produced a breakthrough in thinking about the options for realizing public–private partnerships. Until recently, barriers to public–private partnerships such as national procedures and EU directives on calls for tenders were pointed out. The Combination Model demonstrates that solutions can be found to these barriers.

CONCLUSIONS

At the moment, public–private partnerships are gaining momentum in the Netherlands. The nature of these partnerships consists of co-operation of some durability between public and private actors in which they jointly develop products and services and share risks, costs and resources. The way in which partnership should be shaped is still an open question, as public–private partnerships not only need innovative project results but also procedural and institutional innovation. There is no blueprint at present for the procedural format of partnership and the question is whether this ought to be attempted. The situation is different for each project and also depends to a great extent on the creativity and the willingness of the parties. By definition this calls for a tailor-made approach. The major challenge facing partnership thus occurs in

the preparatory phase: whether parties will manage, from an initially ambiguous situation, to reach a project content and arrangement that creates surplus value and a satisfactory allocation of risks and responsibilities.

From a practical point of view the question remains whether public–private partnership and its accompanying arrangements will be applied. There is as yet an answer to this question with regard to the Project Mainport Development Rotterdam: the Combination model. It achieved a breakthrough in thinking about the options for realising public private partnerships, because solutions to barriers are suggested.

Now that in a number of cases there is a chance of actually realizing public–private partnerships, questions about the arrangements arise. Will the chosen arrangements be satisfactory and do they really lead to projects with surplus value? If the procedural and corresponding institutional innovations in partnerships only lead to the reproducing of old solutions in the division of responsibilities between public and private investments in infrastructure, the enthusiasm for partnerships will soon dwindle. In the case of the port expansion in Rotterdam this actually happens: public–private proposals are not innovative in every respect. The coming years will reveal whether public–private partnerships actually fulfil the promises they hold.

REFERENCES

- ABN-AMRO (1997) *Nieuwe Wegen, Andere Bronnen. Een Toekomstschets van de Investerings in Infrastructuur in Nederland*, December, the Netherlands: ABN-AMRO.
- Advisory Counsel on Transport, Public Works and Watermanagement (1998) *Ambities Bundelen. Advies over de Inpassing van Infrastructuur*, The Hague: SDUB.
- Akro Consult (1998) *PPS Terugblik en Toekomstperspectief*, April 1997, the Netherlands: Akro Consult.
- AVV (1997) *Private Betrokkenheid bij Infrastructuur*, April, Rotterdam: AVV.
- Ballast Nedam, ING Bank, ECT (1998) *Binnenmeerconcept*, The Hague: Ballast Nedam.
- Bell, R. (1998) *Worst Practise*, New York: EAI.
- Castells, M. (1996) *The Rise of the Network Society*, Malden: Blackwell Publishers.
- CPB/NEI (Centraal Planbureau/Nederlands Economisch Instituut) (2000) *Bedrijfeconomische Aspecten van Landaanwinning bij PMR* (notitie 00/21), Den Haag: CPB/NEI.
- Diderich, S. (1998) *PPS bij de Ontwikkeling van de Amsterdamse Zuidas*, Thesis Delft: Delft University of Technology.
- Geul, L. et al. (1998) *Procesarchitectuur. Voorbereidings – en Besluitvormingsprocessen PPS*, Werkdocument, Berenschot, Utrecht.
- GHR (1982) 'How Rotterdam Grew'. *Rotterdam Europort Delta1*, 82:4.
- (1991) *Havenplan 2010*, Rotterdam: GHR.
- (1998) *Explorations 2020*, Rotterdam: GHR.
- Giebels, R. (1993) 'Private Financiering van Infrastructuur'. *Openbare Uitgaven*, 4: pp161–70.
- Graeber, G. (1993) *The Embedded Firm: Understanding Networks: Actors, Resources and Processes in Interfirm Co-operation*, London: Routledge.
- Hemerijck, A. C. (1993) 'The historical contingencies of Dutch corporatism'. PhD thesis, Balliol College, Oxford.
- Hörchner, K. (1999) 'PPP in Polderland: Holland's Experience with PPP and its Contribution to PPP Theory'. Cambridge: Proceedings of the European Transport Conference.

- Jacobs, J. (1992) *Systems of Survival, a Dialogue on Moral Foundations of Commerce and Politics*, Random House.
- Kickert, W. J. A. M., Klijn, E. H. and Koppenjan, J. F. M. (1997) *Managing Complex Networks. Strategies for the Public Sector*, London: Sage.
- Kingdon, J. W. (1995 [1984]) *Agendas, Policy and Alternatives*, New York: Longman/Boston, MA: Little, Brown & Company.
- Klijn, E. H. and Teisman, G. R. (1999) *Managing Public-Private Partnerships. Influencing Processes and Institutional Contexts of Public-private Partnerships*, Enschede, NIG Paper no. 7.
- Lijphart, A. (1968) *The Politics of Accommodation: Pluralism and Democracy in the Netherlands*, Berkely, CA.
- Ministry of Finance (1998) *Meerwaarde door Samenwerking*, The Hague: Ministry of Finance.
- Niederkofler, M. (1991) 'The Evolution of Strategic Alliances: Opportunities for Managerial Influence'. *Journal of Business Venturing*, 6 pp237-57.
- Private Involvement Study Project (1999) *Samen aan Boord*, Final Report, Den Haag: Private Involvement Study Project.
- Project Mainport Development Rotterdam (PMR) (1998) *Startnotitie PKB+ /m.e.r.* Mainportontwikkeling Rotterdam, The Hague: PMR.
- (1999) *PMR op Koers*, The Hague: PMR.
- Projectorganisatie Maasvlakte 2 (1995) *Rapportage Voorstudie Maasvlakte II, fase IA*, the Netherlands: Projectorganisatie Maasvlakte 2.
- Teisman, G. R. (1999a) 'New Arrangements and Management Principles for Public-Private Partnership'. Paper presented at the Third International Research Symposium on Public Management, Birmingham, 25-6 March.
- (1999b) 'Procesmanagement: De Basis voor Partnership'. *Economisch Statistische Berichten*, 83:4170 pp21-6.
- Van den Noort, J. W. P. P. (1990) *Pion of Pioneer. Rotterdam - Gemeentelijke Bedrijvigheid in de Negentiende Eeuw*, Rotterdam.
- Van Ham, J. C. (1991) 'ROTTERDAM: Still Going Strong'. Ottawa: *Portus*, 6:3.
- VROM (1988) *Vierde Nota Ruimtelijke Ordening*, The Hague: SDUB.
- Welters, H. W. H. (1999) 'Mainports: Big Deal'. Inaugural lecture, Rotterdam: Erasmus Universiteit Rotterdam.