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DOI
10.4337/9781839102769.00014

Publication date
2024

Document Version
Final published version

Published in
Handbook on Public–Private Partnerships in International Infrastructure Development

Citation (APA)
Koppenjan, J., Verweij, S., & van Marrewijk, A. (2024). The Netherlands. In S. R. Clegg, Y. Ke, G. Devkar, V. Mangioni, & S. Sankaran (Eds.), *Handbook on Public–Private Partnerships in International Infrastructure Development: A Critical Perspective* (pp. 214-243). Edward Elgar Publishing. https://doi.org/10.4337/9781839102769.00014

8. The Netherlands

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AN OVERVIEW OF PPPs IN THE NETHERLANDS

Introduction

This contribution focuses on the emergence and performance of contractual forms of public–private partnerships (PPPs), notably design–build–finance–maintain–(operate) (DBFM(O)) contracts, in national road and water infrastructure in the Netherlands. The analysis focuses on the question as to what role public values played in the practices and projects that developed over time. In the cases analysed in this chapter, especially the competing public values of quality, responsibility, and responsiveness will play a leading role. Given the particularities of the Dutch context and the cases we will discuss, our definitions of these values will slightly differ from those proposed elsewhere in this book. This difference does matter, as will become clear in the course of this chapter. Following Weihe (2008), we distinguish between material or substantive values, on the one hand, and procedural values, on the other. Quality refers to substantive objectives that are pursued through the application of DBFM(O) in general and in the various projects in particular. In the Dutch case, this concerns the realization of public infrastructure in order to improve the Dutch economy or the contribution to mobility objectives in case of specific projects. The material values also relate to the classic iron triangle of project values, aimed at the realization of a project by balancing time, budget, scope, and quality. The realization of these material values strongly relates to the perception of projects as a success or failure. Responsibility and responsiveness are procedural public values. Responsibility concerns the extent to which both public and private partners comply with the contractual agreements and the output specification agreed upon at the start of the PPP project. Responsiveness implies the ability of the partners to influence and adjust contractual agreements and output specifications before and after contract closure, in order to deal with unexpected developments and new insights. These procedural values also influence the perception as to the extent to which the PPP practice and specific projects can be considered as successes or failures. As we will show, they are also an important part of the explanation of the success and failure of PPP projects, and indeed of the PPP practice as a whole.

An Overview of PPPs in the Netherlands

Within the Dutch infrastructure sector, PPPs most commonly come in the form of DBFM(O) contracts. This type of contract has been applied by central government in developing, realizing, and operating public buildings, roads, and water-related infrastructures. The introduction of this UK-style of PPPs in the Netherlands can be regarded as remarkable, because contractual PPPs originated in an Anglo-Saxon context where contractual relationships in infrastructure development are far more prominent than they are in continental Europe. For example, the Netherlands has a long tradition of collaborative relations between partners in

the public, private, and civil society sectors, a tradition otherwise known as the "Rhineland model" (Albert, 1991; Koppenjan & De Jong, 2018; Van Putten, 2013).

These collaborative relations became problematic during the 1990s when, due to European regulations, the awareness of too-intensive relationships between governments and the construction sector grew. Disclosures of widespread and traditional practices of collusion and of providing private services to civil servants, culminated in the so-called construction fraud affair (in Dutch: the *Bouwfraude*) and the parliamentary inquiry of 2002, which had a far-reaching impact on the relationships between the Dutch government and the construction sector (Priemus, 2004; Sminia, 2011). Although it was not the main driver behind the introduction of contractual PPPs, the affair and the regulatory and cultural reforms that were implemented as a response were an important background against which the introduction of competitive tendering and the use DBFM(O) contracts—certainly in the first decade of the new century—evolved in the Netherlands.

The Institutional and Regulatory Framework of Contractual PPPs in the Dutch Road and Water Infrastructure Sector

The introduction of the PPP practice in the Netherlands was not based upon a PPP law but instead evolved in the form of policies, initially developed by the Ministry of Finance. From 1998 onwards, these policies were supported by a knowledge centre, propagating the use of contractual PPPs by various ministries and other governmental bodies and advising on concrete PPP projects. Over time, various commissions were established by successive governments to further the development of the PPP practice. In 2006, the knowledge centre at the Ministry of Finance was abolished and various ministries, especially the three Ministries of Traffic and Water Management,[1] Housing,[2] and Defence, were considered to develop their own PPP expertise and their own PPP policies. The Ministry of Finance remained responsible for the overall PPP policies.

Rijkswaterstaat, the executive agency of the Ministry of Infrastructure and Water Management (Rijkswaterstaat, 2012, 2015b), is responsible for the construction, maintenance, and operation of national road and water infrastructure. Because Rijkswaterstaat wants to keep the operation of these infrastructures in their own hands, they use DBFM contracts instead of DBFMO contracts. The responsibility for public buildings is in the hands of the Central Government Real Estate Agency (the *Rijksvastgoedbedrijf*) that is part of the Ministry of the Interior (previously: The Ministry of Housing); this agency uses DBFMO contracts.

DBFM(O) contracts are different from traditional public procurement because of their focus on the specification of project outputs (rather than on detailed project designs), a greater risk transfer to the private sector (especially financial risks), long-term contracts, as well as the integration or bundling of different functions in one single contract (Grimsey & Lewis, 2004; Hodge et al., 2010). This type of contract provides governments with a steering mechanism to ensure that the private partners perform. Given the physical structure of the Dutch road network and the prevalent tax regulations, user fees (e.g. tolls) are not considered suitable

[1] In 2010, this Ministry was renamed the Ministry of Infrastructure and the Environment. In 2017, it was renamed the Ministry of Infrastructure and Water Management.

[2] In 2010, the responsibility for public buildings was transferred to the Ministry of the Interior.

as a payment mechanism. Eventually, payments were made dependent on when the infrastructure became available as well as during the maintenance phase. In addition, payments are also dependent on performance indicators related to the quality of the infrastructure. Non-performance or underperformance results in payments not being made or in sanctions. During the contract period, performance is monitored. In order to reduce the transaction cost of arriving at contracts, a standard contract was developed for the road and water infrastructure sectors that was updated at various times (Contractmanagement bij DBFMO-projecten, 2013).

The public–private comparator (PPC) and the public sector comparator are ex ante evaluation tools to calculate the added value of procuring a project through a PPP. The PPC is used to determine the added value of a DBFM(O) contract in order to support the decision as to whether this contract should be applied. The public sector comparator is used as a public reference model during the contract negotiations. In 2005, the PPC was made obligatory by government for infrastructure projects with a certain scope in order to enhance the use of DBFM(O) contracts (Ministerie van Verkeer en Waterstaat, 2005).

In the course of time, the procurement procedure to arrive at a DBFM(O) contract became one of competitive dialogue—an EU procedure that, in contrast to competitive tendering, "consists of several rounds of discussion between the principal and potential contractors, during which all aspects of the tender are open for discussion. The […] procedure aims at aligning the complex demands of principals with possible solutions that contractors have to offer" (Hoezen, 2012, p. 15). In this procedure, competing consortia are asked to develop project ideas based on functional criteria set by the government; they receive 25 per cent financial compensation if their design is not selected.

The drivers behind the introduction of contractual PPPs in the Dutch infrastructure sector evolved over time (Eversdijk & Korsten, 2015). In the mid-1980s, the Dutch government developed policies to overcome the impact of an economic crisis that was plaguing Western economies at that time. Infrastructure projects were seen as way to propel economic growth and in times when public budgets were limited, private finance was seen to be the answer (Klijn, 2009). The objective of enhancing the realization of infrastructure remained important over time. The fact that private finance was more expensive than public funding was expected to be compensated by the efficiency gains and added value to be realized by the DBFM(O) contracts. Therefore, realizing added value and efficiency gains were important goals. Mainly they referred to the expectations that projects with DBFM(O) contracts were developed within time and budget and that over the whole contract period they would be less costly than publicly managed projects. In 2016, the Ministry of Finance stated that 37 national infrastructure projects were being realized using DBFM(O) contracts, with a total value of €13 billion and a realized added value of €1.5 billion (Ministerie van Financiën, 2016). This amount of added value is based on PPC calculations and is far from certain. Only at the end of the contract periods of 15–30 years will it be possible to determine whether the added value actually is realized (see Boers et al., 2013; Contractmanagement bij DBFMO-projecten, 2013).

In official documents, innovation does not seem to have been an important objective behind adopting DBFM(O) contracts. Despite the statement of the Ministry of Finance in 2017 that the success of the Dutch PPP practice can be attributed to its pragmatic orientation—DBFM(O) being a means, not an end in itself—the creation of a larger deal flow seems to have been the major driver. Given the uncertainties about the realized added value, it can be argued that the drivers to a large extent were of an ideologically and organizational nature (Commissie Private Financiering van Infrastructuur, 2008; Ministerie van Verkeer en Waterstaat, 2005).

Development History[3]

In the period between the late 1980s and the early 1990s, at the instigation of the Dutch cabinet in times of public austerity, the first large-scale PPP projects in the Netherlands were realized. Two road tunnels, the Wijkertunnel (construction ready in 1996) and the tunnel under the river Noord (ready in 1992), were financed by private banks. Overall, the outcomes of these first experiments were close to disastrous and resulted in PPPs being discredited as an instrument for many years (Koppenjan, 2005; Van Ham & Koppenjan, 2001). In 1998, PPP was rehabilitated by the Dutch parliament. A commission of experts had studied experiences with PPP in other countries and formulated conditions for successful PPPs. In the report, a number of projects suitable for involving private parties were mentioned. Apart from discussing financial instruments and possible contractual arrangements, the report also paid a lot of attention to managing the collaboration process (Kenniscentrum PPS, 1998). This attention to the "soft side" of PPP subsequently disappeared in the approach propagated by the Ministry of Finance.

In the next few years, it proved difficult to realize PPPs (Koppenjan, 2005). Some of the selected projects were cancelled altogether. Others were realized in a traditional fashion. The superstructure of the Dutch part of the high-speed railway line between Amsterdam and Paris was contracted out as a DBFM; the construction of the substructure and the operations were contracted in a traditional way. As far as road projects were concerned, three projects were realized in this period, using a contractual PPP (i.e. the A59, N31, and N201 projects). A PPP contract regarding the construction and operation of a water purification plant was signed in 2002 (Koppenjan, 2005).

In 2005, a PPP taskforce was established by the Minister of Traffic and Water Management, to accelerate PPP development in the field of public buildings, transport, and water infrastructure. The taskforce, consisting of public and private parties, identified three main barriers: the high transaction costs for DBFM(O) contracts, the fact that due to the limited number of PPP projects no experience had been collected, and the fact that the detailed project definitions drafted by the government did not allow private parties to come up with new and creative ideas. The taskforce drafted a list of 12 projects to be executed with DBFM(O) contracts (Ministerie van Verkeer en Waterstaat**,** 2005).

The Cabinet also introduced the obligation to perform a PPC with regard to infrastructure projects that required an investment of over €112.5 million and buildings of over €25 million. And last but not least, Rijkswaterstaat got the assignment to execute 12 projects with DBFM(O) contracts (Ministerie van Verkeer en Waterstaat, 2005). Rijkswaterstaat adopted the motto "the Market, Unless", indicating that it decided to use PPP as a standard procurement procedure. It established its own PPP Expertise Centre. This led to an internal transformation of the Ministry: new ways of working were introduced and staff with new skills and expertise were recruited.

In 2007, the Ministry of Finance and the Ministry of Traffic and Water Management established yet another commission in order to speed up the development of PPP projects. On the basis of the advice of this commission, the government lowered the threshold value for obligatory PPCs from €112.5 to €60 million (Commissie Private Financiering van Infrastructuur, 2008). By the end of 2012, a total of 13 DBFM(O) projects were being implemented, at

[3] This section is, to a large extent, based on Koppenjan and De Jong (2018).

a value of €6 billion and an expected added value of €800 million (Contractmanagement bij DBFMO-projecten, 2013). Also, in this period, the first PPP projects entered the operation and maintenance phases, as was the case in, for instance, the renovation of the Ministry of Finance office building (Reynaers, 2014). No experience was available on how to manage these phases, resulting in misunderstandings, disagreements, and delays (Ministerie van Financiën, 2016).

In 2013, the Dutch national audit office published the findings of its research on the implementation and contract management of DBFM(O) projects (Contractmanagement bij DBFMO-projecten, 2013). The audit office concluded that the contracts were clearly specified and most of the payments indeed were based on performance. However, it also found that government often did not apply sanctions in the case of shortcomings, as it was important to maintain a good relationship with the consortium. Another problem identified by the audit office was the large number of contract changes, leading to additional costs for the government. The audit office stated that contract management should be more firmly focused on preventing the occurrence of contract changes in order to control costs.

In 2016, in an attempt to reverse the adversarial relationships that had turned a number of DBFM(O) projects into "fight projects", public and private parties signed a document to commit themselves to a new market vision that would underlie PPP from then onwards. They thereby expressed the intention to refrain from opportunistic behaviour and adopt a collaborative attitude and realize quality, and price, realistically (Rijkswaterstaat, 2015a; Rijkswaterstaat et al., 2016). In the progress report on DBFM(O) projects in 2016/17, the Ministerie van Financiën (2016) stated that, in general, DBFM(O) projects have been realized within budget, on time, and with the requested output. It also stated that this could be attributed to the quality and consistency of the Dutch DBFM(O) policy, with its focus on value for money, standardization, and a sufficient flow of deals. Building on the audit office report, the report emphasized the need to further professionalize contract management in the realization and operation phases. The report also presents an overview of all DBFM(O) projects in their various phases, including the pipeline of new projects with DBFM(O) contracts. A growing number of projects were foreseen in the field of infrastructure.

The Nature and Development of the PPP Market

In 2019, the Minister of Infrastructure and Water Management presented a report from McKinsey to parliament on the state of the infrastructure sector within the Dutch economy (Rijkswaterstaat, 2019).[4] Based on this report and a consultation of market parties, the Minister took a stand that can be seen as a break with "the Market, Unless" strategy as adopted in 2005. Due to unfavourable developments in the infrastructure sector, a far more active role of Rijkswaterstaat was required. In the McKinsey report, it is stated that the sector has a low productivity, lacks innovative capacity, and is dominated by a limited number of large constructing firms. The profitability of the Dutch construction sector is lower than the average in Europe.[5] Other characteristics are small profit margins, high risks, lack of collaboration

[4] The Dutch construction sector has a turnover of €67 billion, which is 4 per cent of the Dutch economy. Within this sector, the so-called Ground, Road, and Water (GRW) sector has a volume of €19 billion and provides 55,000 full-time jobs (about 15 per cent of the whole construction sector).

[5] The average profit margin of the eight largest Dutch construction firms in the period 2008–17 was 0.3 per cent, while dredging companies with a construction division had a margin of 7.4 per cent (Rijkswaterstaat, 2019).

(despite the earlier market vision), and a decreasing interest of private parties to participate in PPPs. As a result of the earlier "the Market, Unless" strategy, Rijkswaterstaat had lost its design expertise, while competition among construction firms also resulted in a limited build-up of design competence on their side.

To reverse these developments, Rijkswaterstaat as principal client and—as far as projects with a value above €250 million were concerned—the only client for a limited number of big firms, should initiate a transition. This also impacted Rijkswaterstaat's procurement and market policy. For the near future, the number of new road and water projects will remain stable, while the number of maintenance and renovation projects will increase. Especially new projects are considered suitable for DBFM(O) contracts, while maintenance and renovation projects are mostly too small and too uncertain for these contracts to be used.[6] However, according to the McKinsey report, the nature of both categories of projects will change. They will become increasingly complex and include new functionalities as a result of rapid technological developments in ICT, data-processing, and traffic management systems, as well as a result of ambitions regarding climate, sustainability, and the circular economy. The transition is aimed at realizing a better risk profile for the sector, improvement of productivity, professionalism, and innovativeness. In this context, Rijkswaterstaat will experiment with new contract forms that reduce the risks for private companies. The so-called "two phases procurement process" postpones the pricing of a work to the second phase, when the design has been made and risks have become clear. The portfolio contract by procurement of a set of projects allows for lower transaction costs and a better opportunity for innovation and risk management. The transition also seeks to broaden the infrastructure market by introducing start-ups, small and medium sized companies, installation firms and organizations with expertise in the field of infrastructure and traffic.

As a follow up to the McKinsey report, in 2020, the Minister informed the parliament of Rijkswaterstaat's transition agenda, called "towards a vital infrastructure sector". The aim is to improve three conditions within the sector: (a) strengthening of collaboration within the whole chain of actors, both on the private and public side; (b) realizing a financially healthy and productive sector that is able to control the inherent risks; and (c) enhancing the capacity to innovate and learn across projects and organizational boundaries. The agenda itself presents—besides an overview of the challenges, goals, and conditions of the transition—a description of a large number of concrete activities. The agenda aims at initiating a trajectory of change over four years, to start a transition that will be monitored and adjusted every two years. As the principal client, Rijkswaterstaat will contribute to this transition by adapting its procurement and market strategy.

These new policy ideas have implications for the future of DBFM(O) contracts. The current existing 21 DBFM(O) projects will be continued. Regarding the application of DBFM(O) to new projects, the documents are less clear. Some new projects that were potential candidates

[6] The expenditure for road and water projects is about 50 per cent of the budget of Rijkswaterstaat. In 2020, it was about €4.3 billion on a total of €8.3 billion. New projects (construction of new projects and new maintenance and renovation projects) in this sector will grow from €1.1 billion in 2020 to €3.0 billion in 2024 and €3.9 billion in 2030. In this period, the share of new maintenance and renovation projects will remain more or less the same: €0.8 billion (Rijkswaterstaat, 2019). Spokesmen estimate the contribution of DBFM contracts to be about 10 per cent of the total budget of Rijkswaterstaat.

for DBFM(O) contracts are now assigned as experiments for the "two phases process" and three new sluice projects are assigned for experiments with a portfolio contract. In communications in the media, Rijkswaterstaat states that the number of future projects in the pipeline suitable for DBFM(O) is limited (Koenen, 2019). On the basis of the McKinsey report and comments on that report, it is clear that DBFM(O) is seen as problematic due to the large risks involved, the low pricing of these risks, and the lack of flexibility due to the length of the contracts. Due to the high transaction costs and risks, private parties are increasingly reluctant to submit bids for new projects (Rijkswaterstaat, 2019). Within Rijkswaterstaat, there are also doubts about the PPC which almost by definition qualifies projects as suitable for DBFM(O), negative effects are seen on the integral management of the road and water networks, and the hollowing of regional maintenance budgets is observed due to the presence of DBFM(O) projects in the region (Van den Berg & Riemersma, 2021). Now that the political pressure has diminished and the grip of the Ministry of Finance has loosened, the top of the Ministry increasingly sees DBFM(O) contracts as limiting their policy freedom to deal with the new and dynamic challenges with which they are confronted. In media, the added value of DBFM(O) projects is seriously doubted, also given the financial setbacks of hundreds of millions of euros on what are called "the bleeders" (e.g. Van den Berg & Riemersma, 2021).[7] Again, comparisons are made with developments in the UK, where it was decided to cease private finance initiative and private finance contracts, and where experiments with alliances contracts have been started (Rijkswaterstaat, 2019). This does not necessarily mean that, in the Dutch infrastructure sector, DBFM(O) contracts will no longer be used. But their use will be more selective, perhaps restricted to projects of medium size with moderate risk profile, next to the application of new contracts and alliances (Rijkswaterstaat, 2019). On the other hand, it is also acknowledged by the Minister that the focus on the "two phases process" and the portfolio contracts narrows the discussion down to the choice of the right contract form, while the success of infrastructure projects depends on the capacity of partners to collaborate in dealing with the societal challenges and risks the infrastructure sector faces, with the presence of a competent and vital infrastructure sector (Koppenjan et al., 2020). So, at best it can be concluded that, given the length of DBFM(O) contracts, they will remain part of the institutional landscape in the road and water networks for many years, while their application to new projects is uncertain.

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[7] These setbacks are not necessarily caused by the contract. On average, DBFM projects perform better compared to other contracts in terms of availability, construction costs, additional work costs, quality, and innovativeness (Koppenjan et al., 2020). The added value of these projects over the total life span, however, is unknown and difficult to establish, let alone the financial performance of the whole DBFM(O) endeavour of the Dutch government in the course of years.

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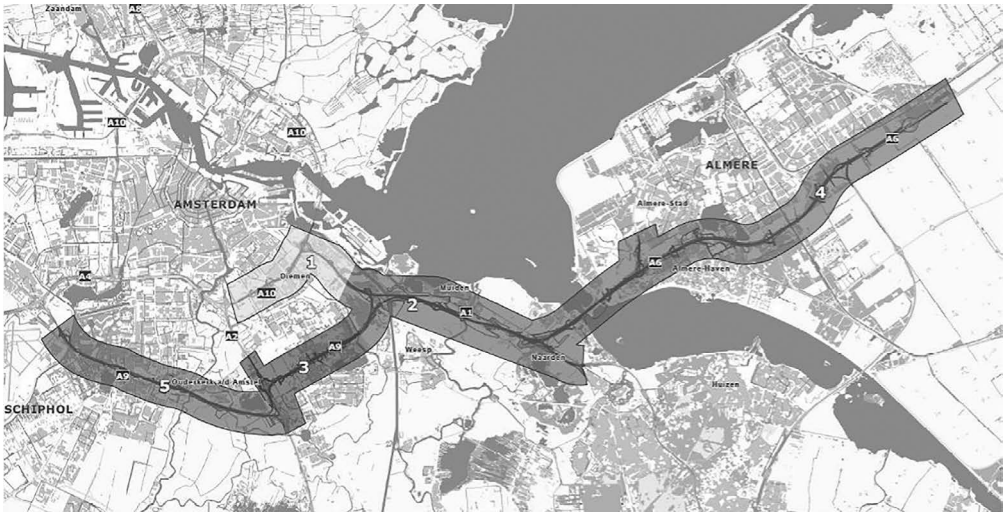
A MORE SUCCESSFUL NETHERLANDS PPP PROJECT: THE A9 GAASPERDAMMER TUNNEL PROJECT[8]

Introduction

The A9 Gaasperdammer Tunnel megaproject is considered to be a successful PPP in terms of budget, time schedule, added values, and public–private collaboration (Hertogh et al., 2019; Ruijter, 2019; Ruijter et al., 2021). The megaproject includes the widening of seven kilometres of the A9 motorway into two times five lanes including a reversible lane. The core of the project involves the construction of a traffic tunnel, exactly on the route of the current A9 highway. The project (no. 3 in Figure 8.1) includes—with 3,090 metres—the longest land tunnel in the Netherland and Europe's largest aqueduct (Ruijter, 2019). The project has a budget of approximately €1 billion and is part of a €4.5 billion programme that involves a large-scale restructuring and advancement of the main road network between Schiphol, Amsterdam, and Almere (SAA).



Source: Ruijter (2019).

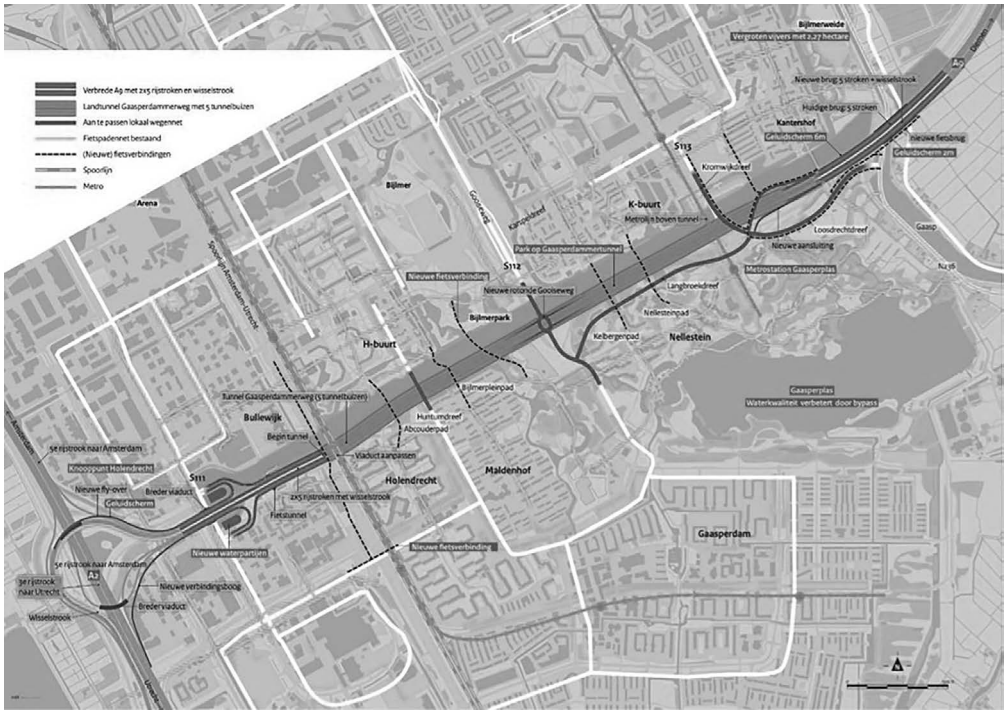
Figure 8.1 *The A9 Gaasperdammer Tunnel (project 3) in the Schiphol–Amsterdam–Almere megaproject*

The A9 Gaasperdammer Road is an important connection in the Amsterdam region. The road is located on top of a dike separating two polders. A polder is land below sea level that has been reclaimed from the sea by building dikes and drainage canals. As such, the road also has a function to protect against possible flooding. The road was constructed in 1976 as a local

[8] The case description is based primarily on the work of Hertogh et al. (2017, 2019) and Ruijter (2019).

traffic road and was transformed to the A9 highway in 1982. The highway became a constant source of nuisance for the inhabitants of the nearby neighbourhoods (Hertogh et al., 2017). By 2030, the growing number of citizens and the growth of Schiphol Amsterdam Airport were expected to dramatically increase the daily number of cars (Hertogh et al., 2017). This worsened accessibility to Amsterdam and the airport, especially during rush hours. These developments forced the Dutch government to act.

The first aim of the project was to improve accessibility in this densely populated region as fluent traffic flow is essential for the further development of this important socioeconomic region. Fluent traffic flow was also important during the construction of the new tunnel infrastructure. Therefore, the challenge for the project and for the bidding parties was to come up with a plan that would allow traffic to continue as unobstructed as possible during the construction phase. This was not an easy goal as the project was realized in a densely built area, with many residents living very close to the construction site (Figure 8.2).



Source: Hertogh et al. (2017).

Figure 8.2 Spatial layout of A9 Gaasperdammer Tunnel project

The second aim of the project was improving quality of life of citizens living in the neighbourhoods. The tunnel would minimize car traffic pollution, while the construction of a park on top of the tunnel would allow citizens to enjoy newly created nature. In the short term, however, the project decreased the quality of life due to construction nuisance, such as noise, heavy construction traffic, and possible utility break downs. The minimalization of this nuisance was

a challenge because, as part of the construction process, approximately 10,000 piles had to be driven into the soft subsoil.

The DBFM contract for the A9 Gaasperdammer Tunnel project has a duration of 20 years (see Table 8A.1 in the Appendix). In the private consortium, the contractors came to a mutual arrangement with a financier for the financing of the project. The costs for the project will be repaid by Rijkswaterstaat via periodic payments for the availability of the road infrastructure during the design, construction and maintenance phases. Due to this payment regime, the contractors are incentivized to comply with the tight planning to meet their obligations to the financers (cf. Verweij & Van Meerkerk, 2021). The contractors receive a one-off payment at the end of the construction phase (Ruijter, 2019).

Planning

Project plans for improving the road network in the Amsterdam region date back to the 1960s but the road reconstruction project actually started in 2004, when the Dutch government decided to address problems with road traffic congestion in the Amsterdam region. Rijkswaterstaat started a plan study in which four plans were developed. One favourable plan was to construct a tunnel that would connect two large traffic junctions, thus rerouting the traffic around Amsterdam. However, this tunnel was originally planned close to the Naardermeer, a protected biotope for waterbirds; a strong lobby protested against this plan. This lobby—consisting of environmentalists, society stars living nearby, well-educated citizens of the nearby city of Naarden, and local authorities—was successful in blocking this plan in 2006 (Hertogh et al., 2017). In 2008, after consultations with the regional authorities, the Minister of Infrastructure and Water Management selected the so-called "streamline alternative" which included the broadening of existing highways, including the construction of a tunnel in the A9 highway in the Bijlmer, one of the poorest and least resourceful districts in Amsterdam. Unsurprisingly, therefore, the streamline alternative was selected.

To prevent delays in the planning, the SAA programme tried to reach an agreement with external stakeholders, such as local authorities and resident associations in the region, regarding construction activities. The Rijkswaterstaat planning team suggested dividing the 63 kilometre-long SAA project area into five subprojects with the main traffic junctions as the boundaries. Four of these subprojects were tendered as DBFM contracts of roughly €1 billion each, which was expected to stimulate market competition in the Netherlands. The planning phase resulted in the signing of the route decision for the SAA programme in March 2011.

The preparations for the market consultation of the SAA programme started when a new project realization team replaced the project planning team. In the transition from planning to realization, tensions arose around the calculated time schedule and budget (Veenswijk & Van Marrewijk, 2010). According to the realization team, three more years and €1 billion additional budget were required to complete the project. This was a serious drawback for the SAA programme. In their evaluation of this transition, Veenswijk and Van Marrewijk (2010) found large differences in project philosophy between the two teams; the two teams hardly exchanged and aligned their philosophies and strategic motives. According to the realization team, external stakeholders dominated the project philosophy of the planning team, which resulted in problems related to realization, financing, and scheduling. For example, when the subprojects were divided by the planning team, practical consequences were not taken into account as two consortia were working on the same traffic junction and had to negotiate over

construction work (Veenswijk & Van Marrewijk, 2010). The philosophy of the realization team was based on technological feasibility and prioritizing. Therefore, they suggested a different division of the projects: between the traffic junctions. Furthermore, they thought the project scope and overall requirements were unclear and suggested a different prioritization of the subprojects. Another example of the difficult transition was the management of relations with external stakeholders. The planning team had made considerable efforts to include the external stakeholders in the planning of the project. Local authorities were surprised to notice that in the construction phase, contacts with the project were minimal and new connections had to be found by themselves (Veenswijk & Van Marrewijk, 2010).

The tension between the teams is not surprising; project phase transitions are often problematic (Van den Ende & Van Marrewijk, 2014). Partly, this is because within Rijkswaterstaat, project planning has a lower status than project execution (Veenswijk & Van Marrewijk, 2010). During the planning stage, a project is still in preparation and can therefore be delayed or stopped by national and local governments or by citizens' resistance—as is the case with many infrastructure megaprojects (Van den Ende & Van Marrewijk, 2019). In contrast, in the construction phase, the project has "really" started and the "real" engineering and construction work can be done. To team members in the planning team this is frustrating: "I work already 30 years in projects and the construction team always opinionated that the planning team doesn't do its work properly and vice versa" (Veenswijk & Van Marrewijk, 2010, p. 9).

Procurement

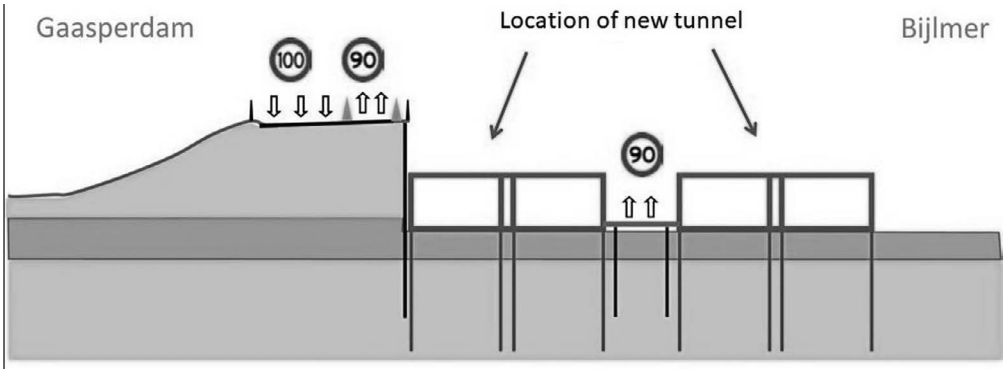
The procurement of the A9 Gaasperdammer Tunnel was organized as a competitive dialogue process. First, market consultation rounds with possible contractor candidates were organized. Based on these meetings, new adjustments in the SAA programme were made. The traffic junctions no longer served as boundaries but were included in the DBFM contract, which has clear advantages for construction work at a traffic junction. Furthermore, the subprojects were no longer tendered simultaneously, but consecutively. Furthermore, because of technological and organizational complexity and because of new tunnel regulations, the construction of the A9 Gaasperdammer Tunnel was expected to cost more time and therefore started earlier.

The consultation rounds led to the understanding that the planning of construction activities in the A9 Gaasperdammer Tunnel project was of crucial importance. It is attractive for contractors to submit a tight schedule as this has a positive influence on the financial outcomes of the project, thus increasing their chances of winning the DBFM tender procedure. However, a tight schedule is also risky for the contractors' profit: "if we make a mistake in our bid, and we need an additional €10 million to complete the project, the commissioner is not going to pay" (Ruijter, 2019, p. 200).

Based on the outcomes of the consultation rounds, other adjustments were made. Rijkswaterstaat considered building a temporary road south of the A9 highway, with the tunnel being constructed on the old location of the highway. In this plan, the adjacent tunnel tubes could be built on either side of the reversible lane. After completion, traffic could then be diverted through the tunnel and the temporary A9 could be demolished. Finally, the tunnel accommodating the reversible lane could be completed. Furthermore, all risks that a contractor can influence were allocated to the contractor. Other risks (e.g. those resulting from unknown utility cables and pipes—these frequently cause delays and budget overruns) were assumed by Rijkswaterstaat (Hertogh et al., 2017).

The competitive dialogue continued with a first round of bidding, in which the three most promising candidates were selected. With these three candidate-contractors, Rijkswaterstaat exchanged information on, inter alia, the content of the project and the contract, the approach of the bidding contractor, the risks, and the appropriate control measures (Hoezen et al., 2010). The procurement started with nine market consultation conversations with the candidate contractors to help Rijkswaterstaat with the finetuning of the project scope. In total, 27 workshops, including preparation and evaluation workshops, were organized (Hertogh et al., 2017).

The competitive dialogue process included a design workshop in which Rijkswaterstaat was invited to the workshop by the bidder, who explained its envisioned approach for the project. During the process, one of the bidding parties, a consortium of Dutch constructors Ballast Nedam, Heijmans, project management organization Fluor, and investment company 3i—together named IXAS (see Table 8A.1)—made clever use of this opportunity. The underlying idea of their proposal was to complete the reversible lane as quickly as possible and to use it for traffic during construction, so that the temporary A9 highway on the south side of the current route would require fewer lanes (Figure 8.3). As a result, the costs would be significantly lower and the construction process would cause less nuisance to the neighbourhoods. The IXAS team used the dialogue to improve the proposal's quality. The goal of Rijkswaterstaat was to empower the candidate-partners with enough information and to start a learning process in order to successfully complete the project. The discussion of risks in the tender phase was to avoid conflicts or a failure of the project in later stages (Hertogh et al., 2017).



Source: Ruijter (2019).

Figure 8.3 Construction proposal for the Gaasperdammer Tunnel

The organizers of the competitive dialogue process focused on an optimal collaboration between Rijkswaterstaat and the candidate-contractors. The candidates were asked about their interpretation of the project's goals, context, and connections to the other subprojects in the SAA programme. The focus on collaboration was positively experienced by the contractors. The candidate contractors were challenged to show possible risks and to show their knowledge to design, test, and construct such a large road tunnel. Therefore, flexibility in the execution of the construction work was an important aspect in the procurement of the DBFM contract. By allowing flexibility, drawbacks in the project execution could be absorbed. "Ten percent

of our work can't be predicted. A successful completion of the project depends on the way one copes with this unpredictability. Flexibility is needed and we create this by being predictable" (Hertogh et al., 2019, p. 27). By asking for design products in the procurement phase, Rijkswaterstaat could value whether the candidates understood that standard solutions did not apply in the A9 Gaasperdammer Tunnel project (Hertogh et al., 2017).

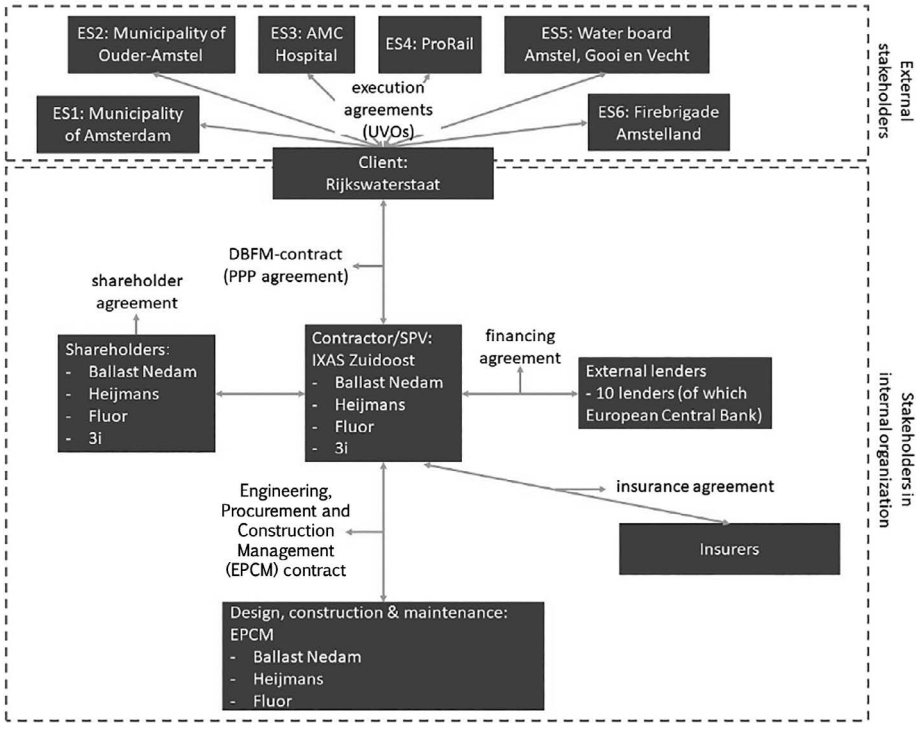
In the end, the IXAS consortium was awarded the DBFM contract due to its creative cost and timesaving design of the Gaasperdammer Tunnel. They planned to build a reversible lane and open it to traffic during the day, while at night it would be used for construction traffic and preparing for resuming construction in the daytime. This innovative concept was praised by Rijkswaterstaat as an example of what can be achieved when giving the contractor space for innovation within the specifications (Ruijter, 2019). This is the first tunnel in the Netherlands with exits and approaches halfway in the tunnel tube and with an exchange lane. The two outermost tubes for local traffic are connected to the exit lanes to the Gaasperdammer Road, while the two inner tubes are meant for the ongoing traffic (Figure 8.3). The central tube is the exchange lane, which can be used for handling rush-hour traffic, with the direction depending on the traffic (Hertogh et al., 2019).

The IXAS realization team consisted of employees with experience in the process industry, pharmacy, ICT, water industry, and civil works. IXAS called this a "handpicked team"; a team in which people with diverse complementary competences worked closely together and frequently communicated (Philips, 2019). This team started to design a conceptual model for the ideal tunnel with connected infrastructure works. The team members did not limit themselves beforehand by standards and requirements and instead adapted this ideal tunnel concept to the standards and requirements. This resulted in the winning design.

Implementation

After the signing of the DBFM contract in September 2014, implementation started. The planned completion and recommissioning date was in 2020. A Special Purpose Vehicle (SPV), consisting of the four consortium partners, arranged the financing of the project through a financing agreement with external lenders (Figure 8.4). This financing agreement consists of one integrated Engineering, Procurement, and Construction Management (EPCM) contract in which all lifecycles and disciplines are represented. The EPCM contract manages the overall project on behalf of IXAS (Hertogh et al., 2017).

The Rijkswaterstaat project team is structured according to the integrated project management model, which consists of five roles: project manager, contract manager, stakeholder manager, technical manager, and manager project control (Rijkswaterstaat, 2014a). In this model, the contract manager is responsible for managing the contracting parties; the stakeholder manager is responsible for the coordination with external stakeholders such as municipalities, provinces, road users, local residents, and companies and agencies in the vicinity that are affected directly (e.g. noise nuisance) or indirectly (e.g. road traffic) by the construction works. The stakeholder manager involved the Municipality of Amsterdam, the most influential stakeholder, at an early stage as this would help the project to build good relationships and to ensure a flexible attitude of the stakeholder (Philips, 2019; Philips et al., 2021). The technical manager is responsible for formulating the substantive specifications for the contractor and assessing whether the specifications have actually been realized. The project control manager is responsible for the operational management of the project and for identifying and controlling



Source: Philips (2019).

Figure 8.4 Stakeholders in the A9 Gaasperdammer Tunnel megaproject

the various risks that can occur during the course of the project. Finally, the project director is responsible for the entire project, reporting to the director general of Rijkswaterstaat.

Timing was important in the implementation phase. The leading philosophy in the contract was to "stick to the people, stick to the plan" (Hertogh et al., 2019, p. 74). In this philosophy, changes in the plan and design are only allowed if these positively affected the project's budget. This philosophy stimulated project employees to remain critical and reflective during the project implementation. Within the organization, fulfilment of the planning was prioritized: "not reaching the targets was not an option. Everything was allowed to get there" (Hertogh et al., 2019, p. 29).

Although this strict planning initially worked well, it also brought IXAS problems. The original design of a reversable lane did not work out well. Soon after the start of the tunnel construction, the project was gradually falling behind schedule. Executing construction works next to a busy highway was challenging (Ruijter, 2019). A solution was found in the fast construction of the reversable lane. During the construction of the four other tunnel tubes, traffic could be rerouted to this reversable lane, indicating that less temporary traffic lanes south of the A9 were needed. This led to an idea: could the reversible lane not simply be closed for traffic during the entire construction period? This would be possible if six lanes could be fitted into the temporary bypass of the A9 instead of the four lanes that were in use (Ruijter, 2019). This indeed appeared to be possible:

> Had that not been the case, it would have cost much time and millions of euros to widen the roadway, but we now could add the extra lanes simply by painting the lane dividers differently: this would still require a whole weekend of work, but it appeared feasible and would have many benefits. (Asset Manager in Ruijter, 2019, p. 200)

The reversible lane was closed to traffic without causing traffic congestion on the A9 bypass. Consequently, the building site was continuously accessible for IXAS, thus enabling a more robust planning of the construction activities. Furthermore, it enabled the concentration of construction activities in daytime hours, which reduced the night-time construction nuisance for the neighbourhoods. Although this intervention made planning more robust and limited the nuisance for external stakeholders, it was a painful modification of the initial celebrated IXAS design.

The concentration of construction work in daytime hours and other measures helped to limit the nuisance as much as possible but noise during implementation was still problematic for the citizens of nearby neighbourhoods. Worse still, to meet contractual requirements regarding the availability of the highway, the contractor was obliged to work regularly at night. Some of the neighbourhoods were so close to the construction site that citizens felt the ground shaking every time piles were driven into the ground. As the piles are between 10 and 25 meters long and 800 hits are needed to put a pile in place, it was calculated that citizens have been confronted with an astonishing number of eight million hits. Thus, the complaints about nuisance were very serious and Rijkswaterstaat was confronted with a dilemma: the contractor was obligated to continue working on the project, had already ordered the piles and was on a tight schedule but citizens living nearby were becoming impatient (Ruijter, 2019). To solve this dilemma, Rijkswaterstaat collaborated with the IXAS stakeholder manager: complaints were handled directly, while providing information on nuisances, hinderances and traffic routes had high priority. The importance of providing information platforms to citizens living in the vicinity has been acknowledged in earlier PPP projects (cf. Van den Ende & Van Marrewijk, 2015; Verweij & Gerrits, 2015). The stakeholder manager joined neighbourhood meetings to learn about problems, while solutions were found in the temporary relocation of families to hotels, limiting of night construction work, and providing ice creams to the neighbourhood in summertime.

The dialogue between Rijkswaterstaat and IXAS, which had started during procurement, continued and even intensified during implementation. Ruijter et al. (2021) identified six different types of workshops that were used for trust development between the project partners: debating shared values, dealing with daily dilemmas, story-telling by project employees, reflecting in a fishbowl set-up, individual employees reflecting on the project, and exercising through role-playing. These workshops were implemented during four stages of partnership development. In the initial stage, workshops were organized in which trust was developed through agreeing upon a shared set of project values. In the negotiation stage, these values were then enacted through joint workshops on dealing with daily dilemmas in the implementation of the project and thus helped to strengthen the trust between Rijkswaterstaat and IXAS. In the formation stage, workshops facilitated the uncovering of multiple, sometimes opposed, understandings of experiences with collaboration. Sensitive (contract) issues and tensions in collaboration could now openly be discussed, with the help of process managers. In role-playing workshops, the focus was on preparing the delivery of the contract. Trust development is not just developed through coincidental events as Swärd (2016) found but

through a laborious process of improving employees' capability to reflect, jointly reflecting upon dilemmas, negotiating balanced reciprocity when solving problems.

Achievement of Public Values

Based on our analysis, we can state that, in line with others (Hertogh et al., 2017, 2019; Ruijter, 2019; Ruijter et al., 2021), the A9 Gaasperdammer Tunnel project can be perceived as a successful DBFM project. Of course, the maintenance period has just started so an evaluation of the overall success of the contract is not yet possible. However, measured by the intended outcomes of material project values, such as budget, time, scope, and quality, the project is perceived to be successful. The project has remained within its calculated budget of €1 billion and within its planning, due to the smart cost- and timesaving design of the IXAS consortium. This innovative design was praised by Rijkswaterstaat as a fine example of what can be achieved with DBFM contracting (Ruijter, 2019). Regarding quality, the project aimed at improving the accessibility of the SAA region. Indeed, the safeguarding of a fluent traffic flow after the opening of the tunnels was realized. Traffic was, except for a limited number of weekend closures, allowed to continue unobstructed, with few extra traffic jams during the construction of the tunnel. The project succeeded in realizing the public value of accessibility during construction.

The second objective was the improvement of the quality of life for the citizens. In the planning phase, a lobby of environmentalist and residents in the nearby city of Naarden blocked the original plan of constructing the infrastructure in their surroundings. Although this meant protecting a nature reserve, Naardermeer, from a perspective highly appraised, it also shifted the negative impacts of the plan towards the less assertive and less well-off residents of Amsterdam South-East. At the same time, this shift enabled investments in this area, through the construction of a road tunnel, thus improving the quality of life for nearby citizens. The long-term advantage is that citizens can seek leisure in the Gaasper Park, without noticing the presence of the highway below. Nevertheless, these citizens were confronted with excessive construction nuisance for more than six years. Here, the public value of quality of life was traded off against the realization of other substantive values. Despite the efforts of stakeholder managers to reduce the nuisance, the dominant value was that "the project had to be realized, whatever it takes", indicating that quality of life was subordinated to the overall interest of constructing the tunnel on time, which also was not safeguarded sufficiently in (political) decisions taken in earlier phases.

Apart from the material values, the A9 Gaasperdammer Tunnel project supported the procedural public values of collaboration and responsiveness. In the project, a resilient partnership was developed (Ruijter, 2019), where Rijkswaterstaat helped the private consortium IXAS when needed. The partners openly discussed issues, problems, and mutual collaboration to solve practical problems in the execution of the project. The partnership was based upon shared project values and this was effective (Ruijter et al., 2021). In doing so, responsibility and responsiveness were balanced, in the sense that Rijkswaterstaat was prepared to accept changes to contract, in order to deal with the financial risks of the private consortium. This was apparent when the smart design, on the basis of which IXAS had been granted the contract, did not prove to be feasible and changes had to be made in order to prevent the private partners running into financial problems. Although this was at odds with other public values, such as

fair market competition, it did not influence the overall appreciation of the project, especially given the way the procedural values of responsiveness and collaboration were realized.

As suggested earlier, the presence and shifts in procedural values also explain the success of the project and the way in which it evolved. In the earlier phases of the project—and especially within the SAA planning team—quality, project values, and smart ideas to realize substantive values within the project constraints were central. Also, responsibility (contract realization) was important, as Rijkswaterstaat tried to be predictable in their responses to IXAS with the "everything for the project" slogan. After years of intensive collaboration and focusing on "everything for the project" and "stick to the plan", this could have caused tunnel vision. These project values propagated that the project would be realized at any costs, representing a fixation on one set of values at the cost of others. An example of bias as a coping strategy is the removal of a value conflict by considering some values to be less important.

However, in practice the public and private partners succeeded in balancing the values of responsibility and responsiveness. IXAS was responsible for all of the construction work, but when falling short (e.g. in the case of the reversible lane) the quality of the outcome was under pressure. The coping strategy adopted by Rijkswaterstaat was offering flexibility, negotiating over solutions, reflecting over practices, and helping the consortium in order to improve the quality of the final outcome. Rijkswaterstaat was responsive to the problems IXAS ran into (Hertogh et al., 2019), accepted the adaption of the smart design and also at other occasions did not follow the idea of the "Bahamas model"—which would place all the risks in the hands of the private consortium. Both partners also collaborated in trying to accommodate the needs of residents as much as possible, in a less balanced way though, given the constraints set by the overall project values.

Nevertheless, it can be argued that responsibility and responsiveness did not compete in every respect—which is contrary to the idea of the competitiveness of these values, a claim that is frequently made in the industry. Being responsive was instrumental to the shared value of responsibility, aimed at making the project into a success. Without acceptance of the adaptation of the smart design, serious problems would have occurred, jeopardizing the process and success of the project.

Besides the balance between responsibility and responsiveness, the coping strategy of Rijkswaterstaat and IXAS can be seen as an important success factor. Both parties engaged in developing a resilient partnership (Ruijter et al., 2021), in which the building of trust between Rijkswaterstaat and IXAS was important, thus making the contract-based trust of less relevance. Trust building through organizing reflective workshops is a potential intervention for creating a collaborative project culture (Ruijter et al., 2021). Without taking over each other's responsibilities, Rijkswaterstaat was supportive to IXAS to meet the strict time planning and quality of the products. In this way, social capital and trust were built, which were instrumental for responsiveness, since the partners could be confident that the other party would behave in a responsible way.

Building social capital can be seen as a coping strategy, aimed at buffering trust in order to be able to deal with future uncertainties and dynamics (Ruijter et al., 2021; see Jaffee, 2008 on buffering). In search of explanations for success, the coping strategy of incrementalism and casuistry can also be mentioned, given the fact that the SAA program and the A9 project were initiated after the A15 Maasvlakte–Vaanplein project and could thus build upon the lessons learnt with regard to the inappropriateness of the "Bahamas model" of DBFM contracts and the need for relational contracting, collaboration, and responsiveness.

A first take-away from the study is the importance of investing in building resilient partnerships as coping strategy, buffering trust, and social capital—allowing for responsiveness and collaboration without having to fear that this will come at the cost of the public value of responsibility, and eventually project success. The A9 Gaasperdammer Tunnel case also confirms the lesson from the A15 Maasvlakte–Vaanplein project as to the need of a more fluent transition between project teams and project phases. In the planning phase of both cases, the relationship with external stakeholders dominated the choices made on the project, while, in the implementation phase, the safeguarding of stakeholder interests was pushed aside and replaced by a fixation on the execution of the project. The transition of stakeholder interests over the project's life cycle has been a major topic of concern in the management of PPP projects (Van den Ende & Van Marrewijk, 2014).

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A LESS SUCCESSFUL NETHERLANDS CASE: THE A15 MAASVLAKTE–VAANPLEIN PROJECT[9]

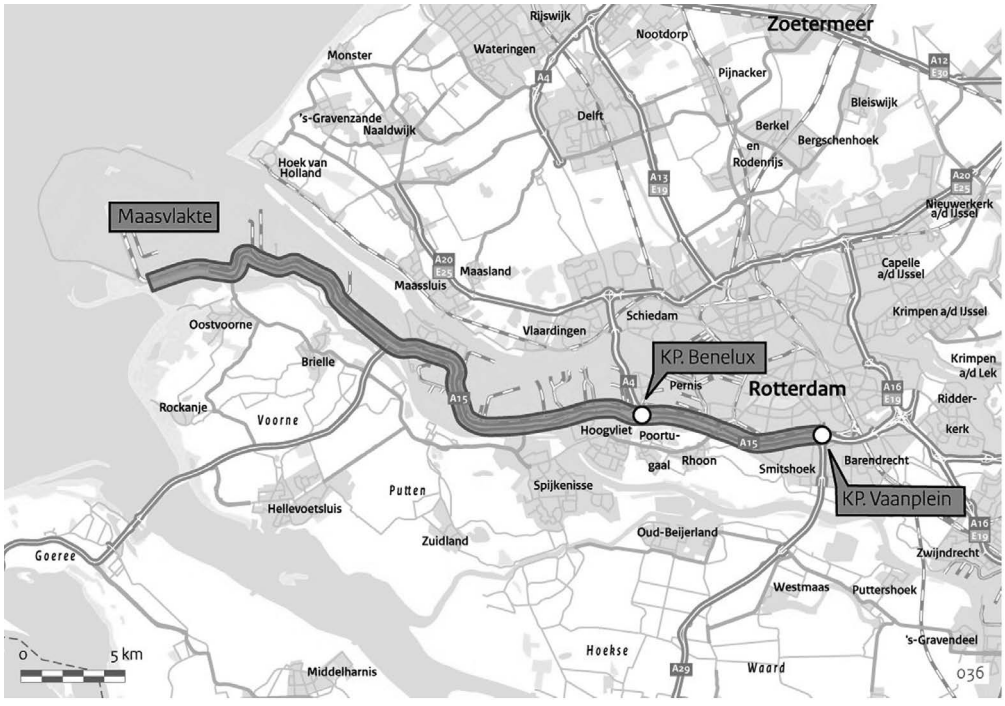
Introduction

The A15 Maasvlakte–Vaanplein megaproject is often considered a failed project in terms of budget overruns for the private partners and in terms of the collaboration between the public and private partners (e.g. Houtekamer, 2015; Verbraeken & Weissink, 2014). The project involves the design, construction and maintenance of the highway corridor between the Maasvlakte II port area and the traffic junction Vaanplein south of the city of Rotterdam, the Netherlands. The scope of the project includes the design and construction of 85 kilometres of additional traffic lanes, the renovation of 36 civil structures, the renovation of two large tunnels, the design and construction of 12 new civil structures, and the replacement of the old Botlekbridge with a new one—the new Botlekbridge is one of the largest vertical lift bridges worldwide and the largest one in Europe—as well as the maintenance of the whole infrastructure system up to 2035 (A-Lanes A15, 2010, 2013; Verweij, 2015b, 2015a). The project is located in the densely populated and highly industrialized Rotterdam metropolitan area in the south-west of the Netherlands (Figure 8.5).

The aim of the project is to improve the traffic flow (i.e. traffic and transport capacity) and safety on the 37 kilometre-long highway corridor. This was needed as a consequence of the expansion of the Maasvlakte II port area and of increasing traffic in general (Minister van Verkeer en Waterstaat, 2010; Ministerie van Infrastructuur en Milieu et al., 2015). The corridor is one of the most important connections of the port area to the hinterland (Eversdijk et al., 2011). The construction of the new Botlekbridge, which is wider and has a higher vertical clearance than the old one (A-Lanes A15, 2013) over the river Meuse, is part of the project; it also solves the nautical bottleneck related to the processing of the larger and increased numbers of ships (Ministerie van Infrastructuur en Milieu et al., 2015). Of particular importance was that, not only after project implementation but also during it, the highway corridor would remain open for traffic, because it is the only connection between the Maasvlakte II port area and the hinterland (Eversdijk et al., 2011).

The project was procured by Rijkswaterstaat in the form of a DBFM(O) contract, which transferred the risks and responsibilities for design, construction, finance (partly), and maintenance to the private contractor. The contract has a term of 25 years (2010–35). The private contractor is A-Lanes A15, which consists of three construction companies—Strukton, Ballast Nedam, and Strabag—and the project developer/investor John Laing (Verweij et al., 2017) (see also Table 8A.1). These four companies are the constituent members of the SPV, which has the DBFM(O) concession contract with Rijkswaterstaat. The SPV receives income from Rijkswaterstaat in the form of availability fees: two large payments (one at partial availability and one at the full recommissioning of the infrastructure system) and regular availability fees during the whole course of the contract up to 2035 (Verweij, 2015a). The contract represents a project value of approximately €1,500 million (A-Lanes A15, 2010; Ministerie van

[9] The description of this case is largely based on the research project by Verweij (2015b) and other publications related to it.



Source: Ministerie van Infrastructuur en Milieu et al. (2015).

Figure 8.5 The A15 Maasvlakte–Vaanplein project

Infrastructuur en Milieu et al., 2015). The A15 Maasvlakte–Vaanplein project was the largest project ever tendered by Rijkswaterstaat (A-Lanes A15, 2010; Eversdijk et al., 2011).

Besides Rijkswaterstaat and A-Lanes A15, the other main stakeholders of the project are the Municipality of Rotterdam, the Province of South-Holland, ProRail, and the Port of Rotterdam Authority (Verweij, 2015a), mainly because their infrastructure networks are affected by the A15 highway corridor—both the functioning of the corridor and the project activities related to it. For the latter reason, citizens living in the vicinity of the project are also important stakeholders.

Planning

Rijkswaterstaat was responsible for the public planning processes. In the planning process, it collected the information and finances needed to define the scope of the infrastructure challenge and to determine the general solution framework. Defining the scope of the infrastructure challenge started as early as 1996, with the publication of a start notation and a trajectory nota for the A15 highway (Commissie MER, 2000). The study identified traffic capacity problems, traffic safety, spatial quality, ecological issues and noise hindrance as the main problem areas. The initial aim was to arrive at a route decision in 2004 but this was delayed because the study into the financial feasibility of the project took longer than expected. Because the problem scope was later widened to also include the nautical bottleneck, the budget for the project

was increased in 2006 with €640 million (Ministerie van Verkeer en Waterstaat, 2009). An additional €210 million were added to the project budget to cover the internal operating costs of Rijkswaterstaat related to the project. The new target year for the route decision by then was 2009, which was again delayed, this time as a consequence of the national policy discussion about air quality. The route decision was finally taken in March, 2010, which marked the official decision to start the project. The project budget at that time was €1428 million (Ministerie van Verkeer en Waterstaat, 2010). The PPC that was subsequently performed indicated that a solution with a DBFM(O) contract would have added value for the project (Ministerie van Verkeer en Waterstaat, 2009, 2010). Because the solution for the infrastructure problem now also included the maintenance (the M-component of the contract), and not only the design and (re)construction, of the A15 highway corridor for the period 2010-2035, the project budget was increased to €1983 million (Ministerie van Infrastructuur en Milieu et al., 2012).

In the planning process, Rijkswaterstaat coordinated with the stakeholders of the project, but also the local waterboard and other smaller municipalities and boroughs of Rotterdam (Verweij, 2015a; Verweij et al., 2014). This process ultimately resulted in an administrative agreement between Rijkswaterstaat and the stakeholders in March, 2008 (www.gwwsite.nl), and in adherent implementation agreements with the stakeholders (Neerlands Diep, 2016; Verweij, 2015a; Verweij et al., 2014). In the agreements, the relationships were consolidated and agreements were made about a fast implementation of the project, the design of the infrastructure, and the integration of the project into the surrounding environment and adherent infrastructure networks, such as those of the Municipality of Rotterdam and the Port of Rotterdam Authority (Neerlands Diep, 2016). In this way, the actors cooperated on achieving an improved accessibility of the region as a whole (www.gwwsite.nl). The idea of this coordination process "was to have consensus with these actors [about the solution] beforehand so as to smoothen the project delivery [during implementation]" (Verweij, 2015a, p. 192).

Procurement

The decision to tender the project was already announced late 2008. This marked the formal start of the project procurement (Eversdijk et al., 2011). The tendering of the project through a competitive dialogue procedure started in 2009 and was finished late 2010, with the decision to select the international private consortium A-Lanes A15 as the implementing agency for the project (A-Lanes A15, 2010; Eversdijk et al., 2011; Lenferink et al., 2013; Ministerie van Infrastructuur en Milieu et al., 2015). This competitive dialogue process from late 2008 to late 2010 consisted of five phases.

In the *pre-qualification phase* (start: December 2008), four consortia registered for participation in the procurement process and all four qualified. In the subsequent *action plan phase* (start: March 2009), the potential bidders interacted with Rijkswaterstaat in two rounds of dialogue to get more details and information for developing their action plans. Rijkswaterstaat assessed the plans, aided by two advisory committees, selecting three consortia to move forward to the consultation and dialogue phases. The *consultation phase* (start: August 2009) consisted of four rounds of dialogue in which the action plans were discussed that were aimed at, inter alia, arriving at a final list of project risks and a description of the dialogue products to be delivered for the next phase. The aim of the *dialogue phase* (start: December 2009) was to explicate the basis on which the bids of the potential bidders would be assessed. This explication process was organized by means of concept dialogue products that were discussed in

dialogue teams in various rounds. At the end of the dialogue phase, the final dialogue products were assessed by Rijkswaterstaat, again aided by the advisory committees. In the *final phase*, the aim was to select the preferred bidder, by assessing the bids on predefined EMVI-criteria.[10] The preferred bidder was A-Lanes A15, with which Rijkswaterstaat signed a conditional contract that would become definitive when the bidder achieved agreement with its financiers. The financial close was reached in December 2010 (Eversdijk et al., 2011).

With the choice for a DBFM(O) contract, the risks and responsibilities for the design, construction, financing and maintenance of the project were transferred to A-Lanes A15. Importantly, the responsibility for stakeholder management was also transferred to A-Lanes A15, as a corollary of the so-called "Bahamas model" that was then the norm at Rijkswaterstaat (Neerlands Diep, 2016). According to that model, the market should unburden Rijkswaterstaat; Rijkswaterstaat should only steer from a distance. In a manner of speaking the employees of Rijkswaterstaat could "go on a holiday to the Bahamas", while the private parties would do the work. As such, the DBFM(O) contract involved a typical principal–agent relationship (cf. Klijn, 2010). It was characterized by "a separation of ownership of the infrastructure and the right to maintain and operate it; information asymmetry between the public and private actors; different interests [values]; and uncertainty due to the long life span of the relationship" (Liu et al., 2016 in Verweij & Van Meerkerk, 2021, p. 287).

An evaluation showed that the procurement process was generally successful (Eversdijk et al., 2011). The interactive nature of the procurement also meant that the principal Rijkswaterstaat and A-Lanes A15 were building a relationship and iteratively developed a solution for the A15 highway corridor. The evaluation did indicate that the transition from the consultation phase to the dialogue phase could have been improved (Eversdijk et al., 2011). At the end of the consultation phase, the scope of the contract was set; in the dialogue phase, technical solutions would be developed. Because new insights emerged in the process of developing technical solutions that asked for changes in the contract, it would have been beneficial to have had more time in the consultation phase to already work on technical solutions. As such, a softer cut between the consultation and dialogue phases might have improved the scoping of the contract (Eversdijk et al., 2011). The contract should not be fully fixed too early; retaining flexibility longer may lead to more innovative and effective solutions (Duijn et al., 2020). Here, a trade-off becomes visible between the public values of quality and flexibility (responsiveness).

Implementation

The implementation process started after the financial close and after the Route Decision was declared irrevocable in March 2011 (Ministerie van Infrastructuur en Milieu et al., 2015). The construction works started in April 2011 (Verweij, 2015a) but roughly the first year of the implementation phase was primarily dedicated to the design of the project and setting up the organization; the main construction works started a bit later. The most important deadline was the full recommissioning of the highway corridor—on 31 December 2015—and this deadline was met (Neerlands Diep, 2016).

[10] EMVI is short for 'economically most valuable tender'. EMVI-criteria are used in tenders to assess, basically, which bid has the best value (i.e., quality) for money (Rijkswaterstaat, 2016).

The organization on the principal's side was structured according to the Integrated Project Management model. On the side of the private consortium A-Lanes A15, a Special Purpose Vehicle (SPV) was created. The SPV is a "virtual organization" that has secondary contracts with financiers and with three different joint ventures. These joint ventures are between the three participating construction companies; the joint ventures are responsible for design, construction and maintenance (Verweij, 2015a). The SPV receives income from Rijkswaterstaat in the form of availability fees: two large payments (one at partial availability and one at the full recommissioning of the infrastructure system) and regular availability fees during the whole course of the contract up to 2035 (Verweij, 2015a). Because the contractual relationship is between Rijkswaterstaat and the SPV and not between Rijkswaterstaat and the construction companies the interaction between Rijkswaterstaat and the private companies is contractually limited, which fits in the then dominant "Bahamas model" at Rijkswaterstaat (Neerlands Diep, 2016). Interaction between the principal and the consortium focused on "system-oriented contract management" where Rijkswaterstaat monitors the progress and outcomes by the private contractor from a distance (Rijkswaterstaat, 2014b).

In the early period of the implementation process, which focused mainly on the design of the project, because the responsibility for stakeholder management was transferred to the private consortium, A-Lanes A15 had to get approval from the local stakeholders—with whom Rijkswaterstaat closed the implementation agreements—for the designs, before it could construct them (Verweij et al., 2014). The DBFM(O) contract is designed in such a way that it incentivizes the private consortium to meet the deadlines, so that it receives the availability fees upon which his business case for the project hinges (Verweij & Van Meerkerk, 2021). As a consequence of this pressure on time, getting the approval from the stakeholders was sometimes forgotten or rushed (Verweij et al., 2014). Here, a trade-off is visible between the public values of quality (in terms of on-time delivery of the infrastructure) and responsiveness in dealing with stakeholder issues. Several managers from the private consortium experienced time pressure and they felt that, instead of "being in control" they were "lived by" the dynamics of the project and the project director of A-Lanes A15 talked about impending budget overruns (Verweij et al., 2017). An excerpt from an analysis of this illustrates this (Verweij et al., 2017, pp. 128–129):

> Under conditions of (perceived) time pressure, engaging in interactive processes with stakeholders […] feels as time-consuming. Under these conditions, managers aimed for quick solutions within their reach […]. An example is the [situation where the] Municipality of Rotterdam [did] not approve the construction design of the Botlekbridge pillars, being unconvinced of the pillars' strength for carrying the bridge decks. A-Lanes A15's management response aimed to minimize the effect(s) of this […] event on the project planning by finding a technical solution to the problem and ordering steel for the bridge although the Municipality had not yet approved the design […]. This response generated financial risks and low satisfaction. In another [situation], A-Lanes A15 constructed a temporary road for transporting hazardous substances without coordinating the road design […] with the Port of Rotterdam Authority (another local stakeholder). Later, the Authority disapproved the road, which generated low mutual satisfaction.

The frustrated relationship between the consortium and the project stakeholders, as a consequence of the project-oriented focus of the private consortium on meeting deadlines—which it did so successfully (Neerlands Diep, 2016)—was further aggravated by the specific way in which the stakeholder management was organized (Verweij et al., 2017). The agreements made between Rijkswaterstaat and the stakeholders in the implementation agreements were

translated into specifications and demands in the tender documents during the procurement phase (Neerlands Diep, 2016; Verweij, 2015a; Verweij et al., 2014, 2017). This created several problems during implementation (Neerlands Diep, 2016). First, it appeared that the expectations of the stakeholders were not translated sufficiently concretely into the specifications and demands, leading to the situation where the designs of A-Lanes A15 did not meet the stakeholders' expectations. Second, over time—the administrative and implementation agreements were closed in March 2008—some stakeholders wanted to change their wishes and demands, leading also to additional construction works and associated costs (Neerlands Diep, 2016). Here, we see an interaction between the public values of responsibility and responsiveness, where insufficient responsibility to adhere to agreements made affects responsiveness to stakeholders.

This relationship between A-Lanes A15 and some of the stakeholders deteriorated, up to the point where the stakeholders also started to look at Rijkswaterstaat, because it was Rijkswaterstaat with whom they had the administrative and implementation agreements. A coping strategy was then applied, where Rijkswaterstaat temporarily took back the role of stakeholder manager and started to manage the relationship between A-Lanes A15 and the stakeholders, providing A-Lanes A15 the needed relief and time to adjust to its role as stakeholder manager and to become more "role mature" in this, after which the relationship between A-Lanes A15 and the stakeholders improved again (Verweij et al., 2014). A first example of this concerns the relationship between citizens in the vicinity of the project and A-Lanes A15 (Verweij, 2015a, pp. 196–197):

> Citizens complained about the nuisance of construction work […] which led to the Municipality of Barendrecht eventually rejecting their permit applications [by A-Lanes A15]. The initial […] responses by A-Lanes did not result in better outcomes […]. In [situations] that occurred later, Rijkswaterstaat became an intermediary in the process by checking […] and renegotiating […] A-Lanes' stakeholder communication policy and channels. In the most recent case […], A-Lanes' managers responded […] externally-oriented […], and Rijkswaterstaat did not become involved. Higher satisfaction was associated with these latter cases. The pattern here is that more satisfactory outcomes were achieved when Rijkswaterstaat temporarily intervened but stepped back later, after which A-Lanes used externally-oriented management autonomously.

In externally-oriented management, implementation managers involve the societal environment in dealing with issues at hand (Verweij et al., 2017). A second example concerns the relationship between the Port of Rotterdam Authority and A-Lanes A15 (Verweij, 2015a, p. 197). It concerns the earlier mentioned construction of the temporary road by A-Lanes A15 for the transportation of hazardous materials.

That situation occurred because of:

> A-Lanes' desire to make headway, but also because of its failure to improve the relationship with the [Port of Rotterdam Authority]. The relationship deteriorated to the point that A-Lanes managers felt that the [Authority] "found fault with everything", impeding the construction process […]. At some point, contra the rationale of the DBFM contract according to which the principal is minimally involved, Rijkswaterstaat stepped forward to manage the relationship between A-Lanes and the Port of Rotterdam Authority. In the most recent […] case, satisfactory outcomes were produced and Rijkswaterstaat was not involved: A-Lanes autonomously organized a deliberative process with stakeholders to find a solution to an objection of the Port of Rotterdam Authority, which resulted in a solution that satisfied all stakeholders […].

What the analysis of the A15 Maasvlakte-Vaanplein project shows (Verweij, 2015a; Verweij et al., 2014), is that the interaction between Rijkswaterstaat and the private construction consortium A-Lanes A15 in the implementation phase of the project initially was rather limited. With the DBFM contract, A-Lanes A15 had assumed the risks and responsibilities for the design and construction of the project and was thus responsible for the implementation process. This meant that implementation problems, for instance stakeholders who protested against the planning of—or nuisance caused by—the construction works, were dealt with by A-Lanes A15 mostly autonomously. Collaboration increased in the second half of the implementation phase, when trust in the "Bahamas model" was abandoned and a more collaborative attitude (coping strategy) developed (see also Neerlands Diep, 2016).

The case of the A15 Maasvlakte-Vaanplein was characterized by a gap between the planning phase and the implementation phase, leading to suboptimal outcomes, where both Rijkswaterstaat and the private contractor A-Lanes A15 did not see their interests served. This gap is in terms of a loss of social capital in the project (Busscher et al., 2022). Social capital broadly refers to the social relationships that exist between actors and the quality of these relationships in terms of trust and rapport (Cars et al., 2017). Although Rijkswaterstaat had built social capital with the stakeholders in the environment of the project during the planning phase—and this was consolidated in the administrative and implementation agreements—it did not utilize this capital to deal with stakeholder issues occurring in implementation. The reason is that the DBFM contract determined that A-Lanes A15 was responsible for stakeholder management in the implementation phase; as said, the rationale of Rijkswaterstaat was that A-Lanes had to become "mature" in its role as stakeholder manager (Verweij et al., 2014). Because the implementation agreements were closed between Rijkswaterstaat and the stakeholders and because A-Lanes A15 did not and could not play a part in this—at that point, no consortium was selected yet—A-Lanes A15 did not have the social capital to deal effectively with stakeholder issues during implementation. Moreover, the knowledge about the stakeholder interests, as recorded in the implementation agreements, was transferred from Rijkswaterstaat to A-Lanes A15 only a few months before the construction activities started (Verweij et al., 2014); hence, there had been no time to develop sufficient knowledge about stakeholder interests and demands (see also Neerlands Diep, 2016).

Achievement of Public Value

Although the maintenance period has only just started (see Table 8A.1), the A15 Maasvlakte-Vaanplein project is generally perceived as a problematic DBFM project, one of the so-called "bleeders". However, it also nourished the recent debate about the future of DBFM in the Dutch infrastructure sector (e.g., Koenen, 2019; Rijkswaterstaat, 2019) Although the project was completed on time and although objectives regarding accessibility were also met during the construction phase, as well as traffic capacity, safety and ecological quality having been met, the project was haunted by problems, most evidently visible in the Botlekbridge that was plagued by malfunctions and cost overruns (Teitsma, 2020; Verbraeken & Weissink, 2014). Besides these problems that concern material public values, procedural issues also influenced the assessment of the project as failure. Due to the prevalence of the idea of the "Bahamas model", Rijkswaterstaat had shifted risks towards the private consortium and initially refused to step in when stakeholder conflicts occurred and later when the private consortium experienced dramatic losses due to the problems with the Botlekbridge. These losses

contributed to the near bankruptcy of Dutch constructing firm Ballast Nedam and a take-over by the Turkish competitor Renaissance Construction in 2015. The A15 Maasvlakte-Vaanplein project came to be known as a "fight project"—and as an example of responsibilities being transferred to the partner who was not best able to manage those and as an example of a lack of collaboration and responsiveness. This assessment does not do justice to the project in all respects though. As stated earlier, important material public values were realized. Moreover, during the project, Rijkswaterstaat moved from an approach dominated by a focus on responsibilities—keeping the private consortium to the contract—to a more responsive and supportive approach, as the issue regarding stakeholder management shows (Verweij, 2015a).

In general, it can be stated that during the earlier planning phases of the A15 Maasvlakte-Vaanplein project, the project philosophy was that stakeholder interests should be taken into account and be safeguarded in the contract. Next to the ambitious material values, responsiveness was central and social capital in terms of a good and trustful relationship with stakeholders was built. The transition to the implementation phase implied—due to the dominance of the "Bahamas model" (Neerlands Diep, 2016)—a shift towards the public values of quality (realizing the project within time, budget, scope, and required quality) and responsibility (keeping the consortium to the contract). The transfer of risks to the private consortium can be seen as the construction of a firewall, expecting the private partner to solve all problems. The transfer to the implementation phase also implied a discontinuity in the relationship with stakeholders, since the social capital was built by the public partner, and not by the private consortium (which had not yet been granted the contract at that time) (Busscher et al., 2022).

Once the problems had become apparent, another shift in approach, public values, and coping strategies can be identified, i.e., a shift from a focus on the material project values and responsibility towards a focus on responsiveness, collaboration, and building social capital. Moving away from the "Bahamas model", Rijkswaterstaat temporarily took over the role of the private consortium in stakeholder management (Verweij, 2015a), buying time for the consortium to familiarize themselves with this role and the need to better balance material project values and responsibility on the one hand, with responsiveness to stakeholders and the construction of social capital on the other. A similar shift occurred in the relationship between Rijkswaterstaat and the consortium A-lanes A15, to bring the project to a good end, although hampered by the shadow of the earlier events. The earlier coping strategy of constructing a fire wall was replaced by incremental learning, casuistry (as we saw various issues within the project being dealt with differently), and cycling (Rijkswaterstaat temporarily stepping in). Overall, it can be stated that, despite, eventually, the realization of material public values, the clash between the values of responsibility and responsiveness damaged the reputation of the project and of the DBFM contract as an arrangement in general.

Two important lessons can be learned from this case. First, the "Bahamas model" and the associated firewall strategy—with their focus on responsibility—are less suitable to deal with the complexities and dynamics of large infrastructure projects governed by DBFM projects. Second, the value orientation and social capital built by procurers in the planning phases of projects should be persisted during in the implementation phase (Busscher et al., 2022). Ways need to be found to transfer the value orientations and relationships between the public and private teams from one project phase into the next one (cf. Van den Ende & Van Marrewijk, 2014).

Conclusion: Comparison and Reflection

This chapter discussed the emergence and performance of DBFM contracts in Dutch road and water infrastructure projects and showed how public values play out in the practice of a "failed" case—the A15 Maasvlakte-Vaanplein megaproject—and a successful one—the A9 Gaasperdammer Tunnel megaproject. Comparing the two cases, the A15 Maasvlakte-Vaanplein project was less successful due to the initial application of the "Bahamas model", which emphasizes the value of responsibility, and which did not contribute to resolving conflicts between the public and private partners. Although the project has been realized, its reputation has been damaged. The A9 Gaasperdammer Tunnel project, which was developed later, focused instead on relational contracting and on building a resilient, trustful partnership in order to find the right balance between responsibility and responsiveness. This worked out well in the realization of project values. We conclude from the two cases that procedural values have largely influenced the perception of success of a DBFM project.

Based on our findings in the two cases, we see three important mechanisms for the success or failure of the projects. First, during the course of a project, a shift in public values can be observed. In the planning phase, there is much attention to stakeholder management, the building of good relations with stakeholders and explicating interests. Agreements made in the planning phase frequently shift to the background going into the implementation phase, as public values shift to technical realization and responsibility. Although understandable, this could be considered as less appropriate, as complexity and project dynamics require responsiveness, stakeholder management, and collaboration. Therefore, managing this shift in public values that occurs during the transitions of project phases is an important mechanism in the success of a DBFM project. Second, we see coping strategies influencing the success or failure of a DBFM project. In this type of complex project, the building of firewalls does not work because during the implementation, issues arise which need cooperation and shared searching for balanced public values. Discussing cases and incremental learning can help projects to progress. Learning and reflection are important parts of responsiveness and adaptability, not to prioritize one public value over the other but instead to create space and time for balancing public values. Third, we think that responsiveness is important for DBFM projects. In DBFM projects, public values are nailed down in contracts at the project's front end, while responsiveness in the implementation phase is important for successful completion of the project. In complex infrastructure megaprojects, not all of the construction work can be predicted; frequently, unforeseen surprises pop up during implementation that result in tensions between client and contractor. Therefore, by not allowing for responsiveness, we understand the "Bahamas model" and a one-sided focus on responsibility, to be dysfunctional. In order to include responsiveness, a coping strategy of building a resilient partnership is needed. In such a partnership, relational contracting is central, with a buffering of trust and social capital which allows for responsiveness and collaboration without having to fear that this will come at the cost of the public value of responsibility, and eventually project success.

Our analysis shows that coping strategies can be supportive in overcoming value conflicts, to stimulate a synergy between conflicting public values instead of constantly trying to balance them. Public values do not exclusively compete within a zero-sum game but can strengthen each other and thus be supportive to project success; much in the same way that responsibility and material project values benefit from responsiveness. Managing public values is also about seeking coping strategies that go beyond zero sum-situations and realize these synergies.

Therefore, in our analysis we reinterpreted the public values, as presented in this chapter. For example, responsiveness is not just a public partner's opportunity to change conditions; private partners should also be allowed to do so. In another example, responsibility is not just the nailing down of a private partner to a contract, but also the responsibility of a public client (as shown in the A9 Gaasperdammer Tunnel case).

The public partner's perspective dominated the initial interpretation of the public values in this book. To us, this is an Anglo-Saxon presumption in which public and private partners are understood as opposing parties; the principal should control the agent. This dichotomous view, however, does not neatly fit the Rhineland context in the Netherlands, where partnership, collaboration, and relational management dominate. This has been learnt in the Dutch context and can be understood as a common thread through the historical development of DBFM in the Netherlands (Koppenjan & De Jong, 2018). Although contracts should provide a blueprint for collaborative behaviour (Benítez-Ávila et al., 2018), when project partners work together, relations become complex and challenging. As the relationship forms and unfolds over time, assumptions about shared goals, responsibilities, and action can become increasingly vexing and the need for responsiveness and relational contracting increases (Van Marrewijk et al., 2016; Warsen et al. 2019). The Dutch experiences with DBFM contracts are valuable for others, as problems with a strict focus on contract management and a limited understanding of public values manifest themselves globally. Anglo-Saxon countries too, need a more responsive partnership management.

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Table 8A.1 DBFM projects of Rijkswaterstaat (2003–20)

Project	Type	Contract close/ Financial close	Availability	Contract length after DB phase	Consortium	CAPEX in mln
N31 Wâldwei	Road	2003	2007	15 years	Combinatie Wâldwei (BAM, Ballast Nedam, Dura Vermeer)	<100
A59 Den Bosch-Oss/ Rosmalen-Geffen	Road	2003	2005	15 years	Poort van Den Bosch (BAM, Boskalis, Fluor)	100–250
Tweede Coentunnel	Road/ Tunnel	2008	2013	25 years	Coentunnel Company (Arcadis, Dura Vermeer, Besix, TBI)	>500
A12 Lunetten-Veenendaal (LuVe)	Road	2010	2012	20 years	Poort van Bunnik (BAM)	250–500
A15 Maasvlakte-Vaanplein (MaVa)	Road	2010	2015	20 years	A-Lanes A15 (Ballest Nedam, John Laing, Strabag, Strukton)	>500
SAA: A1/A6	Road	2012/2013	2017	25 years	SAAone (VolkerWessels, Boskalis, Hochtief, DIF)	>500
N33 Assen-Zuidbroek	Road	2012	2014	20 years	Poort van Noord (BAM)	100–250
A12 VEG	Road	2014	2016	16 years	Heijmans A12	<100
Keersluis Limmel	Water	2014/2015	2018	30 years	Rebel, Besix	<100
SAA: A9 Gaasperdammerweg	Road/ Tunnel	2014	2018	20 years	IXAS (Ballast Nedam, Fluor, Heijmans, 3i Infrastructure)	>500
Lekkanaal/Derde Kolk Beatrixsluis	Water	2016	2019	27 years	Sas van Vreeswijk (Besix, Jan de Nul, Heijmans, Rebel, TDP)	100–250
Zeetoegang IJmond	Water	2015	Planned 2022	26 years	OpenIJ (BAM-PGGM, VolkerWessels, DIF)	>500
SAA: A6 Almere	Road	2016	2020	20 years	Parkway6 (Dura Vermeer, Besix, RebelValley, John Laing)	100–250
A27/A1	Road	2016	2018	25 years	3Angle (Heijmans, 3i Infrastructure, Fluor)	100–250
N18 Varsseveld-Enschede	Road	2016	2018	25 years	Noaber18 (VolkerInfra, DIF)	100–250
Sluis bij Eefde	Water	2016/2017	2020	27 years	Lock to Twente (Mobilis, TBI, Croonwolter & Dros)	<100

Project	Type	Contract close/ Financial close	Availability	Contract length after DB phase	Consortium	CAPEX in mln
A24 Blankenburgverbinding	Road/ Tunnel	2017/2018	Planned 2024	20 years	BAAK Blankenburg-Verbinding (Ballast Nedam, Macquarie, DEME)	>500
A16 Rottterdam	Road/ Tunnel	2018	Planned 2024	20 years	Groene Boog (Besix, Dura Vermeer, Van Oord, John Laing, Rebel, TBI)	>500
HWS Afsluitdijk	Water	2018	Planned 2022	25 years	Levvel (Rebel, BAM, Van Oord)	>500
SAA: A9 Badhoevedorp-Holendrecht	Road	2019	Planned 2026	14 years	VEENIX (FCC, Siemens, Macquarie, Count&Cooper)	>500
ViA15	Road	2020	Planned 2024	20 years	GelreGroen (Dura Vermeer, Besix, Hochtief, John Laing)	>500