

Buying the best: state of the art in combining IA and infra-development

Paper presented at the 30th Annual Meeting of the International Association for Impact Assessment

6-11 April 2010, Geneva (Switzerland)

Roel Nijsten, Jos Arts & Peter Sandee¹

Abstract: The Dutch Ministry of Transport has gained much experience in combining IA and procurement-procedures for road infrastructure development. The origin for this approach lies within the goals of the procurement-strategy of the Ministry. Main objectives being: back to core-business/outourcing and project-control/delivery. In practice however this early market strategy also offers opportunities for breakthrough innovations and more sustainable road infrastructure projects. By combining IA and procurement strong (procedural) links are created between economic, social and environmental issues. In the ideal situation: “the best of both worlds/procedures are combined” and will lead to faster decision-making (and delivery) and more sustainable solutions. This first part of this paper addresses issues such as: strategy, legal requirements, opportunities and constraints, public participation. The second part of this paper focuses on lessons learned. Three cases are discussed in detail (Maasvlakte 2 Harbour extension, A2 Tunnel and urban development Maastricht, A12 Utrecht – Veenendaal highway-project). In these three cases bringing in general-contractors in early stages of infrastructure planning has proven to be rather complex. The outcomes though, are very successful. Competition on price and sustainability – embedded in a combined IA-procurement-procedure – has proven to be a fruitful business-model for achieving sustainability goals. Statement: early-market-involvement is vital for buying the best.

Keywords: infrastructure development, early market involvement, public private partnerships, contracting, best practices, legal issues, EIA.

1 Introduction

In the Netherlands, plan- and decision-making for road development projects has been heavily criticised for costing too much time and money, while the quality of resulting (EIA) studies is considered as poor (Elverding 2008; Arts 2007)). More innovation is needed in order to deal with the various spatial developments and conflicting interests in a country with scarce space. In addition to this development, the roles of national government and other parties in infrastructure providing have changed considerably over the last years in the Netherlands. This has been fuelled by the ‘Different Government’ (“Andere Overheid”) policy – closely related to new public management and neo-liberal approaches – which strives for a more efficient and effective government – “buying the best for the tax payer’s money”. The role of national government has changed in relation to (Arts 2007):

- Other governmental parties: improved coordination between ministries (“silo’s”) at the national level and decentralisation to regional/local government;
- Public: improved public participation, by early stakeholder involvement and the application of other forms of participation than just public review;
- Market: privatisation and outsourcing to the market (“market, unless”; RWS 2004) for which approaches have been applied such as early market involvement (EMI), intertwining of procurement and planning procedures (see text box), innovative contracting and partnering (during the various stages of the project life cycle).

All three, can be considered as a form *partnering* with other actors in the planning process. In this paper we focus on partnering between government and market. In its new market approach the Dutch Ministry of Transport strives for earlier and more involvement of market parties (contractors) in order to strengthen its road planning and to overcome the problems which infrastructure planning (see before; RWS 2004, Arts et al 2006). The Ministry’s procurement strategy starts from the principle of maximum outsourcing. Central objectives are (Nijsten et al 2008, Nijsten & Arts 2008):

1. Innovation: stimulating product innovation by involving market parties at an early stage where there is a lot of room for innovation (e.g. on environmental, spatial quality).

¹ Contact information: Roel Nijsten, Transportation/EIA Centre, Rijkswaterstaat, Ministry of Transport, Public Works & Water Management, P.O.

Box 5044, 2600 GA Delft, The Netherlands, phone: ++31 612288554, roel.nijsten@rws.nl

Jos Arts, Infrastructure and Environment Department, Rijkswaterstaat, Ministry of Transport, Public Works & Water Management, P.O. Box 5044,

2600 GA Delft, The Netherlands, ++31 653748103, jos.arts@rws.nl

Also professor Environmental and Infrastructure Planning, University of Groningen, e.j.m.m.arts@rug.nl

Peter Sandee, WB Consulting, Wilhelminapark 6a, 3581 NB, Utrecht, info@wbconsulting.nl

2. Project control: since decisions are based on committed 'buildable' bids of the market, more robust information on money, time, quality;
3. Savings on time (and money) due to the parallel approach of planning and procurement procedures.

Strikingly enough, (co-)financing of infrastructure is not an important issue in the Netherlands, due too the limited possibilities for tolling and the considerable budgets available for infrastructure at the national level (V&W 2010). The contracts issued that include financing – such as Design Build Finance Maintain (DBFM) contracts – are especially motivated by the internal control function of the financing parties at the contractor's side. One of the more challenging approaches of early market involvement is intertwining, which is applied especially for the purpose of innovation and spatial/environmental quality (see text box).

Intertwining

In the Netherlands, the Ministry of Transport has chosen for an approach in which the procurement procedure, the procedure for giving planning consent – i.e. the route determination, and the Environmental Impact Assessment (EIA) procedure – are carried out parallel instead of in series. The core idea of this '*intertwining*'-approach is that the market parties, to whom the construction of the project is contracted out, are involved before the planning consent decision (V&W 2005) – i.e. during preparation of the project design and EIA. This intertwining approach implies the use of the competitive dialogue procedure (EU Directive; 2004/18/EC), the awarding criterion "economically most favourable bid", as well as innovative contract forms such as D&C, DBFM, alliance etc. Because of this intertwining approach market parties are involved in early planning stages of a project when there is much more room for innovation than traditionally. However, this approach is rather complex, involves much transactions cost and there are risks of failure of procedures (Van Valkenburg 2008, RWS 2009a).

For determining the strategy of the early market involvement approach the objective (see above) has to be clear, at which three dimensions are relevant (Nijsten & Arts 2007):

1. Timing: when does contractor involvement starts in the planning process? Early involvement of market parties provides much for innovation, but high risks in process and procedures (vice versa);
2. Scope: focus on line-infrastructure or an integrated area-oriented scope? A broad scope will involve multiple parties (at government side as well as other stakeholders);
3. Role: role of the contractors in the planning process. A re-active role of testing proposed plans (alternatives) or an active role in developing alternatives, planning proposals and more commitment.

Choices with respect to the dimensions (mentioned above) result in different process set-ups. These fit more or less with the goals that early contractor involvement may serve (see above). In the rest of this paper we will discuss the experiences gained with early market involvement for road infrastructure development in the Netherlands (RWS 2009a/b). Three cases are discussed in detail: Project Maasvlakte 2 (the extension of the port of Rotterdam), A2 Maastricht (highway tunnel and urban development in the city of Maastricht), A12 Utrecht–Veenendaal (a highway extension project of the city of Utrecht). In these three cases bringing in general-contractors in early stages of infrastructure planning has proven to be very complex. The outcomes though, are very successful. Competition on price and sustainability – embedded in a combined IA-procurement-procedure – has proven to be a fruitful business-model for achieving sustainability goals. Statement: early-market-involvement is vital for buying the best.

2 Case Maasvlakte 2 (extension of port of Rotterdam)

The characteristics of this project are:

- Scope: area-oriented scope (harbour-extension and nature-development);
- Role market: mixed role contractors (bidders check EIA-report and environmental permits during procurement process, subsequently winning contractor develops within boundaries of the permit);
- Timing: early involvement in design and EIA-stage (bidders bring in international knowledge on e.g. dredging);
- Proponents: Port Authority Rotterdam (Ministries of Transport and Environment = competent authority);
- Main objective EMI: project control, delivery, "buildability";
- Budget: 2.7bln. € (= harbour-extension Maasvlakte 2 + nature-development; contract harbour 1bln. €).

Current stage of project: procurement procedure has been finished successfully (contract awarded) and (extra) EIA-procedures have been finished (permits granted). Project is on schedule and is under construction.

Goal achievement "traffic light":

- Innovation: **red** – no break through innovations, testing of EIA-results and permits contributed to early certainty of buildability.
- Project control: **green** – delivery within schedule and budget.
- Time: **green** – faster than traditional.

Analysis of strengths-weaknesses-opportunities-threats (SWOT):

- S) Much room for innovation because of early start and area-oriented scope (infra area), businesslike/commercial proponent has a strong focus on time-goals and project delivery, objective EMI is "buildability";
- W) High transaction costs, complex procedure (intertwining of EIA and procurement);

- O) Enhancing spatial and environmental quality, commitment from (international) market consortia, EIA quality by state of the art, international environmental know-how from market (effects of dredging on eco-systems);
- T) (In)sufficient quality of EIA because of habitat issues (court case about effects on the Waddensea), indirect contacts between market and competent authorities (solution: Port Authority placed in between).

Discussion of EMI approach in this case:

- Main goal of EMI was achieved; delivery was on time. There has been an early discussion about risks (technical, environmental, operation) and their distribution amongst parties. Other goals were partly achieved (innovation).
- In the final stages a risk occurred as the contract was awarded while environmental permits were not granted (yet) and court cases were ongoing. This has been solved by a covenant between the Port Authority and nature interests groups (NGO) – mediation, ‘soft approach’. A major issue in covenant was EIA-follow up (much attention).
- Context: public support proved to be crucial. Lack of support was a potential threat in the early project stages. Enlarging the project scope with nature development has solved this. Parallel to the contract of the Port Authority with the market, the port authority has a covenant with NGOs ensuring a long-lasting partnership.
- Implementation: additional sustainability requirements by city of Rotterdam for operations (e.g. Euro6 standards for freight transport trucks). Requirements with respect to land-development of industrial sites by Port Authority: businesses have to prove sustainable operations for acquiring business sites in new port.
- A critical success factor is that EIA and procurement experts have worked together in one project team.
- Combining EIA and procurement procedures results in a more businesslike EIA procedure. The project is on schedule and most studies and procedures were finished in time. However: linking the milestones in planning and procurement procedures implies risks since the outcome of public procedures is intrinsically uncertain (political issues, court-cases, granting permits by different competent authorities).

3 Case A12 Utrecht-Veenendaal (highway extension east of Utrecht)

The characteristics of this project are:

- Scope: line-oriented scope (enlarging capacity existing highway);
- Role market: role of the contractors is limited (optimisation of DBFM-contract on issues relevant to residents and other stakeholders such as sustainability, nuisance);
- Timing: after EIA and draft consent decision (no early involvement);
- Proponent: Rijkswaterstaat/Ministry of Transport (competent authority: Minister of Transport);
- Main objective EMI: optimisation of contract (on quality issues: traffic management, sustainability, nuisance);
- Budget: ca. 250 mln. €(building and maintenance).

Current stage of project: both procurement and EIA procedures are in their final stages. Project on schedule.

Goal achievement “traffic light”:

- Innovation: **orange** – procedures are not yet finished. Proposed solutions are therefore still confidential.
- Project control: **orange** – procedures are not yet finished. Delivery is expected to be within schedule and budget. Early discussion on risks
- Time: **orange** – procedures are not yet finished. Limited time-gain because of parallel procedures of planning and procurement (project is on schedule) but faster than traditional approach (= tendering after consent decision).

Analysis of strengths-weaknesses-opportunities-threats (SWOT):

- S) Early awareness of contractors on local sustainability issue. A simple approach which combines optimisation of building contracts and low procedural risk, providing possibilities for innovation and more involvement of stakeholders in the contracting process.
- W) No “breakthrough innovations” possible because of limited scope for improvement of design, higher transaction costs than traditional, and little guarantee (beforehand) on real optimisation because of limited overall budget.
- O) Through the procedural set-up bidders get early awareness of stakeholder issues. Also there is early interaction between stakeholders, tender team and potential contractors.
- T) Expectation management: disappointment amongst stakeholders e.g. (local government) due to limited optimisation related to budget constraints. In addition, stakeholders can still go to court (no final decision yet).

Discussion of EMI approach in this case:

- Since the procedures (planning/EIA/procurement) are not yet finished no final conclusions can drawn.
- Optimisation of building contracts is less complex than intertwining (very early market involvement) but nevertheless promising in achieving some improvement in quality (less nuisance, less building time etc).

- Strengths of the approach are: early awareness of bidding market parties on relevant project issues (such as traffic management, nuisance and sustainability) and interaction with (local) public. Optimisation of simple issues is possible in combination with relatively low transaction cost and low (procedural) risk profile.
- Approach is closely linked with core values of the Ministry of Transport (Public Network Management, RWS 2008) and addresses these to potential contractors (awareness).

4 Case A2 Maastricht (highway tunnel and urban development)

The characteristics of this project are:

- Scope: area-oriented scope (urban development of the city combined with highway-extension in a tunnel);
- Role market: developing role of contractors/bidders (market parties make alternative plans in competition);
- Timing: involvement (bringing in ideas) of contractors in early EIA-stage (before consent decision);
- Main objective early market involvement: innovation (maximising spatial and environmental quality);
- Proponents: Ministry of Transport, Province of Limburg and Municipalities Maastricht and Meerssen.
- Budget: 630mln. €(Tunnel, extension of road capacity, housing, business estate, park).

Current stage of project: procurement procedure has been finished successfully (contract is awarded). The EIA-procedure is ongoing and the consent decision and permits are not granted yet (risk). The project is on schedule.

Goal achievement "traffic light":

- Innovation: **green** – "break through" innovations (double-layered tunnel configuration and enriched spatial design).
- Project control: **green** – delivery within schedule and budget, certainty about buildability of project design.
- Time: **orange** – no time-gain but on schedule (NB no delay is rare in such complex project!). In addition, after the consent decision the process can be quicker than the traditional approach (as the tendering has already been completed).

Analysis of strengths-weaknesses-opportunities-threats (SWOT):

- S) Much room for innovation because of early start and area-oriented scope (combined infra and area development)
- W) High transaction costs, complex procedural set-up (intertwining of EIA-procurement), risks of procedural failure;
- O) Maximising spatial and environmental quality (as well as infrastructure) and commitment from market parties;
- T) Agreement between governmental parties on project scope and objectives takes much time, but was achieved (public public partnership). Trust issues with the stakeholders due to innovative approach and confidentiality requirements of procurement procedures, risk of insufficient quality EIA (solved by supervision of government).

Discussion of EMI approach in this case:

- A combined approach (area and road) in an urban development project enriches solutions but
 - ...requires clear agreement between public parties on goals, scope, budget, timing of project (public-public partnership between different government level). This proves to be a necessary condition for market parties to enter such complex procurement procedure (Van Valkenburg et al 2008, Arts et al. 2006); and
 - ... requires well-coordinated public procedures (EIA, route determination, land-use plan procedure) so
 - ... one has to take sufficient time in order to develop organisational set-up and 'process-architecture'.
- Independent awarding committee (tender board) of established experts: responsible for appraisal of bids and awarding advice. A critical success factor was that politicians followed the advice of the awarding committee. The fact that the awarding criteria were matching with the political objectives/issues contributed to this success (as well as the commitment of politicians to the project).
- Involvement of the public during process/procedure is essential. Public participation was crucial and was taken care of by the project-organization of A2 Maastricht. Market parties were only allowed to present their individual plans to the public within the (strict) conditions of the project-organization.
- The project-organization was responsible for the coordination of the environmental information in the EIA (scope of issues, level of detail, quality). Market parties were obliged to deliver environmental information of their own plans under the guidelines of the project-organization. After awarding the contract the final EIA report is drafted by the project-organisation and the contractor in co-makership so that the project can meet the environmental quality guidelines of the competent authority and can pass also the internal quality reviews.
- One dedicated project organisation (with team members of all government agencies involved – public-public partnering) that is responsible for both planning/EIA procedures and for the procurement has contributed highly to the success of the project. In addition, the leadership of the project director proved to be crucial as well.

5 Discussion and conclusions

On basis of the previous discussion of some practical cases in the Netherlands it can be concluded that early market involvement can deliver its goals: innovation on quality, project control / delivery and time gains. However, it is not a

panacea for all issues in project planning and EIA. Bringing in contractors in early stages of infrastructure planning has been proven to be rather complex. The cases differ, which relates to choices regarding the dimensions of (Nijsten & Arts 2007). Competition on price and quality (sustainability issues) – embedded in a combined EIA-procurement-procedure – has proven to be a fruitful business-model for achieving sustainability goals. By combining EIA and procurement in early market involvement strong (procedural) links are created between economic, social and environmental issues. The strong points of EIA relate to public participation, alternatives, and balancing interests. The strength of procurement is its business-like approach, the focus on project delivery and on control of time and budget. However, the cases make clear that there are also some points of attention: potential high transaction costs, openness to the public versus confidentiality of procurement; careful preparation of EMI approach; knowledge and skills relevant to EIA and procurement; clear objective of EMI is required in order to get a tailor-made approach. By balancing both procedures carefully “the best of both worlds/procedures are combined”, which will result in faster decision-making (and delivery) and more sustainable solutions.

Table 1: *Approaches for achieving sustainability objectives in the cases discussed.*

Strategy/approach	Sustainability issues part of project scope	Sustainability issues addressed in procurement process
Objective with respect to sustainability		
Maximising sustainability	A2 Maastricht	A2 Maastricht
Satisficing sustainability	Maasvlakte	A12 Utrecht Veenendaal

A first lesson that can be drawn from the cases discussed, is that a successful partnering between government and market requires first of all agreement on project scope and objectives between the government agencies involved (public-public partnership). Moreover, early and broad involvement of the public is also important for sufficient public support for the project. See e.g. the case Maasvlakte 2 in which a partnership between government and stakeholders (NGOs) was created. Both in the A2 Maastricht and Maasvlakte 2 cases the original scope of the project was adjusted to accommodate needs of external stakeholders (and thereby influenced the final public private partnership). Sustainability issues were successfully maximised in the A2 Maastricht case and optimised in the Maasvlakte 2 and A12 Utrecht-Veenendaal cases – by enlarging the project scope and/or incorporating this in the procurement process (see Table 1).

A second lesson that is that EMI might provide tools for involving the public and sustainability issues. For instance in the A2 Maastricht case public consultation has been part of the procurement process – the bidding market parties have improved their bids by taking into account public comments. In the A12 Utrecht-Veenendaal case members of the local government as well as a local interest group are part of the committee that appraises bids. In addition, there are incentives in the terms of reference (i.e. “extra ambitions”) for meeting extra needs of stakeholders (nuisance, sustainability).

A third lesson is that EMI helps road infrastructure projects to be delivered in time, budget and quality requirements. Public private partnerships enhance a businesslike approach, which forces politicians to make clear choices and that they stay with those choices (public-public partnering). This might be considered the “discipline of the market” effect.

References:

- Arts, E.J.M.M. (2007), *Nieuwe wegen? Planningsbenaderingen voor duurzame infrastructuur* [New roads? Planning approaches for sustainable infrastructure], inaugural speech, Groningen/Delft: University of Groningen / Rijkswaterstaat.
- Arts, J., R. Nijsten & P. Sandee (2006), “Very early contracting in EIA, Dutch experiences with parallel procedures for procurement and EIA”, paper presented at 26th Annual meeting IAIA, Stavanger, Norway.
- Elverding [Commissie Versnelling Besluitvorming Infrastructuure Projecten] (2008), *Sneller en Beter* [Advice Committee on Faster Decision-making about Infrastructure Projects], The Hague.
- EU, European Union (2004), Directive 2004/18/EC of the European Parliament and the Council of 31 march 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, Official Journal of the European Union, L134, pp. 114-239.
- Nijsten, R. & J. Arts (2007) “Early Contractor Involvement for Infrastructure Development: Experiences and Challenges”, paper presented at 27th Annual Meeting IAIA, Seoul, Korea.
- Nijsten, R., J. Arts & A. de Ridder (2008). “Early contractor Involvement, new roads to innovation! Experiences and challenges in The Netherlands”, paper *Transport Research Arena Europe Conference 2008*, Ljubljana, Slovenia.
- RWS, Rijkswaterstaat (2004), *Ondernemingsplan Doorpakken, Wel Degelijk, Een nieuw perspectief voor Rijkswaterstaat*, Ministerie Verkeer & Waterstaat Den Haag.
- RWS, Rijkswaterstaat (2008), *Ondernemingsplan Agenda 2012*, Ministerie Verkeer & Waterstaat Den Haag.
- RWS, Rijkswaterstaat (2009a), *Monitor nieuwe marktbenadering/vervlechting 2009*, drafted by WB Consulting, Rijkswaterstaat, Utrecht.
- RWS, Rijkswaterstaat (2009a), *Voorbeeldenboek nieuwe marktbenadering/vervlechting 2009*, drafted by WB Consulting, Utrecht.

- Van Valkenburg, M., S. Lenferink, R. Nijsten & J. Arts (2008). "Early Contractor Involvement: A new strategy for 'buying the best' in infrastructure development in the Netherlands". *Proceedings 3rd International Public Procurement Conference*, Amsterdam.
- V&W, Ministry of Transport, Public Works & Water Management (2005). *Werkwijzer vervlechting tracé/m.e.r.- en aanbestedingprocedure bij infrastructurele projecten* (Guidance on combining procedures for EIA/Route determination and procurement for infrastructure projects), drafted by P. Sandee & J. Arts, Rijkswaterstaat, Delft.
- V&W, Ministerie Verkeer & Waterstaat (2009), *Meerjarenprogramma Infrastructuur, Ruimte en Transport, MIRT-projectenboek 2010*, Ministeries V&W, VROM, EZ en LNV, Den Haag.