

**EARLY CONTRACTOR INVOLVEMENT:  
A NEW STRATEGY FOR 'BUYING THE BEST' IN  
INFRASTRUCTURE DEVELOPMENT IN THE NETHERLANDS**

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**ABSTRACT.** The Dutch Ministry of Transport aims for earlier involvement of contractors for strengthening its road development planning. Traditionally, in the Netherlands a tender procedure for infrastructure does not start until the public decision-making procedure is fully completed. This leaves little room for innovations by contractors. In the new strategy for early contractor involvement the tender procedure and the infrastructure planning procedure are carried out simultaneously. Added value is to be found in the area of early use of knowledge and creativity of the contractors (innovation), gaining time and better project control ('better value for tax-payers money'). This paper examines early contractor involvement in four projects for infrastructure. Subsequently, it discusses the lessons learned addressing issues such as: challenges and practical problems, pitfalls and consequences for the tender strategy of early contracting.

**INTRODUCTION**

In the Netherlands, government is responsible for the development and maintenance of the road infrastructure network. At national level, the Ministry of Transport, Public Works and Water Management (hereafter, Ministry of Transport) is responsible for the national network of highways. The role of contractors is usually limited to consultancy during the project-plan preparation stages (engineering, designing,

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impact assessment studies). After the formal consent decision contractors are involved in the construction (contracting of building activities) and operational stages (contracting out of maintenance) by means of tenders. Usually different market parties are involved in the various stages.

The Ministry of Transport aims at involving contractors earlier and more actively in the development of infrastructure and the generation of solutions for mobility-related problems. The underlying idea is that added value for society – best value for tax payer's money – can be achieved by providing more room for contractors in early stages of the infrastructure development process. This added value may include innovative solutions, better project control, savings on time and money (Nijsten et al., 2008).

In the business plan 2004 of the Ministry of Transport's operational division 'Rijkswaterstaat' – the Directorate-General of Public Works and Water Management – the principle of "market, unless" was introduced and translated into a corporate procurement strategy (V&W, 2004; V&W 2005). Tasks that are not part of the core business are sourced out to market parties. The implementation of this strategy has led to large-scale application of design and construct (D&C) contracts for construction; 'performance' contracts for maintenance; and design, build, finance, maintenance (DBFM) contracts for large projects.

This has resulted in a substantial change in the requests to contractors in tenders. No longer ready-made projects are put on the market for bidding focusing on price. Instead, open and functional questions are formulated, which have to be elaborated by contractors and are awarded on criteria of quality (economically most advantageous tender: best value procurement). However, DB(F)(M) contracts only have real added value if contractors are sufficiently free in their design and choice of method of construction (Pakkala, 2002; Pakkala, et al. 2007). This freedom can be given if the participants are involved early in the process of giving planning consent – the so-called route determination/EIA-procedure (EIA = environmental impact assessment).

Traditionally, the Dutch tender for the (re)construction of large infrastructure projects only starts after the route determination/EIA-procedure has been completed successfully with a Route Decision that gives planning consent. The Route Decision determines the final location or route, the detailed design of the road in terms of height and width, and is legally binding. After the Route Decision, only limited decision-

making takes place. The route determination/EIA-procedure is an extensive procedure whereby the Minister of Transport has to carry out a broad assessment of environmental and other impacts, and in which there is intensive consultation with regional and local authorities and other parties. Because of the direct environmental consequences, only marginal deviations from the Route Decision are allowed during the construction.

The consequence of this approach is that the contractors have very little room for flexibility to deviate from the solution as laid down in the Route Decision. As a result, innovative ideas from the contractors may have become impossible to implement. Room for optimising is only left for technical details at operational level (e.g. logistics, engineering and choice of materials); the spatial design of the road remains fixed. Because of this, the potential for realizing added value, preventing environmental impacts, and achieving cost savings are limited or lost completely for the construction contractors. Deviating from the Route Decision would imply that the route determination/EIA-procedure has to be (partly) performed again, which will cost much time and money and is often not realistic in the arena of public/political decision-making.

In the traditional procurement approach, contractors are asked in a tender procedure to generate solutions for construction and/or maintenance that comply with the framework set by the Route Decision. As a consequence, the room for alternative designs is rather limited.

Basically, the new 'early contractor involvement' approach aims to involve the contractors in construction and maintenance earlier in the planning process. It might be a solution for the shortcomings in infrastructure projects (Flyvbjerg, et al. 2003a; Flyvbjerg, et al. 2003b; Haynes and Krmenc, 1989; Van der Heijden, 1996).

Early contractor involvement is a relatively new approach to infrastructure planning in the Netherlands and also internationally (e.g., Great Britain [Nichols Group, 2007]). It is related to other terms like early supplier involvement (Wynstra et al., 2000) and supply chain management (Akkermans et al., 1999); popular terms in other fields of engineering and in business and economics. The terms share the goal of integrating planning processes (a 'life cycle perspective', see Eggers and Startup, 2006). The new 'early contractor involvement' approach for road development means involvement of the contractor in construction (and maintenance) in a tender *before* the Route Decision.

### DEFINING QUESTION

There are two specific ways to combine the tender procedure with the route determination/EIA-procedure:

- 1.Parallelization: the tender procedure starts before the consent decision and therefore runs parallel to the route determination/EIA-procedure. There is no exchange of information between the procedures.
- 2.Interweaving: the tender procedure starts before the consent decision and is 'interwoven' with the route determination/EIA-procedure, the procedures are coordinated and information is exchanged explicitly.

A 3<sup>rd</sup> way is to select first a contractor in a tender procedure and then start the route determination/EIA-procedure. Examples of this approach can be found in the UK, but this has not been applied in the Netherlands for national road projects. It is therefore not a subject of this paper.

The main goals of early contractor involvement are (V&W 2005, see also Nijsten and Arts 2007):

- 1.Innovation: using the conceptual freedom, innovative and creative input of contractors (better price/quality ration by competition);
- 2.Project control: decision-making based on committed bids from contractors, thus more robust information base for the consent decision and a businesslike and transparent decision-making process;
- 3.Time: gaining time by parallel instead of a sequence of procedures.

After several years of gaining experience the question arises if these goals are met by applying early contractor involvement in Dutch infrastructure planning.

### RESEARCH DESIGN

To answer that question the authors have studied four projects where tender and route determination/EIA-procedures are carried out parallel or by interweaving. This paper is based on the first experiences with early contractor involvement in infrastructure planning in the Netherlands (in line with the recommendations of FHA, 2005), and subsequently it has a descriptive character. It is based on interviews with project managers and document research (e.g. tender documents). The authors have also used

their personal experience in dealing with early contractor involvement and with the needed institutional transformations. The number of projects researched seems to be small and not representative for the whole Dutch infrastructure planning. However, the paper is based on several internal Rijkswaterstaat studies (e.g. "Monitor Vervlechting") the possibilities for early contractor involvement of which the four investigated projects are part of. It can be stated that the investigated projects confirm the trend noticed in the internal studies.

The findings are placed in a wider perspective considering that the resources related to interweaving both at the national and international level. Developments in adjacent fields (e.g. supply chain management and early supplier involvement) are not explicitly regarded. Although including the insights of adjacent fields to this study might be useful, it was chosen not to and to limit the study to the experiences with early contractor involvement in infrastructure planning. Obviously, a follow-up study comparing the conditions of early contractor involvement in infrastructure planning with the findings on early involvement in other fields is valuable and could be recommended for further research.

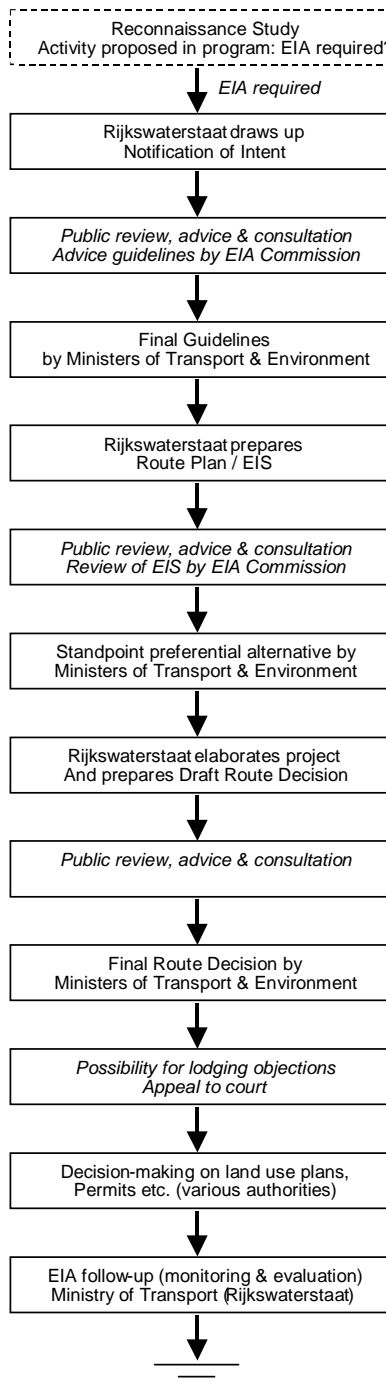
As explained above, this paper provides a definition on early contractor involvement and an overview of the experiences, followed by conclusions and recommendations. However, in order to understand early contractor involvement, some background information is first provided on the process and procedures related to road planning as well as tender procedures in the Netherlands.

### **PLANNING PROCEDURE**

The planning procedure for the (re)construction of national roads is laid down in the Dutch Infrastructure (Planning Procedures) Act (V&W 2006b). In this so-called route determination/EIA procedure the plan preparation and environmental impact assessment (EIA) procedures are fully integrated (see Figure 1).

As the first step of this procedure the Ministry of Transport draws up a Notification of Intent, which broadly outlines the proposed road development project. This outline includes an indication of the problem, the project objectives, and some possible solutions (alternatives). It

**FIGURE 1**  
**The Route Determination/ EIA-Procedure**



determines the scope of the EIA study. This Notification of Intent is made public and a first round of consultation, advice and public review is undertaken to determine the scope of the Route Plan/EIS.

Next, the Ministry of Transport prepares a Route Plan/EIS, in which the project proposal and its alternatives are elaborated and assessed for their (environmental) impacts. Various alternatives for the route are usually considered.

In addition, more detailed variants are often elaborated for specific bottlenecks or the spatial layout of the project. Generally, the Route Plan/EIS considers not only environmental impacts but also traffic, spatial and socio-economic issues. This Route Plan/EIS is subject to a second round of advice and opinions. On the basis of the information in the Route Plan/EIS and the review, the Minister of Transport – together with the Minister of Environment – chooses in his Standpoint the preferred alternative.

Subsequently, the project is worked out in more detail in the Draft Route Decision prepared by Rijkswaterstaat. This Draft Route Decision is again subject to a (third) round of public review and advice. Finally, the Minister of Transport (and the Minister of Environment) takes the Route Decision.

After this final Route Decision, the relevant provincial and municipal authorities are required to include the route in their regional plans and land-use plans respectively. Furthermore, the various relevant authorities involved grant the permits required for implementing the project. This subsequent decision-making is in fact a pro-forma process. Finally, Rijkswaterstaat can start with the construction of the road.

The Route Decision holds a central place in Dutch planning for road and other infrastructure. It determines the final location or route, the detailed design of the road in terms of height and width, and is legally binding upon national government, provinces, municipalities as well as individuals with respect to land use. On the basis of the Route Decision, land may be expropriated and houses demolished. After the Route Decision, only limited decision-making takes place because decision-making on the major highways, railways and waterways is seen as a matter of national interest.

## TENDER PROCEDURES

The European Public Procurement Directive (EU, 2004) is implemented in Decree on tender regulations for award of contracts by contracting authorities (NL, 2005). The Directive identifies different tender procedures:

1. Open procedure (no selection);
2. Restricted procedure (with pre-selection, pre-qualification);
3. Negotiated procedure without prior publication, very strict application thresholds;
4. Negotiated procedure with prior publication (hereafter: negotiated procedure) e.g. applicable if the nature of the project is such that specifications cannot be drawn up with sufficient precision to permit the award of the contract by means of the open- or restricted procedure (“no specifications ground”);
5. Competitive dialogue (new), specifically introduced for complex situations/projects and applicable if:
  - Tendering a particularly complex contract; and
  - The contracting authority finds it objectively impossible to define the means of satisfying its needs or assessing what the market can offer in the way of technical, financial and/or legal solutions.

On the basis of the Public Procurement Directive, application of the competitive dialogue is the most obvious choice (V&W 2005, Jurgens and Orobio de Castro 2005, Arts et al. 2006). In places where reference is made to the competitive dialogue, one can also read the negotiated procedure. Figure 2 depicts the general procedure for the competitive dialogue (2004/18/EC).

Both procedures include the possibilities of (Van Valkenburg and Nagelkerke 2006):

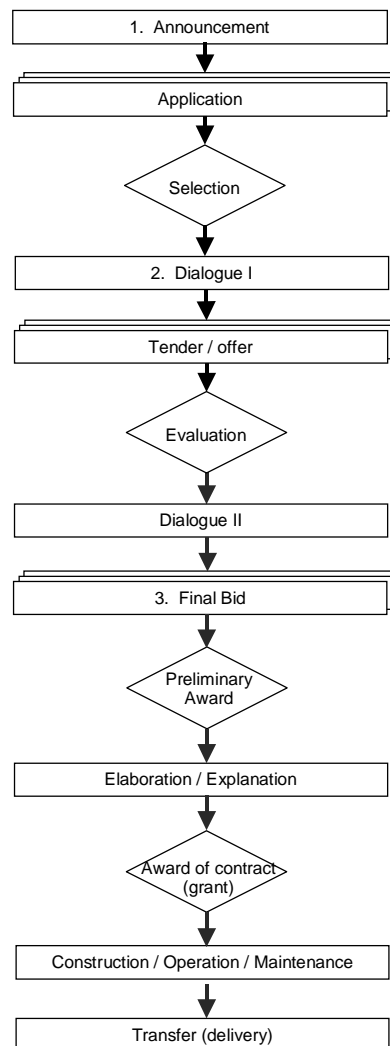
1. Developing solutions on the basis of a functional specification;
2. Holding a (confidential) dialogue with participating market parties;
3. Dividing the tender procedure into phases, to be concluded with (interim) bids (Bregman 2003, Van der Bend 2003); and



## 4. Realising competition throughout several phases (Petit 2003).

- o Core elements of the competitive dialogue are:

**FIGURE 2**  
**General Outline for the Competitive Dialogue**



- Development of projects on basis of functional specifications and technical requirements (Terms of Reference, ToR);
- Confidential dialogue between government and market parties;
- Staged process (each stage concluded by (interim) bid and competition over several stages (parties may be selected out); and

Criterion for awarding: “economically most favourable tender”.

### **EARLY CONTRACTOR INVOLVEMENT**

The key to interweaving is primarily the manner in which the tender procedure is designed. Hereby it is important that:

1. There is room for creative solutions;
2. There is intensive exchange of ideas;
3. The procedures are synchronised and run in phases.

A corresponding staged and funnel-shaped process is part of both the competitive dialogue procedure with interim bids and the route determination/EIA-procedure. In both procedures various solutions are generated, studied and elaborated in more detail in successive stages on basis of the definition of the problem and objective. In both procedures, one solution is eventually selected by means of an evaluation framework: the Route Decision and the economically most advantageous tender, respectively.

An essential element of interweaving is that the procedures of tendering and planning are linked to each other, meaning that the phases of both procedures are coordinated and that moments for decision-making of both separate procedures coincide. In this process the planning procedure is leading and the tender procedure is linked in parallel and ‘intertwined’ at essential moments with the route determination/EIA-procedure. Both procedures remain separate tracks. There is no new procedure created in which elements of both procedures are mixed.

The difficulty to solve is to prevent the two procedures from diverging and to arrive at different ‘end points’. For this reason, it is important that the information from one procedure feeds the other (exchange of ideas) and that, to the greatest extent possible, the same evaluation framework is applied for the decision-making procedure (Jurgens & Orobio de Castro, 2005).

For the interweaving approach, the framework developed by the Ministry of Transport (V&W, 2005) lays down a process in which the two procedures meet at certain points, at which information (about impacts and risks) is exchanged, and they subsequently continue on their parallel tracks. This could be seen as a form of 'living apart together'.

In the parallelization approach to early contractor involvement, the tender procedure runs also parallel with the route determination/EIA procedure but the difference is that there is no exchange of information between both procedures. The focus is not so much on exchange of information; it is just about early timing of procedures and connect them in parallel. This could be seen as living at the same storey of an apartment block as neighbours do.

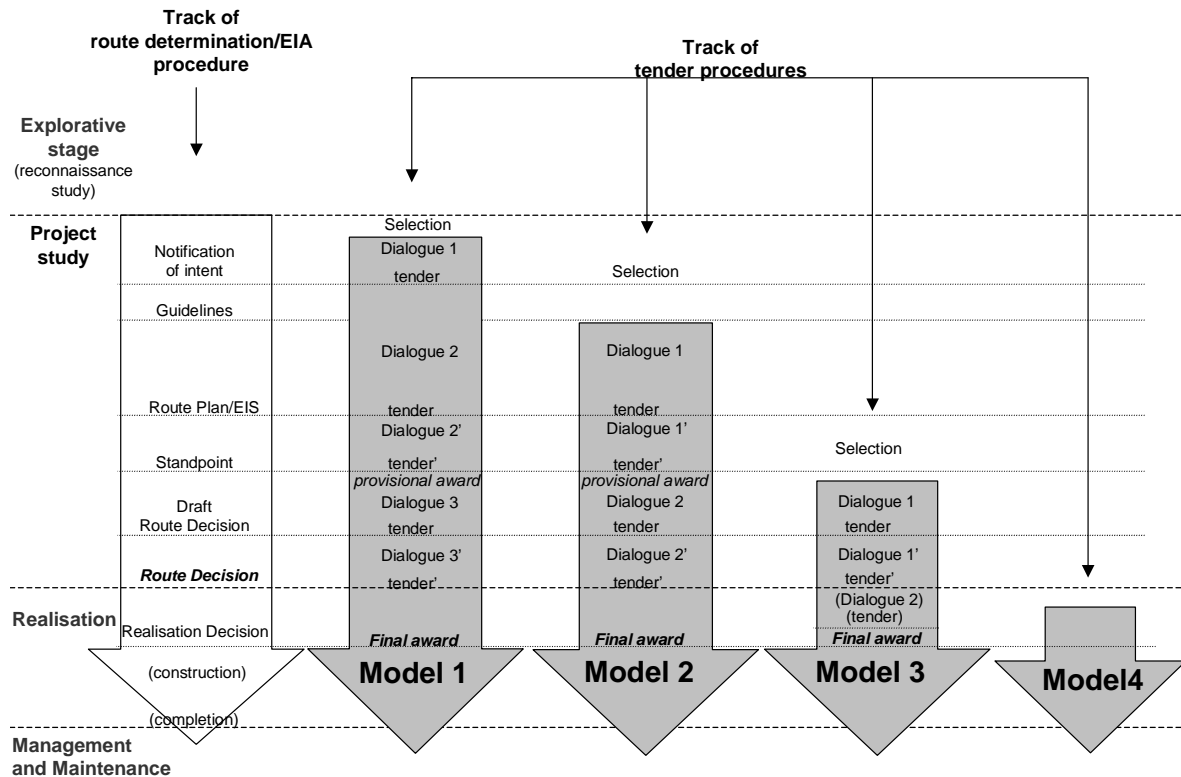
The route determination/EIA-procedure has three stages at which parallelization or interweaving may start:

1. The Notification of Intent (definition phase);
2. The EIA (study phase); and
3. The Draft Route Decision (elaboration phase).

As a consequence, there are at least three models for early contractor involvement. The main difference is the point in the route determination procedure at which the tender procedure begins (Figure 3).

An early start of combining the route determination/EIA and tender procedures (before even the notification of intent) has the advantage of providing the contractors the best opportunities to bring in own their solutions (Figure 3, model 1). The drawback is the lengthy duration of the formal administrative procedures, in comparison to the duration of regular procurement procedures. This may result in such risks as changes in scope of the project and outdated data. The most important causes of delays in route determination procedures prove to be delays themselves (Kempenaar et al. 2005, V&W 2003). When a project is delayed often its context will be subject to considerable changes, resulting from such influences as new legal regulations and requirements, new insights in (scientific) knowledge, new developments in the planning area, the entrance of new stakeholders in the policy arena and changes of views and values. In practice, therefore, the route determination/ EIA-procedure (or parts of this) often has to be re-worked in an iterative process. For a tender procedure such delays are disastrous. Therefore political and administrative support for the project is vital.

**FIGURE 3**  
**Three Models of Interweaving Procedures (Models 1-3) And The**  
**Traditional Approach Of A Process In Series (Model 4)**



Starting the combining of tender and route determination/EIA procedures might avoid the drawbacks of an early start at a later stage such as the EIA-study or the draft route decision (Figure 3, models 2 and 3 respectively). However, opportunities for contractors to propose innovative solutions will be reduced. Especially in model 3 the potential for exchange of information will be rather limited. Therefore, in this model parallelization will be more likely than interweaving.

The timing of interweaving is in essence a trade-off between, on the one hand, exploiting as much as possible opportunities for innovation

and, on the other hand, limiting the extra (political) process risk related to an early start and prolonged tender procedures (Arts et al 2006). Contractors consider 'government that knows what it wants' as a very important pre-condition for becoming involved in a tender procedure. In other words, government should provide for a clear and focused question (definition of problems and objectives).

### **PRACTICE: EXPERIENCES WITH EARLY CONTRACTOR INVOLVEMENT**

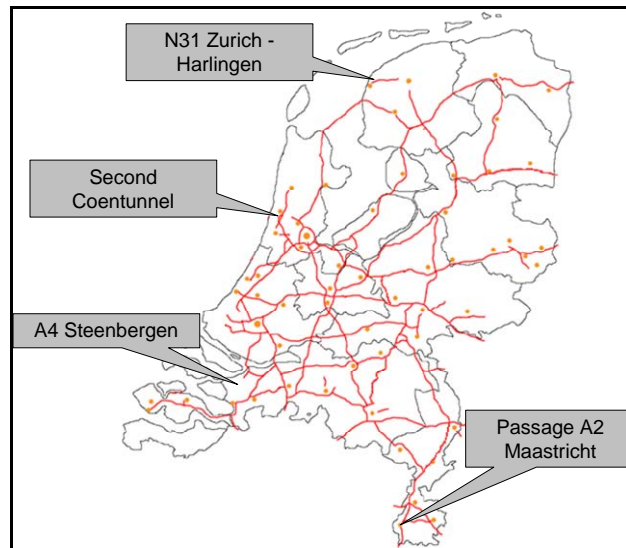
In this section, some infrastructure projects in Dutch planning practice will be investigated for their way of applying the new 'early contractor involvement' approach. The operationalization of the approach in the projects varies from parallelization to early interweaving. This section addresses for every project: a description of the project; the goals and the expectations of applying early contractor involvement approach; a description of the approach followed in the specific case; some lessons learned. The following projects are discussed:

1. Project N31 highway Zurich – Harlingen, enlargement of capacity of highway;
2. Project Capacity expansion Second Coentunnel, enlargement of capacity by construction of a new tunnel;
3. Project A4 near Steenberg, relocation of highway and enlargement capacity;
4. Project Passage A2 Maastricht, reconstruction of highway by construction of tunnel in combination with real estate development.

#### **Project N31 Highway Zurich - Harlingen**

The N31 Zurich-Harlingen project (hereafter: N31 Z-H) is one of the projects in a wider plan to enhance traffic safety and increase traffic capacity on the N31 road in the province of Friesland. The project N31 Z-H includes upgrading the current two-lane road to a four-lane road in order to increase traffic safety on the route. On basis of the Route Plan/EIS, the results of public consultation and legally required advises, the Minister of Transport has determined her Standpoint comprising a preferred solution for the four-lane road extension. Improving the current two-lane road, without constructing the extra lanes, would have been

**FIGURE 4**  
**Map of the Netherlands with the Four Cases Indicated**



equally effective and cost efficient. However, the Minister had agreed earlier on supporting the four-lane alternative, if the Province provided the extra funding needed. The funding for the D&C contract is provided by National Government, the municipalities involved and the Province of Friesland. At this moment the route determination/EIA-procedure has been completed successfully. In July 2006 the tender procedure resulted in awarding the D&C contract. A year later, in July 2007, the actual construction works had begun.

#### ***Goals and Expectations of Early Market Involvement***

In the N31 Z-H project, the route determination/EIA-procedure and the tender procedure were, for the first time in the Netherlands, being performed parallel. The possibility to apply in this project the approach of early contractor involvement only became clear after the project study phase was (almost) completed. The Minister had already formulated the Standpoint. An early contractor involvement approach in the form of parallelization of procedures was chosen because of pressure of time limits, caused by commitments regarding the project's date of completion. In order to enable timely completion parallelization of the

(remaining steps of the) route determination/EIA procedure and the tender procedure was regarded as necessary. The project main objective of early contractor involvement is in this project gaining time.

### ***Description of the Approach to Early Market Involvement***

The procurement started directly after the Draft Route Decision was made; the tender procedure therefore occurred parallel with the end of the project study phase (analogous to model 3 in Figure 3). A necessary precondition for this approach was the approval of a pre-decision on financing the project (an internal decision within the Ministry), which enabled funding to be distributed, and the continuation of the process without a definitive Route Decision. In the pre-qualification of the restricted procedure five participants were selected in a lottery. These parties were allowed to make a bid in a restricted procedure.

Early contractors' involvement has not resulted in big technical innovations in this project. Because the Draft Route Decision was already agreed upon, the contractors could not have creative input in the development of alternatives or the scope of the project. However, they did have influence in fillings gaps of knowledge in the (Draft) Route Decision. The length of the process and the risks could be better assessed using the knowledge of the contractors involved in the tender procedure. This resulted in better project control. Early contractor involvement also helped in the negotiations with stakeholders. The contractors can help bringing the project to reality for the stakeholders by talking about concrete things as sound barriers. The tender process has gained from the parallelization approach. The results of the project study could be easier and earlier implemented. This made the development of Terms of Reference (hereafter: ToR) for the tender procedure easier, and a better fit of the ToR to the outcomes of the project study was made possible. The contractors were forced to make sufficient effort to prevent delays and extra costs. This is enforced by fines for delays, which will cause the completion of the project to take place after 31 December 2008, and rewards for finishing the project earlier. In total, the early contractor approach, as applied in this case, resulted in a gain of 11 months of time compared to applying a traditional approach in which procedures are in series. This will enable project to complete within the time limit.

### ***Lessons Learned***

- A parallelization approach after the Draft Route Decision can result in potential conflict between the Route Decision and the ToR of an integrated contract. The level of detail of the Draft Route Decision could limit the creative freedom of the contractors in the tender and, subsequently, in the construction. A further specification of the (Draft) Route Decision in order to improve the legal position of the stakeholders, together with the formal-juridical character of the route determination/EIA-procedure, can limit the possibilities and the creativity of the contractors.
- The transaction costs of the project were relatively low when compared to the total budgeted costs. However, considering the size of the project and the limited room for creativity of the contractors, it could be questioned if it is justified to let five participants develop solutions that cannot provide for more creative quality.
- It is necessary to have commitment among the governmental actors beforehand. Especially in this case, with multiple actors responsible for funding and an experimental character, an agreement over the scope, preconditions and the ToR, the main conditions for the tender procedure, proves to be essential.
- The time gained by parallelization is substantial even if early contractor involvement started in a relatively late stage.

### **Project Capacity Expansion Second Coentunnel**

The project Capacity expansion of the Coentunnel is part of an infrastructure construction program that aims at stimulating the accessibility in the greater Amsterdam area. The project includes the design and construction of a second Coentunnel, the renovation of the first Coentunnel and a 30-year exploitation and maintenance of the tunnels. The resulting DBFM-contract also includes (co) funding of the project by the contractor.

In the preparatory stage of the tender procedure, the Minister of Transport, the Province of Noord-Holland, the Municipality of Amsterdam, the Authority of Amsterdam Region, and three other municipalities involved, signed a covenant in 2004.

As in the N31 Highway case early contractor involvement started at the end of the project study phase. Market parties were invited to suggest



changes in the Draft Route Decision within the boundaries of the public covenant. The DBFM-contract was reached through a competitive dialogue procedure with 5 pre-selected market parties. The dialogue included three stages:

1. In the first stage, the number of competitors was brought down to 3 on the basis of a proposed realization strategy, in which 5 essential elements for success were incorporated in plans assessed and ranked;
2. The goal of the second, consultation stage was to optimize the tender documents, and discuss the realization strategy and the inventory of risks and wishes as part of the award criteria;
3. The third stage aimed at reaching agreement over the dialogue products, the tendering and the DBFM-contract.

Subsequently, the definitive bids were requested and submitted. Afterwards, the winning contractor could be selected. The contract close took place in April 2008. The actual construction works is scheduled to start in 2009.

#### ***Goals and Expectations of Early Market Involvement***

Before the procurement procedure started, a concept for the Draft Route Decision was formulated. The Draft Route Decision has been elaborated parallel with the tender procedure. It was finalized in February 2006. The final Route Decision was taken in February 2007. It was intended to include in the final Route Decision the outcomes of the public consultation as well as beneficial measures of the contractor. These measures should have ensured a (legally) more robust Route Decision. This illustrates the projects aim for early contractor involvement, which could be characterized as focusing on project control.

#### ***Description of the Approach to Early Market Involvement***

The latter related to the issue of air quality, which is critical success factor to many road development projects in the Netherlands. In the tender procedure, air quality has been used as a qualitative sub-award criterion. It is one of the essential elements for success in the dialogue phase and it is part of the definitive tender requirements. The essential element of sufficient air quality had to be fulfilled; otherwise it would result in a (fictitious) penalty on the offer. This qualitative criterion related to the desire of the authorities to stimulate better air quality

compared to the zero-alternative (of not implementing the project and autonomous growth). To this end, the contracting authority formulated a reference package that would improve local air quality. The contractors could choose to copy these elements from the reference package into their offers, to optimize these measurements in their offer or to offer a new package of measurements that would improve the air quality. Attractive measurements that were formulated in the offer of the intended contractor would then be included in the Route Decision.

However, during the tender procedure, some external (unfavourable) developments and new insights regarding air pollution emerged. For instance, the biggest pollution sources were located outside of the project area, resulting in a limited ability for market parties to influence local air quality. Because of this, the criterion of air quality lost its importance as a distinguishing feature and it prevented the progress of creative ideas on this subject. Therefore, the (fictitious) penalties on the offers were marginal, while the investments of the contractors to improve air quality were considerably. These could be considered as out of proportion with the advantage won in the bidding process.

Eventually, a verdict of the court involving cancellation of the Route Decision of another project because of insufficient air quality studies has had its impact on the Second Coentunnel project. Additional studies into air quality research caused the Minister to adjust the Route Decision: an air pollution barrier will be constructed alongside the highway. The amended Route Decision, only considering the changes in air quality, has been made public for consultation in January 2008. The proposed measures by the preferred bidder are not included in this amendment.

### ***Lessons Learned***

- The risks of postponement of the final Route Decision were included in the award criterion 'risk allocation'. This made it possible that the party, who would financially grade the predefined risks the lowest, would be responsible for this risk. It remains questionable whether such risk should be allocated in such manner and whether contractors are able to bear such risks;
- Creative and integral ideas that did not fit in the scope of the project as defined in the Route Decision (and the covenant) were not considered in the tender procedure. Reasons for this are related to the

internal decision-making process of the Ministry of Transport and the boundaries set in the public-public covenant;

- There were no big technical innovations realised by the parallelization approach followed. The added value of early contractor involvement relates to gain of time and better project control because market biddings were known at the moment of the consent decision.

### **Project A4 Steenbergen**

The project A4 Steenbergen is part of the construction of the A4 highway between Dinteloord and Halsteren. The parts north and south of the village of Steenbergen have already been decided on in a final Route Decision. For the part in between near Steenbergen, the Route Decision has been cancelled by court. Therefore the route determination/ EIA-procedure had to be started again. Based on the (additional) EIS, the Minister has decided that the A4 will be constructed West of the village of Steenbergen. A bridge will cross the harbour of Steenbergen, unless regional parties will provide for the additional costs of constructing an aqueduct. In that case, an aqueduct will be constructed. In addition to this it has been decided that: the regional parties will fund partially the A4; the road will be completed and put into use by the year of 2012; and that the construction of the road does not prevent spatial development initiatives of the village. The village wants to provide for added costs of the aqueduct by the revenues from spatial development. However, this spatial development is not part of this project. Early contractor involvement started at the end of the project study phase. Market parties were invited to come up with suggestions to improve the Draft Route Decision especially focussing on the possibility of an aqueduct.

### ***Goals and Expectations of Early Market Involvement***

The interweaving approach of early contractor involvement aims at realizing the goals as agreed. In practice, these are investigating whether the construction of an aqueduct is feasible within the budget and by this to achieve maximum quality within the budget available.

### ***Description of the Approach to Early Market Involvement***

The tender will be performed through a competitive dialogue. In 2007, five parties have been selected to join this dialogue. The final bids have to be submitted about 11 months after starting the dialogue, and the award of the project is most likely about one month later. In the dialogue,

the Draft Route Decision (which has not been accepted and therefore is not definitive), including all the studies and documents, will be handed over to the competing contractors. The dialogue consists of three rounds, and aims ultimately at realizing the aqueduct. The final offer must include a maximum price for the complete contract, the price of the aqueduct, other content-related data like the (spatial) dimensions of the solution proposed, and drafts of the required (environmental) supporting studies. After the preliminary award of the project, the responsible authorities have the possibility to increase the budget for the aqueduct solution. If the maximum price of the bids is within the budget of the project, the competitors with the highest bids are excluded from the rest of the bidding process. The remaining 3 competitors participate in a fourth dialogue round, after which the final bids will be assessed, mainly on basis of their price. If all maximum prices of the bids are higher than the budget for the aqueduct, all competitors can make another bid for constructing the bridge. The final supporting studies have to be delivered shortly after awarding the project. The final Route Decision will be based on the bid of the winning competitor. When this decision is irrevocable, the contractor can start with the construction works.

### *Lessons Learned*

- With hindsight, some sort of market consultation before the preferred alternative was chosen would have been profitable for the early contractor approach.
- The planning and procurement experts should cooperate in one team in the preparation of a project. This cooperation is needed to address the differences in the dynamics of the project study and the tender process. However, coordination of the different teams could result in time overruns because the teams have different aims. The project study aims at a widely accepted solution, keeping as much possibilities open until the end. The tender team aims at selecting one solution, as quickly as possible, in order to contract a market party.
- Inventing, coordinating and developing an interweaving approach may take a lot of time. In this project this has taken about one year. It has to be seen whether this preparation time will be effective with respect to the time gained overall and/or the quality or project control that is realized.

- Good coordination of decision-making processes within the Ministry of Transport proves to be important for timely decision-making important to the tender procedure.

### **Passage A2 Maastricht**

The current situation of the A2 highway through the city Maastricht asks for a sustainable solution. The limited road capacity and the traffic regulation systems cause congestion and traffic circulation problems. This causes also problems for the regional and urban road systems, which in turn is disadvantageous for the accessibility of the Maastricht region. The current flow of traffic through the city causes liveability issues in the neighbourhoods alongside the A2 in terms of environmental and health impacts related to noise and air quality. The A2 highway also serves as a barrier between the different neighbourhoods of Maastricht.

In 2003, the Ministry of Transport, the Province of Limburg and the municipalities of Maastricht and Meerssen agreed on a covenant that made funding and establishing a project bureau possible. It was decided to develop a solution for the A2 passage. The competent authorities – the Ministers of Transport and Environment for the route determination/EIA procedure and the municipalities for the land-use plan procedures – preferred the tunnel alternative in June 2006.

### ***Goals and Expectations of Early Market Involvement***

The goal of the project A2 Maastricht is to come to an integral and sustainable solution for the various issues of accessibility, liveability and safety, while dissolving current spatial barriers and offering opportunities for urban redevelopment. The goal of the early contractor involvement approach is innovation, project control and best value for money.

### ***Description of the Approach to Early Market Involvement***

The planning procedures (route determination/EIA and the land-use plan procedures) started in 2004 by the publication of a Notification of Intent, before starting the tender procedures. The authorities involved did not formulate a detailed description of the works to be delivered. Instead, they limited themselves to a basic scope laid down in the ToR. The ToR comprises: the design, construction, temporary measures during construction, communication with stakeholders and procedural integration of the infrastructure and real estate. The requirements of this scope have to be met. In addition, the market parties can distinguish themselves by more or less meeting various wishes. For this, the

authorities formulated an ambition document, which gives the added value that should be aimed for when developing plans. There has been defined a maximum budget, which is determined beforehand. The best plan, within the budget, will win the tender. The the evaluation is based on the criteria: integrality and synergy, accessibility and traffic flow, architectural and ecological quality, nature and the environment, reliable techniques, and the situation during construction and the length of the construction.

The project is tendered in a competitive dialogue. In December 2006, the selection for the dialogue took place. Five competing consortia have proceeded in the first phase of the dialogue. The first round ended with a presented vision of the project and a project management plan. Both components were assessed, after which three competitors proceeded. The second, still closed and confidential, round of the dialogue started in October 2007; the competitors have to hand over an integral plan, detailed enough to enable awarding the project, second half of 2008. This plan will be made public in order to check (public) support and minimize the risk of being forced to make amendments to the plan after the project has been awarded. After this consultation phase, the plans can be altered and the final bids will be offered. Subsequently, the winning offer will be translated in a formal Draft Route Decision and EIA report.

### *Lessons Learned*

- Collaboration and agreement between the governmental actors is needed in order to enable a successful tender. Governmental support should be accommodated in formal and informal meetings. Furthermore, the parties involved should have a sufficient degree of authority to enable necessary decisions to be taken and be willing to make sacrifices for a successful cooperation .
- A combined approach including not only road (re)construction – i.e. the tunnel – but also redevelopment of the urban area above and around the road enhances the potential for innovative solutions. However, it requires well-coordinated public procedures (i.e. route determination, EIA, land-use planning procedures) as well as sufficient preparation time to develop an organizational framework and ‘process-architecture’. A clear mutual agreement of the various public parties (authorities) is essential and can be laid down in a public-public covenant (Nijsten & Arts 2007).

- One of the reasons for using an interweaving approach is to generate committed bids by the contractors. However, it is impossible to make a committed bid without a certain level of detail that involves calculations.
- Public participation is an essential condition. Stakeholders should be involved continuously. However, some information – e.g. related to the tender procedure – should be kept confidential. When applying an interweaving approach, it is not always easy to keep information inside a ‘controlled environment’.
- The tender procedure requires confidentiality, maintaining a level playing field and giving clarity about the awarding procedure. On the other hand, the public planning process aims at transparency, openness and support. These aims are opposing and could lead to conflicts.
- The market parties involved experience the length of the tender process as a burden on their available capacity. Furthermore, the level of detail of the offers requested in the first phase should not be too high. During the process the details, like side effects, will become clearer.
- The competitors have been given an information package, which stimulates the participants to develop an original vision on the project, and subsequently stimulates the creativity. These creative solutions can sometimes be outside of the set conditions and limitations. This raises the question whether the conditions and limitations should be changed, and if so, will these changes disrupt the level-playing field or give away (a part of) the developed solution?

### **CONCLUSIONS AND RECOMMENDATIONS**

On basis of the previous discussion of some first experiences with early contractor involvement in the Netherlands it can be concluded that this approach of combining tender and planning consent procedures for infrastructure may have promising results. The cases differ, which relates to choices regarding the dimensions of (Nijsten & Arts 2007):

- Time: when does contractor involvement starts in the planning process;
- Space: focus on line-infrastructure or an integrated area-oriented scope;
- 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.

Choices with respect to these dimensions, as seen in the case studies, result in different process set-ups. These fit more or less with the goals that early contractor involvement may serve.

- Time gains: although the preparation of an early contractor involvement approach may require some time – especially for an interweaving approach – the cases show that important gains in time can be achieved. This is still possible if the contractor involvement is started in a fairly late stage of the planning procedure as the traditional sequence of procedures costs much time. Not only by an interweaving approach but also by a parallelization approach such time gains can be achieved;
- Project control: enhancement of project control proves to be an important goal in most cases. With respect to project control the role of contractors can be re-active or active. When contractors are given a re-active role they are asked to test the proposals developed in the planning procedures (e.g. EIA alternatives) on their feasibility (technical, financial, buildability). Such an approach is rather straightforward, may start in a rather late stage of the planning process, will require less risks and commitment from contractors, but it will also provide for little room for innovation. When contractors have a more active role they are asked to develop alternatives themselves. This will enhance project control but also it offers much potential for innovation. However, such approach will be more complex to implement, requires commitment of both government and market parties, an open dialogue and much exchange of information. Therefore an early start and an interweaving approach is needed;
- Innovation: for achieving innovation an early start in the planning procedure of contractor involvement is essential. The earlier the start is the more room for innovation is given to contractors. The case



studies make clear that for achieving innovation just parallization is not enough but that exchange of information should be enhanced through an interweaving approach that starts early. By this, the contractors may have an active, developing role, which can be enhanced by adopting a broad project scope – an integrated area-oriented scope instead of just a scope on building line-infrastructure.

It can be concluded that especially an interweaving approach may serve the various goals of early contractor involvement but that parallelization nevertheless can be very relevant for gaining time and achieving (some) project control. For an interweaving approach an early start in the planning process is essential.

The rest of this section will address challenges and practical problems, pitfalls and consequences for practice by discussing issues as: the innovative input of market parties, the roles of the parties involved, the impact on the decision-making process, the nature of tender and planning procedures, and ways to determine which approach is most suitable in a certain case.

### **Using the Innovative and Creative Input of Market Parties**

Adopting an early contractor involvement approach of interweaving may enable that operational knowledge of contractors (about construction, exploitation and maintenance) is brought in early in the route determination/EIA-procedure. By stimulating competition between the contractors in the bidding process, optimization of solutions will be generated in an early stage of the planning process of an infrastructure project. Moreover, these solutions are simultaneously part of public debate in the route determination/EIA procedure and the solutions can be included in the (Draft) Route Decision. As a consequence, this consent decision is based on committed 'buildable' bids from market parties instead of (cost) estimations by government itself resulting in a more robust information base of the decision. Overall, this enables a better use of the operational knowledge and creativity of contractors. Next to smarter, faster and cheaper solutions (e.g. optimised life cycle costs) for the Ministry of Transport, also an added value may be found in such factors as the spatial and environmental quality – e.g. area-oriented solutions, better linkage of construction, operation and maintenance stages (Lenferink, 2007; Arts, 2007). The best opportunities for using innovative and creative input of contractors are to be found in the early

stages of the planning process. However, an early start of interweaving implies substantial risks in procedures and processes.

### **It Takes Two to Tango**

Although at first sight it might seem a small step, the tender of construction and maintenance before, instead of after, the formal consent decision (i.e. Route Decision) has huge implications (Arts et al., 2006, V&W, 2005). It results in a fundamentally different approach to the planning of infrastructure and a change in the relative roles of government, market and other parties. Government has to step back and leave room for the market. Retreating government becomes more of a facilitator or stage manager of the planning process and safeguards the process rules (apart from the formal moments when it takes decisions). Contractors have more freedom but have to accept that political dynamics becomes part of their entrepreneurial risk. Third parties, residents, environmental organisations and other stakeholders hold their legal rights and security because of public law and procedures. Accordingly, the public decision-making process is dominant. If decisions in tender and route determination/EIA-procedures do not correspond the latter procedure will succeed and the first will stop.

Not every project will be suited to early contractor involvement as both public and private parties have to acknowledge its usefulness: 'it takes two to tango'. There are indeed many, new risks related to early contractor involvement. However, the new opportunities and advantages may well outweigh these. In particular, projects with opportunities for exploitation during the operational stages will be relevant. One could think of road construction projects with a DBFM-contract, or projects for which a concession is granted or with area-development. This may include, for instance projects where, apart from road construction (and management and maintenance), development of business sites, offices, recreation facilities and/or housing also takes place. An example of this is the project 'Passage A2' near Maastricht. Such projects have more balanced revenues in relation to the (risks of) investment involved. The interests of the market party (developer) will be intrinsically more congruent with the interests of government, resulting in better operation of tender and contracting mechanisms. As the scope gets broader (including area (re)development next to line-infrastructure development), an important issue is that usually the tender procedure has to be interwoven with the route determination/EIA procedure but also with

other (spatial) planning procedures such as a land-use plan procedure. The challenge will be to develop carefully the organizational/institutional arrangements in order to overcome fragmented government and to realize an integrated approach.

### **More Businesslike and Transparent Decision-Making Process**

Currently, the Ministry of Transport makes use of own (cost) estimates for its projects. Whether, these estimates are feasible or correct becomes only clear after the tender, which is traditionally done after the Route Decision. This is a major drawback, as in such a late stage of the planning process there is/should be no way back (the Route Decision has been taken) while the estimates suffer from (over)optimism. Flyvbjerg et al. (2003) and the Dutch Parliamentary Duivesteijn Committee (TK, 2004) have pointed at this making clear that in infrastructure projects issues of underestimation of costs and overestimation of benefits are common. By allowing market parties to be involved in the route determination/EIA-procedure, it is possible to base the decision-making on committed 'buildable' bids from market parties, as these are laid down in hard contracts, resulting in more (budget) certainty. This is not only relevant from a cost perspective but also for safeguarding adequate implementation of environmental and/or social mitigation measures that are laid down in the Route Decision. The consent decision has a more robust information base, which is important not only to the competent authority but also to stakeholders like residents, interest groups etcetera.

Currently, many project studies suffer from time delays and cost overruns (Arts 2007, Kempenaar et al., 2005). The early involvement of contractors may lead to a more businesslike and transparent process of decision-making about infrastructure, resulting in a more disciplined (= without delays) project study phase. Contractors will make government alert of delays as part of the rules of the tender procedure and because their transaction costs will become higher by delays. Government will have to manage better the time limits of the project study phase, in order to achieve gains in time. This implies that governments should define clearly the scope, the problem and goals, the ambitions, the budget and the duration of the project, which will positively influence a business-like approach.

### **Openness Vs. Confidentiality**

Combining the procedures of tendering and route determination/EIA is complex as both are based on fundamental principles of law, which are potentially conflicting – contract law vs. public law (Arts et al., 2006; Van Valkenburg & Nagelkerke, 2006). The route determination/EIA procedure is focused on careful decision-making about infrastructure development, in which the interests of the residents, environment etc., must be safeguarded. Key values here are: openness to the public, ‘checks and balance’ and public consultation and advice. Central issues in the tender procedure are free and open competition. This requires unambiguous criteria for contract award that are defined before the start of the procedure. It is not possible to introduce new award criteria during the procedure, however these criteria can be elaborated in more detail. In order to prevent ‘cherry picking’ – market parties ‘borrowing’ each other’s useful ideas – sufficient confidentiality is needed in dealing with alternatives brought forward by market parties during the procedure.

When interweaving both procedures, the environmental impacts of the alternatives must be described in the EIS. Here there is potential conflict with the confidentiality needed in procurement. This tension will not prohibit the process, but requires that clear arrangements are made beforehand between market parties and government about requirements for input information and the way this will be dealt with in the planning and decision-making process. This comprises such issues as: baseline information, level of detail, use of methods, quality of results, how there will be dealt with the results of public review, advice and decision-making, and eventual questions after (preliminary) awarding and, related to this, possibilities for compensation of extra costs (reimbursement).

### **Market Scans**

It might be clear from the previous discussion, an interweaving approach may result in substantial benefits and serve important goals but it is also procedurally complex and may have many potential risks. The choice to apply early contractor involvement and apply a more or less sophisticated approach (interweaving or parallelization) is a trade-off between risks and potential revenues. For the choices regarding the dimensions of early contractor involvement (timing, spatial scope, role of market) it is necessary to know where you are going as has already been stated by Lewis Carroll in Alice’s adventures in wonderland. If you don’t know where you are going, any road will get you there (Carroll, 1865, p.

56). Since not all issues will have priority, it is preferable to choose one main goal when developing a strategy for early contractor involvement. Of course, this might be combined with defining some sub-goals and constraints. Therefore, it is important to clarify in an early stage which added value contractor involvement may have for the specific project that is planned. To this end, the Dutch Ministry of Transport has developed a 'market scan' instrument which has to be applied for every new infrastructure project of the Ministry. This market scan is an 'in-house' analysis, which makes in a structured manner clear whether early market involvement may provide opportunities for added value. This scan should be carried out early in the planning process of a project; it looks for potential value for money (i.e., in real money terms or in time or in quality), it identifies which market parties might offer this added value and how and when to approach them (V&W, 2006a). The market scan starts from the governmental perspective. Its complement from a mere market perspective is the market consultation.

#### **Market Consultation: Technical Dialogue During the Planning Procedure**

The European Public Procurement Directive (i.e. consideration 8) contains the possibility to request advice, before the tender procedure, by means of a "technical dialogue" or accept an unrequested advice, which can be used for defining the tender/contract documents. A requirement is that this will not result in exclusion or limitation of competition of market parties. Therefore, government should prevent that certain market parties are given preferential treatment and gain such competition benefits that they were not allowed to offer a bid.

By consultation with market parties the government, that want to put out a tender, can 'test' whether certain technical, financial-economical, organisational, juridical or spatial pre-conditions would have the desired result. In addition the government can discuss about the organisational set-up of the tender procedure. In short, market consultation can be seen as an exchange of information that is organised by the government with interested (pre-selected or not) market parties or experts about the coordination of mutual requirements for the preparation of a (major) governmental project.

If interweaving or parallelization of the tender and planning procedures is not possible (anymore) because of project specific reasons, it can be relevant to carry out a technical dialogue before starting the

tender procedure. In this dialogue issues relating to the products made in the route determination/EIA procedure may be presented to market parties. The government may decide to include this input in the consent decision (i.e. Route Decision). The requests that can be presented to the market parties are dependent on the project-specific situation and the way the technical dialogue is set up. This requires a careful tailor-made approach. By this, market parties may have some opportunity to provide input in the planning procedure. This can be considered as a more re-active testing role of market parties.

If the market scan and/or market consultation have negative results, then interweaving of procedures will not be useful. In that case, the route determination/EIA and tender procedures can still be carried out in sequence.

Finally, for successful early contractor involvement – and especially the interweaving approach – all parties should acknowledge that insecurity is inherent: it is needed to keep room for innovation. Parties have to get used to this, they have to give securities and detailed promises out of hands, without losing complete control. Recent Dutch experiences illustrate that while time efficiency and a more controlled project scope are relatively easy to reach via early contractor involvement, product innovation is harder to achieve. This is considered a learning process in which all parties should find their role.

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