Making toll projects a success

Factor analysis to improve the policy process of Dutch toll projects

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Making toll projects a success

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Preface

In the period from April up to November 2006 I did research on the policy process of toll projects within the project team ‘Anders Betalen voor Mobiliteit’ at the Ministry of Transport, Public Works and Water Management. This research rounds off the Master ‘Systems Engineering, Policy Analysis and Management’ at the University of Technology in Delft. This thesis is written as a result of the research.

For the readers who want to get a first impression an executive summary and a more detailed summary of the thesis are admitted from page 5. Conclusions and recommendations can be found in chapter 8 beginning at page 71.

For the realisation of this thesis I want to thank a few people in particular. I want to thank the members of my graduation committee, Bert van Wee, Odette van de Riet, Martin de Jong, Frank Burmeister and John van der Sar for assisting me in my thought process and giving me valuable feedback. I also want to thank the people I interviewed who cooperated enthuasiastically. The information from those people who were or still are involved in road pricing policies inspired me. Furthermore I like to thank the people from the project team ‘Anders Betalen voor Mobiliteit’ who shared their expertise on road pricing with me and with whom I had a great time. Special thanks to Bart van der Westen and Olof Mudde who participated in a brainstorm and the ‘werkstroom versnellingsprijs/tol’ to give me feedback. Finally, I want to thank Irmgard for taking the time to read my thesis and Just for supporting me during all those months.

Bregtje Bax
The Hague, November 2006
Executive summary

Road pricing in the Netherlands has been on the agenda since 1988, but has not been successful. Many national initiatives have never been implemented due to public and political resistance. The Ministry of Transport, Public Works and Water Management in the Netherlands wants to use road pricing measures in combination with infrastructure construction and better utilization of infrastructure to increase mobility. One part of the road pricing policy in the Netherlands is the introduction of toll projects and so called ‘accelerated action price’ projects that have as main objective financing of infrastructure. The Ministry of Transport, Public Works and Water Management wants to learn from past experiences with toll projects in the Netherlands and foreign toll projects to maximise the success of future toll projects. The objectives of this research are to analyse various policy processes of toll projects on success and failure and make recommendations for the Ministry of Transport, Public Works and Water Management to improve the policy process of toll projects. After consultation with the client the main definition of success in this research will be that an infrastructure project is realised by means of toll.

The research question of this thesis report is:
What are the decisive factors for success or failure when implementing road pricing policy, particularly toll/accelerated action price projects in the Netherlands, and how can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of toll and accelerated action price projects?

The decisive factors for success or failure that were found in many policy process steps were costs, government decision making, taking into account the interests of all involved actors and fairness. These factors contribute to the degree of political and public resistance. The most important action for all process steps to increase support in general is making package deals with regional governments, contractors and politicians. The most important actions for all process steps to increase support to realise toll are:

- Make the toll system fair for all road users in terms of toll distribution.
- Being clear to the regional governments at an early stage that no money will become available to finance those infrastructure projects. Budget allocation needs to be reorganised.

The following 4 global directions of advice will assist in improving the policy process in order to maximise the success of toll projects.

1. **Regional involvement**
Decisive factor: interests of all involved actors.
The most interesting solution of increasing the success of toll projects is regional involvement. The advice is to involve regions and municipalities more in the policy making and give them more autonomy on choosing toll projects. Four promising ways of increasing regional involvement are found in literature and interviews; the introduction of a bottom-up approach, organising a regional platform for toll project, involving regional governments more during the plan study phase and providing national legislation that enables regional initiatives.

2. **Leadership**
Decisive factor: government decision making and costs.
Leadership to make unpopular decisions on road pricing measures that are necessary for achieving the objectives of the Mobility Plan and leadership towards the regions that no extra money will become available for infrastructure projects. Road pricing projects in London, Norway and Stockholm show that strong leadership can make it happen that a project is realised. The projects also show that public support always increases after the road users experience the accessibility improvement caused by the road pricing policy. Eventually the strong leader will be praised for its actions. Leadership towards the regions concerning financial agreements is only possible when the organisation within the Ministry changes in terms of budget distribution. When one department makes a financial
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agreement with regional governments, financial resources from another part of the Ministry of Transport, Public Works and Water Management interfere. It is very important that internal communication tunes general policies.

3. **Partial decisions in each cabinet**
Decisive factor: government decision making.
Road pricing policies have met with much public and political resistance in the Netherlands and in foreign countries. Furthermore road pricing policies need long term planning for realisation, because it often requires a large system change. Long term planning is complicated by the change of a cabinet after 4 years. Each cabinet starts with an entirely new plan and has time constraints to achieve the implementation of a good road pricing scheme. This makes it important to search for anchors by means of partial decisions in each cabinet period to be able to grow to an end product.

4. **Communication to the public**
Decisive factor: fairness.
Explain road users the usefulness and necessity of toll projects with commercials and executing pilots. Communication by means of large commercial campaigns in London and Norway has resulted in a fairly positive public opinion of road pricing policies. A pilot in Stockholm of a few months also turned the majority of the public in favour of road pricing, because the traffic effects became clear.
Introduction

The current trends of globalisation and increasing welfare have led to an increase in car traffic all over the world. A positive side of this development is the economic impact that has improved living conditions in modern society. Mobility is a part of our well being, our freedom and our economy. The possibilities and choices for people where, when and how to spend their free time have increased. Mobility also improves the economic settlement climate, which creates new employment and expands existing industry sectors. Due to the increasing mobility, the traffic demand is becoming higher than the infrastructure can supply at certain places and certain periods of time. One of the negative sides of current trends is the reduction of reliability and predictability of the accessibility of the road network. The deteriorated accessibility increases pressure on the environment, economic development and the social climate. The non-productive time spent in traffic when commuting reduces the productivity of employees and the wasted time for professional traffic has a negative economic impact. Congestion causes economic damage due to longer delivery times. This problem increases especially in the urban networks and economic centres with a high density of people, many car commuters and more people who own vehicles.

One of the measures to increase mobility is road pricing. Each cabinet in the Netherlands started with an entirely new plan for road pricing and experienced time constraints to implement a good road pricing scheme. Although some local toll projects exist in the Netherlands, national initiatives of road pricing policies in the past have not been implemented. The first plan in which a type of road pricing was mentioned, was the SVV2 (Structural scheme traffic and transport 2) in 1988. From that time on many road pricing initiatives were introduced, but none of them had any success of implementation due to public and political resistance. In 2004 the Ministry of Transport, Public Works and Water Management in the Netherlands released a white paper for transport policy until 2020, the "Nota Mobiliteit" called in Dutch. In this Mobility Plan the Ministry of Transport, Public Works and Water Management has the objective of improving the main infrastructure roads in order to strengthen the economic structure. The three main measures are infrastructure construction, better utilization of infrastructure and road pricing. The Ministry of Transport, Public Works and Water Management has chosen this package of measures to influence mobility and accessibility and believes that the measures do not have sufficient effects on their own. The Ministry of Transport, Public Works and Water Management and the Ministry of Finance created the Platform ABvM, which is the Dutch Acronym for “Anders Betalen voor Mobiliteit” (Paying differently for Mobility). The Ministries wanted to receive an advice on the possibilities of paying differently for the road use and improving mobility and accessibility at the same time. In 2005 the Platform developed an integrated plan of improving the mobility in the Netherlands. The emphasis was on financing infrastructure and converting fixed taxes into a price per kilometre differentiated to time, place and vehicle characteristics. The advice of the Platform initially meant to divide the road pricing measures in to two phases.

The first phase of the road pricing policy in the Netherlands would have been the introduction of toll projects and so called ‘accelerated action price’ projects. Now the Ministry of Transport, Public Works and Water Management has decided not to use these projects as the first phase of the policy. These projects have as main objective financing of infrastructure and do not have a neutral tax burden. Toll projects partially finance the improvement of infrastructure bottlenecks with toll revenues. The ‘accelerated action price’ projects are almost similar to regular toll projects. When the government is unable to finance the improvement of infrastructure bottlenecks right away and resources are available in the future, accelerated action price is introduced. It brings infrastructure projects forward in time and only the extra costs of accelerating these projects are
financed by means of toll collection. These toll and accelerated action price projects will be finite after having paid the necessary amount of money for respectively the construction of infrastructure and accelerated action. From hereon toll projects and accelerated action price projects are described in this thesis with the phrase ‘toll projects’ as they only differ in financial sense. The second phase would have been the introduction of a national kilometre price. The toll projects were meant to precede the national kilometre price to show the public the usefulness, necessity and effectiveness of road pricing and they would function as a learning process for the implementation of the kilometre price. Now the Ministry of Transport, Public Works and Water Management will implement the kilometre price simultaneously with the toll projects. The objectives of the kilometre price are accessibility, improvement of the environment and fairness. The kilometre price is fair, because it makes road users pay in accordance with the rate of infrastructure use. Road users pay for the service of using the road network. Another aspect of fairness is that road users pay less taxes for vehicle ownership, which makes the measure have a neutral tax burden. The kilometre price improves the efficiency of the road network, because the price is differentiated to time, place and vehicle characteristics.

After the report of the Platform ABvM adjustments were made almost entirely according to the advice of the Platform in the Mobility Plan part 3. A change in the Mobility Plan was that road users start to pay toll after the improvements have been made and not during the construction phase. The Ministry of Transport, Public Works and Water Management expects that this condition decreases public resistance to toll collection. The other change in the Mobility Plan was that the target date for the kilometre price was set on 2012. The condition for its introduction is a cost reduction with a cost maximum of 5% of the estimated annual revenues. One of the consequences of the changes is that the toll projects and the kilometre price are not entirely sequential, unless the kilometre price will not make the target date of 2012. The toll projects do not end at the moment that the kilometre price begins. It takes more years to earn back the investment especially because the toll collection does not start until the infrastructure project will be finished. The new situation is that toll projects only precede the kilometre price in some parts of the decision making. This might be a risk for convincing the public that pricing is useful, efficient and effective.

The research
The research problem is the lack of success of road pricing in the Netherlands partly due to political and public resistance. The objectives of this research are to analyse various policy processes of toll projects on success and failure and make recommendations for the Ministry of Transport, Public Works and Water Management to improve policy processes of toll projects. After consultation with the client the main definition of success in this research will be that an infrastructure project is realised by means of toll.

The research question of this thesis report is:
What are the decisive factors for success or failure when implementing road pricing policy, particularly toll/accelerated action price projects in the Netherlands, and how can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of toll and accelerated action price projects?

The research question has the following sub questions.
1. Which road pricing plans and objectives exist in the Netherlands?
2. Which decisive factors for success or failure in policy processes can be found in previous research?
3. Which lessons for maximising the success of toll and accelerated action price projects can be learned from past experiences in the Netherlands and abroad?
4. How can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of toll and accelerated action price projects?
To find an ideal design of the policy process of future toll projects in the Netherlands, the following research steps are taken.

- Developing the research approach.
- Describing the road pricing plans and objectives in the Netherlands (Sub question 1).
- Designing a conceptual framework in which the policy process and the role of decisive factors for success or failure are described (Sub question 2).
- Learning lessons from previous research for the Ministry on maximising the success of toll projects (Sub question 2).
- Learning lessons from previous experience for the Ministry on maximising the success of toll projects. Two case studies are carried out (Sub question 3).
- Making an inventory of the decisive factors for success or failure for the policy process of toll projects (Sub question 3).
- Making recommendations for the Ministry of Transport, Public Works and Water Management to maximise the success of toll projects (Sub question 4).

The finished products of the research are a list of decisive factors for success or failure and recommendations for the Ministry of Transport, Public Works and Water Management to maximise the success of the toll projects. These finished products are developed by means of a conceptual framework, factor analysis, data collection and case studies.

**Conceptual framework**

The conceptual framework in this research is used to have a good overview of all aspects that influence the outcomes of interest and to structure the decisive factors for success or failure. The policy process consists of 5 policy process steps.

1. Appearance on the agenda of government decision makers.
2. Policy preparation, in which issues for action are formulated.
3. Decision making.
4. Policy implementation.
5. Policy evaluation with feedback to earlier phases.

Each country defines the content of the policy process steps differently and has other outcomes of interest from the policy process. The outcomes of interest of other policy processes have to be translated into lessons for the Dutch policy process of toll projects. The outcomes of interest eventually determine the degree of success.

**Research method**

Factor analysis is used to detect the decisive factors for success or failure in policy processes to be able to learn lessons across space and time for the Dutch toll projects. In this thesis a factor is indicated as a decisive factor for failure or success depending on the height of the score. Factors are variables, with a high score indicating success and a low score indicating failure. Decisive factors for success or failure differ for each policy process step of the policy process. The decisive factors for success or failure from previous research are compared to the general decisive factors for success or failure to determine the likelihood of occurrence during toll projects.

**Case study approach**

To learn lessons from past experience with toll projects in the Netherlands and abroad, case studies are used. The case study approach is discussed below. The following criteria are used to select 2 cases.

1) A similar political administrative culture.
2) Public or political resistance.
3) Financing infrastructure with toll as main motive.
4) Recently built (from 1990).
The first case study focuses on a Dutch toll tunnel, the Westerschelde tunnel. This case study analyses a policy process that has much in common with the policy process of the future toll projects. The Westerschelde tunnel had the same culture and same kind of actors that were involved and the same motive for road pricing. This case study can be very insightful for formulating recommendations to maximise the success of the future toll projects. The Netherlands has had other toll projects; the Zeeland bridge, the Benelux tunnel, the Prins Willem-Alexander bridge and the KIl tunnel. The Westerschelde tunnel was the last toll tunnel built in the Netherlands (construction completed in 2003), had delays due to low political priority and much information is available for examination. The only other Dutch toll tunnel that was recently built (1996) is the Wijker tunnel. Though, this toll project is less suitable as case study, because it applies shadow toll. Shadow toll means that the Dutch government pays toll for each vehicle that passes the tunnel. Other countries have applied toll projects more successfully, some countries with the objective to finance infrastructure projects as well. In consultation with the client one foreign case study is chosen; the Trondheim toll ring in Norway. Norway is chosen, because the three first criteria all apply to Norway. Trondheim is chosen, because it was the last toll ring built in Norway. Trondheim has had more political and public resistance than Oslo and Bergen.

The case studies are divided into two parts; literature study and interviews. The literature study is an analysis of the policy process of both cases. For each policy process step a list of decisive factors for success or failure, involved actors and background information is given. Finally the found factors for success or failure are compared to a list of general decisive factors for success or failure found in previous research. During the interviews an expert is asked which decisive factors for success or failure are encountered during the policy process. For the decisive factors for success, actions are proposed to make use of the factors. For the decisive factors for failure, actions are proposed to avoid the factors. The interviews are also used to validate the literature results.

**Background on road pricing**

To understand the policy process of toll projects better more background is given on road pricing in terms of mechanisms, history, motives, types of road pricing, road pricing plans and objectives in the Netherlands. The definition of road pricing that is used in this thesis is the increase of variable costs of vehicle use. Increasing variable costs increase the resistance to travel. When the resistance to travel increases by means of road pricing, traffic decreases. When the resistance to travel increases at a certain time and place, traffic is better distributed over time and space. This enables an increase of the total volume of traffic due to more efficient use of the road network, which means improved accessibility and mobility. Resistance to travel is not only caused by increasing variable costs, but also increasing travel time, less comfort, less reliability and less safety. Each country makes choices about their motives for road pricing, the type of road pricing and design options within the road pricing types. Not all countries use all these motives for the introduction of road pricing, but it occurs that they use a combination of motives. The future toll projects in the Netherlands have the main motive of “the user pays the costs”. Regulation is only seen as an additional effect. Road pricing types are highly dependent on the motives that are chosen by a country. There are many variables to take into account when designing a pricing measure.

**Outcomes of previous research**

Outcomes of previous research that are used in this research are common decisive factors for success or failure that are found in scientific literature for policy processes. This list assists in structuring the decisive factors for success or failure that are found in the case studies.
Categories of decisive factors for success or failure | Explanation of factor
---|---
1 Motivations of key actors: 
   a) Sense of urgency. 
   b) Support measures (other actors’ goals). 
   c) Political barriers. 
   d) Social barriers. 
   e) Communication and coordination. | Motivation to stay in the policy process and go to the next policy process step. 
   Make use of a window of opportunity with the following means: 
   a) Financial deficit needed for implementing a project with toll or money needed to implement the project at all. 
   b) Incorporate goals of all actors to avoid public resistance. 
   c) Make use of political sense of urgency. 
   d) Equality/short and long term thinking/openness/process/involvement. 
   e) Cooperation between actors, agreement on the common objectives and its conditions, communication to the public. 
2 Perfect compliance with those in authority, but no crippling constraints external to the implementing agency. | Implementation has to be executed as it is meant to be by policymakers, but policymakers need to solve obstacles for the implementing agency. 
3 Flexibility in technology. | Dealing with unexpected results, being able to learn and adapt, avoiding a lock-in situation at the beginning of the project. 
4 A simple implementing agency. | A clear organisation with a division of responsibilities. 
5 Institutional barriers. | Conflicts with legislation and regulation. 
6 A valid theory of direct cause and effect. | Use of a theory with a high chance of good end results and instruments with little uncertainty/risk. 
7 Adequate time and sufficient resources and the required combination of adequate resources available. | Resources are necessary for realising the toll project. 

**The Westerschelde tunnel**

The Westerschelde tunnel has collected toll since March 14 2003 and is still operational. It is the most recent toll tunnel project in the Netherlands and continues to exist until a certain amount of the infrastructure costs is paid for. The Westerschelde tunnel connected the peninsulas Zeeuws-Vlaanderen and North-Beveland of the Province of Zeeland to replace ferries that cross the river the Westerschelde, which joins the North Sea.

Decisive factors for success or failure that were found in most policy process steps were costs, interests of other actors and government decision making. The priority at the level of the national government was low, because they were not convinced right away that the tunnel was a good investment for the regional economy. Furthermore contractors, regional governments and the national government had to agree on the design and construction of the tunnel.

**The Trondheim toll ring**

Norway has approximately 4.5 million inhabitants and the population is mostly concentrated around the four large cities, which are Oslo, Bergen, Trondheim and Stavanger. Norway has more than 75 years of experience with toll roads. The first toll project started in 1932 (the Vrenge bridge). More than 100 projects followed the same concept. Besides toll 6 cities have an area levy with financing as main reason as well (Oslo, Bergen, Namso, Kristiansand, Stavanger and Tonsberg). Trondheim used to have an area levy, but paid of the whole infrastructure. This makes the toll project suitable for using it as a case study. Reasons for financing road infrastructure by means of toll are:

- Growth of road traffic.
- Lack of road capacity.
- Increasing costs of road maintenance.
- Lack of financial means for public transport.

The area levy in Trondheim started in October 1991. The project in Trondheim had the aim of improving accessibility and stimulation of environmental friendly transport. The revenues of the area levy are necessary for investing in mainly roads, but also public transport, safety and environment. The area levy had little support from the population. 70% was against the levy. The resistance decreased after the implementation below 50%
after 2 months and later on stayed between 35 and 45%. Trondheim uses automatic toll collection with modern electronic permits.

Decisive factors for success or failure, that were found in most policy process steps, were taking into account the **interests of all involved actors and fairness**. Closing a **package deal** with politicians made the realisation of the toll ring possible. The municipality made a package deal with the political parties that represented the environmental organisations. The package deal arranged that 18% of the toll revenues became an investment in public transport and that environmentally friendly solutions such as tunnels were integrated in the toll ring. Fairness was important for decreasing public resistance. The toll ring changed in a toll system with zones to distribute the toll costs in a fair manner to all road users.

**Improving the policy process**

Many actions exist to support the realisation the toll projects. Some actions support the realisation of the infrastructure projects in general and other actions are specifically focused on realising toll. The most important action for all process steps in general is making package deals with regional governments, contractors and politicians. The most important actions for all process steps to realise toll are:

- Make the toll system fair for all road users in terms of toll distribution.
- Being clear to the regional governments at an early stage that no money will become available to finance those infrastructure projects. Budget allocation needs to be reorganised.

**Conclusions and Recommendations**

Each policy process step has its own decisive factors for success or failure. The most important general factor in both case studies was involving other actors during the policy process to increase political and public support. 3 global directions of advice are recommended to increase the success of toll projects. These 3 directions of advice indicate in which way the policy process of toll projects can change for 3 important actor groups.

1. **Regional involvement**.
   Decisive factor: interests of all involved actors.
   The most interesting solution of increasing the success of toll projects is regional involvement. The Dutch Mobility Plan 'Nota Mobiliteit' states that the role of the national government is to lay down a framework for decentralised policies (MinVenWf, 2005, p. 11). Regional involvement corresponds with the principle of the Dutch Mobility Plan 'Nota Mobiliteit': "Centraal wat moet, decentraal wat kan" (which means centralised organisation of subjects for which centralised organisation is necessary and decentralised organisation of subjects for which decentralised organisation is possible) (MinVenWf, 2005, p. 10). The advice is to involve regions and municipalities more in the policy making and give them more autonomy on choosing toll projects. Four promising ways of increasing regional involvement are found in literature and interviews; the introduction of a bottom-up approach, organising a regional platform for toll project, involving regional governments more during the plan study phase and providing national legislation that enables regional initiatives.

2. **Leadership**.
   Decisive factor: government decision making and costs.
   Leadership to make unpopular decisions on road pricing measures that are necessary for achieving the objectives of the Mobility Plan and leadership towards the regions that no extra money will become available for infrastructure projects. Road pricing projects in London, Norway and Stockholm show that strong leadership can make it happen that a project is realised. The projects also show that public support always increases after the road users experience the accessibility improvement caused by the road pricing policy. Eventually the strong leader will be praised for its actions. Leadership towards the regions concerning financial agreements is only possible when the organisation within the
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Ministry changes in terms of budget distribution. When one department makes a financial agreement with regional governments, financial resources from another part of the Ministry of Transport, Public Works and Water Management interfere. It is very important that internal communication tunes general policies.

3. **Partial decisions in each cabinet.**
Decisive factor: government decision making.
Road pricing policies have met with much public and political resistance in the Netherlands and in foreign countries. Furthermore road pricing policies need long term planning for realisation, because it often requires a large system change. Long term planning is complicated by the change of a cabinet after 4 years. Each cabinet starts with an entirely new plan and has time constraints to achieve the implementation of a good road pricing scheme. This makes it important to search for anchors by means of partial decisions in each cabinet period to be able to grow to an end product.

4. **Communication to the public.**
Decisive factor: fairness.
Explain road users the usefulness and necessity of toll projects with commercials and executing pilots. Communication by means of large commercial campaigns in London and Norway has resulted in a fairly positive public opinion of road pricing policies. A pilot in Stockholm of a few months also turned the majority of the public in favour of road pricing, because the traffic effects became clear.

**Reflection**
Factor analysis is used in this thesis to learn lessons across time and space. This theory is chosen, because the definition of success that is used during this research is that infrastructure projects have to be realised with toll. Other theories focus on other definitions of success such as social economical effects of toll or the acceptation of toll and changed travel behaviour caused by toll.

When the focus is on process management, the chance increases that content is forgotten. This might lead to negotiated nonsense. Therefore the importance of the content must not be forgotten in the policy process. There were 5 preconditions linked to the objective of maximising the success of toll projects: public acceptance, improvement of the accessibility, a free alternative, minimal costs and transparency. To make sure that the preconditions are a part of the content, they need to be quantified as much as possible.

This research focuses on the objective of realising infrastructure by means of toll. To reach this objective public and political support has to increase. This research only focused on learning lessons from success cases. This has several reasons.
- The success cases have positive results. The cases are good examples of how policy processes should be to realise infrastructure projects by means of toll.
- Even success cases have had factors that can lead to failure. It is interesting to examine in which way is dealt with the factors that can lead to failure.

International differences exist with respect to decision making and motives for road pricing. When both case studies are compared to each other, differences in culture are noticed.
- The policy process in the Netherlands is more consensus driven than the policy process in Norway. Norway has had the same problems with public and political resistance, but had more leadership to implement the unpopular policy anyway. This can be explained by the differences in the decision making structure and culture of the two countries, which is described in section 2.4.3 of this report. The Netherlands is more pluralistic than Norway, which means that more obligations exist between actors.
- Norway is more federalist, which means that the lower governments take more initiatives, have more financial means and consult the central government more.
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- Furthermore the Netherlands has a low speed of decision making with an unpredictable length and a gap between national and local government.
- The length of the pricing tradition is important as well. A long pricing tradition is defined here as longer than 10 years. Countries with a short pricing tradition might have other decisive factors for success or failure, because they have to deal with technological, organisational and social problems during the start up of pricing policies. While the Netherlands has a short pricing tradition, Norway has a long pricing tradition. This difference will make it more difficult to implement road pricing policies in the Netherlands than in Norway.

In short, all these differences between the Netherlands and Norway explain why the policy process of toll projects will probably take longer and will be more difficult to execute in the Netherlands. A factor that can speed up the policy process is that toll projects in the Netherlands are more necessary than in Norway.

When the Westerschelde tunnel case is compared to future toll projects the greatest differences are:
- The administrative context of the Westerschelde tunnel differs from that of the future toll projects. The Westerschelde tunnel might have less public resistance, because the toll tunnel replaced ferries. Also in Norway it is noticed that toll projects are more acceptable when they replace ferries.
- A difficult process in combination with the kilometre price. Future toll projects have the difficulty of being implemented simultaneously with the kilometre price, which creates extra difficulties in terms of conflicting objectives.

Other foreign toll projects that are especially interesting to learn lessons from are:
- Edinburgh. Public and political resistance was so high here, that a referendum led to never starting the toll project.
- Stockholm. Stockholm is the example that pilots contribute to decreasing public resistance on toll.
- London. London established a cordon levy by means of strong leadership from mayor Ken Livingstone.

All actions to deal with the decisive factors for success or failure are potential subjects of further research. To give the Ministry of Transport, Public Works and Water Management more insight in the policy process steps the following recommendations are made for further research on the specific policy process steps.
- Appearance on the agenda
  Finding political support through all government levels. Politicians need to be convinced by having a toll system that is fair for the population.
- Policy preparation
  Toll projects seen in a broader perspective: not only finance infrastructure, but also have sufficient benefits for road users, have environmentally friendly design choices, in short have a high degree of usefulness and necessity. Broaden the scope with subjects as economy, employment and commuters.
- Decision making
  Have direct communication with decision makers.
- Policy implementation
  Let actors with knowledge play a large part during the policy implementation.
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Chapter 1 Introduction

The current trends of globalisation and increasing welfare have led to an increase in car traffic all over the world. Scenario’s of the CPB show a growth of passenger traffic of approximately 20% between 2000 and 2020. (MinV&Wd, 2005) The positive sides of this development are the economic impacts that have improved living conditions in modern society and the greater possibilities and choices for people where, when and how to spend their free time. “Mobility is a part of our well being, our freedom and our economy” (Platform AbvM, 2005, p. 19). Mobility improves the economic settlement climate, which creates new employment and expands existing industry sectors (Platform AbvM, 2005, p. 19).

One of the negative sides of current trends is the reduction of reliability and predictability of the accessibility of the road network, because the traffic demand will be higher than the infrastructure can supply (Stepher, 2004). Until 2020 delays will increase, not only during peak hour. There will be more freight traffic on the road that will be unable to avoid congestion. The accessibility problem manifests itself at certain periods of time at certain locations. This problem increases especially in the urban networks and economic centres with a high density of people, many car commuters and more people owning vehicles (Platform AbvM, 2005, p. 24). The unexpected time spent in traffic when commuting and the wasted time for professional traffic has a negative economic impact. Congestion causes longer delivery times for freight or fewer deliveries possible. Furthermore congestion has effects on traffic safety, public health and the environment (Platform AbvM, 2005, p. 26). Total social damage is partly direct damage in terms of travel time loss and partly indirect damage in terms of unreliable travel time and diverting behaviour (Platform AbvM, 2005, p. 26).

The Ministry of Transport, Public Works and Water Management wants to use road pricing measures in combination with infrastructure construction and better utilization of infrastructure to increase mobility. The definition for road pricing that is used in this thesis is increasing the variable costs of vehicle use (Verhoef et al., 2004, p. 5). There are many price instruments thinkable to let road users pay for the use of infrastructure. The objectives linked to road pricing define which price instrument and which design choices have to be chosen to reach an optimal result (Verhoef et al., 2004, p. 17). The first phase of the road pricing policy in the Netherlands would have been the introduction of toll projects and so called ‘accelerated action price’ projects. Now the Ministry of Transport, Public Works and Water Management has decided not to use these projects as the first phase of the policy. These projects have as main objective financing of infrastructure and do not have a neutral tax burden. Toll projects partially finance the improvement of infrastructure bottlenecks with toll revenues. The ‘accelerated action price’ projects are almost similar to regular toll projects. When the government is unable to finance the improvement of infrastructure bottlenecks right away and resources are available in the future, accelerated action price is introduced. It brings infrastructure projects forward in time and only the extra costs of accelerating these projects is financed by means of toll collection. These toll and accelerated action price projects will be finite after having paid the necessary amount of money for respectively the construction of infrastructure and accelerated action. From hereon toll projects and accelerated action price projects are described in this thesis with the phrase ‘toll projects’ as they only differ in financial sense. The second phase would have been the introduction of a national kilometre price. The toll projects were meant to precede the national kilometre price to show the public the usefulness, necessity and effectiveness of road pricing and they would function as a learning process for the implementation of the kilometre price. Now the Ministry of Transport, Public Works and Water Management will implement the kilometre price simultaneously with the toll projects. The objectives of the kilometre price are accessibility, improvement of the environment and fairness. The kilometre price is fair, because it makes road users pay in accordance with the rate of
infrastructure use. Road users pay for the service of using the road network. Another aspect of fairness is that road users pay less taxes for vehicle ownership, which makes the measure have a neutral tax burden. The kilometre price improves the efficiency of the road network, because the price is differentiated to time, place and vehicle characteristics (MinV8Wa, 2004).

1.1 Road pricing history in the Netherlands

To improve the reliability and predictability of the accessibility of the road network the Ministry of Transport, Public Works and Water Management chose to introduce road pricing, but did not succeed in it so far. The first plan, in which a type of road pricing was mentioned, was the SVV2 (Structural scheme traffic and transport 2) in 1988. This led to political and public resistance. From that time on many pricing initiatives were introduced, but not any of them had success of implementation due to political and public resistance, which is described by van der Sar (2005, p. xi, 69-73) and Wikipedia (www4). The most important transport issues for each cabinet are shown in table 1.

<table>
<thead>
<tr>
<th>Cabinet period</th>
<th>Important transport issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet Lubbers II 1986-1989 (Minister Smit Kroes)</td>
<td>Decrease vehicle use as a part of environmental policy</td>
</tr>
<tr>
<td>Cabinet Lubbers III 1989-1994 (Minister Maij-Wegen/ Minister Andriessen)</td>
<td>Expansion rail (Betuwe route)</td>
</tr>
<tr>
<td>Cabinet Kok I (the first &quot;purple&quot; cabinet) 1994-1998 (Minister Jorritsma)</td>
<td>Privatisation (of Dutch railways)</td>
</tr>
<tr>
<td>Cabinet Kok II (the second &quot;purple cabinet) 1998-2002 (Minister Netelenbos)</td>
<td>Free market system (of taxi branch)</td>
</tr>
<tr>
<td>Cabinet Balkenende I 2002-2003 (Minister de Boer)</td>
<td>First construction of infrastructure, then road pricing</td>
</tr>
</tbody>
</table>

Table 1: Important transport issues during various cabinet periods

- **Cabinet Lubbers II 1986-1989 (Minister Smit Kroes)**
  An important transport issue of this cabinet was the decrease of vehicle use as a part of environmental policy. The announcement of ‘rekening rijden’, which was a type of pay as you drive taxes, was made in 1988. There was a debate on organisational and technological feasibility, fraud sensitivity, cut-through traffic, fairness for poor people and high construction and exploitation costs. The second policy plan was a toll levy with 24 toll locations. Provincial and local councils and some political parties feared the consequence of cut-through traffic and congestion, which made the plan fail.

- **Cabinet Lubbers III 1989-1994 (Minister Maij-Wegen/ Minister Andriessen)**
  An important transport issue in this cabinet was expansion of rail (Betuwe route). Minister Maij-Wegen announced a vignette for driving in the rush hours in 1993 (planned implementation in 1996). The three largest fractions in parliament did not approve, which made the minister draw in the act.

- **Cabinet Kok I (the first “purple” cabinet) 1994-1998 (Minister Jorritsma)**
  The Betuwe route was inherited from the former cabinet. To decrease political resistance against the plan, the Minister had to fix it with expensive tunnels and other structural works. An extra issue is privatisation in particular of the Dutch railways. The company lost ownership and management of rail infrastructure to the state company Prorail and freight traffic was allowed to foreign competitors. The Minister announced ‘rekening rijden’ in 1994 (planned implementation 2002).

- **Cabinet Kok II (the second "purple cabinet) 1998-2002 (Minister Netelenbos)**
  After the privatisation of the Dutch railways, a free market system was initiated for the taxi branch in this cabinet period. Experiments with ‘rekening rijden’, which transformed to a rush hour levy for the 4 major cities, started in 1998. In 1999 the ANWB and Telegraaf were opposed to ‘rekeningrijden’, because they believed that road users would not receive benefits from paying for road use. Netelenbos discussed with the 4 major cities ‘rekening rijden’ to ameliorate the accessibility by road of the 4 major cities (Amsterdam, Rotterdam, Den Haag, Utrecht), including a package of infrastructure investments and a rush hour tax. Utrecht refused. The Minister decided in 2001 with reference to the upcoming elections that the unpopular
‘rekening rijden’ was not necessary, because kilometre charge was possible. The Mobimiles report from Pieper confirmed this and the Cabinet decided to stop ‘rekeningrijden’. The Cabinet announced kilometre charge (planned introduction in 2006). May 2002: In the formation of a new Cabinet: they decided to stop the kilometre charge project, because it was too expensive.

- Cabinet Balkenende I 2002-2003 (Minister de Boer)
  This cabinet wanted first construction of infrastructure, then road pricing. The Accessibility and Mobility Act of 2002 made it legal to finance new infrastructure through toll collection (MinV&Wc, 2005, p. 7). The Accessibility and Mobility Act defined that toll could only be used for financing investments in infrastructure and toll could only be collected on roads that were built after the law came in effect (October 10, 2002). The Accessibility and Mobility Act also prescribed that the costs could not be more than 20% of the toll revenues (MinV&Wc, 2005, p. 8).

Feasibility studies are done on the toll projects based on the Accessibility and Mobility Act. The conclusion was that the Accessibility and Mobility Act is not able to solve the traffic problem and in addition is not financially feasible. The legislation has to be adjusted to extend the possibilities of toll projects (MinV&Wc, 2005, p. 7). The adjustment of the Accessibility and Mobility Act leads to allowing toll to be collected on existing infrastructure in order to avoid the increase of cut-through traffic. The Accessibility and Mobility Act is enabling legislation, which means that in addition a new law has to be formulated for the introduction of the kilometre price (Platform ABvM, 2005, p. 40).

1.2 Research problem
The Dutch road pricing history emphasises the fact that each cabinet starts with an entirely new plan. Most cabinets have 4 years to implement a road pricing scheme and some cabinets even have less than 4 years when they don’t get the chance to finish their term. The time constraints make the implementation of a good road pricing scheme in one cabinet period very difficult. Although some local toll projects exist in the Netherlands, national initiatives of road pricing policies have met much more resistance in the past and have not been implemented. Other countries have applied toll projects initiated from central government more successfully, some countries with the objective to finance infrastructure projects as well. The Platform ABvM mentioned a lack in information to the public as the main cause for the existence of political and public resistance, but there might be more pitfalls and reasons for public and political resistance to consider, that are caused by the various steps of the Dutch policy process that is used for introducing road pricing. This has to be taken into account when designing the policy process for the future toll projects. The research problem is the lack of success of road pricing in the Netherlands partly due to political and public resistance. This lack of success poses a threat for the realisation of the future toll projects. Political and public resistance might still exist for all road pricing policies in general. The Ministry of Transport, Public Works and Water Management needs more clarity on the causes of success or failure of toll projects and which actions of the Ministry of Transport, Public Works and Water Management assist in maximising the success of toll projects.

1.3 Research goal
The objectives of this research are:
- To analyse various policy processes of toll projects on the decisive factors for success or failure
- Give the Ministry of Transport, Public Works and Water Management recommendations on maximising the success of the future toll projects.

1.3.1 Demarcation
After consultation with the client the main definition of success in this research is that infrastructure projects have to be realised by means of toll. This thesis only focuses on
one part of the road pricing policy to keep the scope of the problem clear. The Ministry of Transport, Public Works and Water Management uses a number of preconditions linked to this objective (MinV&Wd, 2005, p. 25):

- Public acceptance. Road users have to believe in the usefulness, necessity and effectiveness of the projects.
- Improvement of the accessibility. The traffic flow needs to improve substantially, which is why pricing can only start after the new infrastructure is finished.
- A free alternative next to the toll infrastructure.
- Minimal costs. The administration and collection costs should be as low as possible. The road user only pays the costs of moving the project forward in time in the case of the accelerated action price. In the Accessibility and Mobility Act is fixed that the costs are not allowed to be more than 20% of the benefits.
- Transparency. Road users should have an overview of the amount of money that they have to pay and how that money is used.

The recommendations of this research on improving the policy process of toll projects are tuned to satisfy these preconditions. The preconditions will not be discussed with respect to content, but will be taken into account in the organisation of the policy process. Rose describes that from a technical perspective a program works if it has been implemented and remains in effect, while from a political perspective a program works if it produces more satisfaction than dissatisfaction. (Rose, 1993, p. 28). All mentioned preconditions focus on the political perspective. The precondition improvement of accessibility also has a strong influence on the technical perspective. “Policymakers have a bias toward satisfaction and there is a tendency to adjust aspirations down or up as performance alters” (Rose, 1993, p. 72). Rose calls the technical and political criterion respectively practicality and desirability. (Rose, 1993, p. 46). The best policy design has high practicality and high desirability.

This research focuses on the Dutch pricing policies of toll projects and comparable foreign toll projects. It elaborates on the kilometre price when coherence and interfaces exist with toll projects. The Ministry of Transport, Public Works and Water Management believes that the toll projects are able to reach the objectives of increasing mobility and accessibility.

1.3.2 Research question

The research question of this thesis report is:
What are the decisive factors for success or failure when implementing road pricing policy in particular toll/accelerated action price projects in the Netherlands and how can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of toll and accelerated action price projects?

The research question has the following sub questions:
1. Which road pricing plans and objectives exist in the Netherlands? (Chapter 3)
2. Which decisive factors for success or failure in policy processes can be found in previous research? (Chapter 4)
3. Which lessons for maximising the success of toll and accelerated action price projects can be learned from past experiences in the Netherlands and abroad? (Chapter 5 and 6)
4. How can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of the toll and accelerated action price projects? (Chapter 7)

1.3.3 Social and scientific relevance
Mobility is very important for the Dutch society, because it is a condition for economic growth and a strong economy (MinV&Wa, 2004). It stimulates the Dutch economy and
creates more possibilities and choices for people where, when and how to spend their free time. On the other hand congestion increases rapidly, which has a negative influence on the Dutch society and economy. This makes it necessary to do research on improving the infrastructure by financing it with toll projects or bringing infrastructure projects forward in time with toll until financial resources are available. Until now toll projects have not received much public acceptance in the Netherlands. An important part in the decision making process is how to minimise public resistance. From a scientific point of view it is interesting to find the decisive factors for success or failure when implementing toll projects. Foreign toll projects are further developed than toll in the Netherlands. More research on foreign decision making processes combined with factor analysis enables the Dutch Ministry of Transport, Public Works and Water Management to learn from successes and mistakes that are already made and implement it in the Dutch policy process on a short term.

1.4 Research steps

To find an ideal design of the policy process of future toll projects in the Netherlands, the following research steps are taken.

- Developing the research approach.
- Describing the road pricing plans and objectives in the Netherlands (Sub question 1).
- Designing a conceptual framework in which the policy process and the role of decisive factors for success or failure are described (Sub question 2).
- Learning lessons from previous research for the Ministry on maximising the success of toll projects (Sub question 2).
- learning lessons from previous experience for the Ministry on maximising the success of toll projects. Two case studies are carried out (Sub question 3).
- Making an inventory of the decisive factors for success or failure for the policy process of toll projects (Sub question 3).
- Making recommendations for the Ministry of Transport, Public Works and Water Management to maximise the success of toll projects (Sub question 4).

1.5 Thesis outline

In figure 1 each chapter is represented in more detail. The structure of the thesis report is as follows:

- In chapter two the research approach is presented and the functions of factor analysis, the case study approach, data collection and the conceptual framework are explained.
- In chapter three the theory and Dutch history of road pricing are further elaborated.
- In chapter four a list of decisive factors for success or failure from previous research are given.
- Chapter five and six present two case studies and their results, respectively the Westerschelde tunnel and the Trondheim toll ring in Norway.
- Chapter seven proposes actions to maximise the success of toll projects.
- Chapter 8 provides conclusions and recommendations for the Ministry of Transport, Public Works and Water Management to maximise the success of toll projects.
- Chapter 9 reflects on the choices that are made during this research.
Figure 1: Thesis outline
Chapter 2 Research approach

In this chapter the research approach is discussed. The deliverables of the research are a list of decisive factors for success or failure and recommendations for the Ministry of Transport, Public Works and Water Management to maximise the success of the toll projects. This chapter explains how these deliverables are developed by means of a conceptual framework, factor analysis, data collection and case studies. To be able to maximise the success of toll projects, the general policy process of toll projects is described in a conceptual framework. Factor analysis is the method used to find a list of decisive factors for success or failure in various policy process steps. Recommendations for possible changes in the policy process are sought to deal with the decisive factors for success or failure in various policy process steps. The section on data collection describes which documents are used for general information on road pricing, policy processes and factor analysis and which documents are used for specific information on toll projects and policy processes of toll projects. The case study approach gives information on the criteria for the case selection of this thesis. The case studies give specific information on the decisive factors for success or failure of two toll projects and a chronological description of their policy processes.

2.1 Conceptual framework

In figure 2 a conceptual framework is shown in which the various policy process steps and the various inputs of a policy process are placed. This framework assists in structuring the decisive factors for success or failure that influence the policy process in each policy process step.

![Figure 2: policy analysis framework](image)

The conceptual framework in this research is used to have a good overview of all aspects that influence the outcomes of interest. The framework has elements in common with a general policy analysis approach from Walker (2000, p. 4). The system domain for
policies stands for the policy process steps that have as input policies and external forces and as product outcomes of interest.

2.1.1 Policy process steps

The steps in the system domain for policies are derived from another source than Walker. Edelenbos et al (2003, pp. 4-5) mentions a break down of 5 policy process steps from the thesis of Twaalfhoven (1999, pp. 16-18):

1. Appearance on the agenda of government decision makers
2. Policy preparation, in which issues for action are formulated
3. Decision making
4. Policy implementation
5. Policy evaluation with feedback to earlier phases

1. Appearance on the agenda is the policy process step in which the policy process is influenced by the actors that take initiatives to start a project. The government decision makers decide which issues appear on the agenda and which scope is used.

2. After the initiation of a project issues for action are formulated in the policy process step of policy preparation (Twaalfhoven, 1999, p. 17). Policy preparation is the part of the policy process where amongst other things the preconditions for a project are determined. Policy preparation gives an elaboration on the project and design choices with the related argumentation. It refers to the criteria that have to be met with in order to make projects successful. The criteria are based on transport studies (avoidance of cut-through traffic and realisation of a free alternative), financial feasibility and public acceptance. The policy process step also has sub steps.

   2.1 Legislation lays down project decisions in laws to make projects legal and regulation makes sure that rules and laws are followed. It is the foundation of the implementation of projects. Laws have to be changed and legal procedures have to be passed through and road users have to abide by them.

   2.2 Design choices have to be made with respect to the improvement of traffic flows and financial feasibility of various alternatives.

   2.3 Cooperation with all involved actors is necessary to create a broadly supported policy.

   2.4 Communication is necessary to convince other actors and especially the public of the efficiency, effectiveness and necessity of policies.

3. Decision making is a task executed by the parliament, the regions and the Minister. Approvals of all final choices are given in this policy process step, which includes legislation approvals, design choice approvals and contracts with the involved actors.

4. Policy implementation is the part of the policy process in which tasks are executed to start the realisation of the policy such as tendering.

5. Policy evaluation is the policy process step in which feedback loops to the other policy process steps take place. For example, the traffic effects of the new infrastructure are analysed. This might influence future design choices.

"Policy and decision processes are linear or cyclical processes. Decision makers choose among policy options and allocate resources though a rational process of identifying specific objectives and evaluating alternative ways of achieving them." (Twaalfhoven, 1999, p. 17) In each part of the policy process, factors that influence success or failure exist. The decisive factors for success or failure can vary for each policy process step and are sometimes used for multiple policy process steps. Each policy process step needs to be examined separately on the decisive factors for success or failure. An analysis of the involved actors for each policy process step can give extra insight.
2.1.2 External forces
External forces are factors outside the policy process that have an influence on the outcomes of interest. Examples of external forces are the economic environment, the technology developments and the preferences and behaviour of people (Walker, 2000, p. 4). The external force that is most relevant for comparing Dutch and foreign case studies is the behaviour of countries. To learn correct lessons, international differences in decision making on infrastructure have to be taken into account. According to de Jong et al. some general differences exist (De Jong, 1998, p. 16): "differences in the institutional structure, the quality of the decision making evaluated by four quality norms and the effect of the institutional structure on the quality of the infrastructure." Awareness of differences in decision making cultures avoids the use of policies that are not appropriate for the Dutch decision making culture.

2.1.3 Policies
Policies influence the outcomes of interest. The most important policy choice is the type of road pricing that is used, which is influenced by the objectives (motives) of the policy maker. The countries with the same road pricing type as in the Netherlands might have the most in common, but other road pricing types are still suitable for learning lessons. Each country makes choices about their motives for road pricing, the type of road pricing and design options within the road pricing types. These choices are kept in mind during the evaluation of the policy processes of Dutch and foreign toll projects, because they influence the outcomes of interest.

2.1.4 Outcomes of interest
Each country defines the content of the policy process steps and the policy type differently and has other outcomes of interest from the policy process. The objective of this research is to give recommendations to the Ministry of Transport, Public Works and Water Management on maximising the success of the toll projects. The outcomes of interest of other policy processes have to be translated to lessons for the Dutch policy process of toll projects. The outcomes of interest eventually determine the degree of success.

2.2 Factor analysis
Factor analysis is used to detect the decisive factors for success or failure in policy processes to be able to learn lessons across space and time for the Dutch toll projects. Decisive factors for success or failure differ for each policy process step. In this thesis a factor is indicated as a decisive factor for failure or success depending on the height of the score. Factors are variables, with a high score indicating success and a low score indicating failure. In chapter 4 a list of decisive factors for success or failure from previous research is given. This list contains general decisive factors for success or failure from multiple scientific articles. Some factors overlapped each other so they were combined to 7 general factors. In chapter 5 and 6 decisive factors for success or failure are found in in literature on the specific cases and are checked in the interviews with experts. The factors are categorised in one of the 7 categories that are found from previous research to show the likelihood of occurrence of the 7 categories. This information is input for chapter 7 and 8 in which actions are proposed and conclusions and recommendations are made for the Ministry of Transport, Public Works and Water Management to maximise the success of toll projects.

To realise the objectives of the Ministry of Transport, Public Works and Water Management Dutch and foreign toll projects have to be examined on the decisive factors for success or failure in toll projects. Although road pricing is economically correct and technically feasible Ison and Rye note that it does not guarantee political acceptability. (Ison, 2003, p. 224) Since the lack of political acceptability of road pricing has been an issue for multiple countries, this research does not only look at decisive factors for success, but also at decisive factors for failure. International differences exist with
Chapter 2 Research approach

respect to decision making and motives for road pricing. This influences the conclusions of the lessons that are learned from decisive factors for success or failure in foreign toll projects.

This research has the aim of learning lessons across time and space by means of factor analysis (Rose, 1993). During this research it is both an ex-post and an “as is” policy analysis. This means respectively an evaluation of policies that have been implemented and description and explanation of current policy (Twaalfhoven, 1999, p. 1). An essential element of lesson learning is under which circumstances lessons can be learned from another time and place. “Lessons can be positive, leading to prescriptions about what ought to be done” (Rose, 1993, p. IX). “Lessons can also be negative; examples of failure identify what not to emulate” (Rose, 1993, p. IX). “Lesson drawing differs from normative prescriptions that say nothing how a prescribed goal can be achieved” (Rose, 1993, p. 12). This means that an indication is given whether a lesson can be transferred to a situation in another place and time. “Lesson drawing cannot be politically neutral, because politics is about conflicting values and goals (Rose, 1993, p. 22.) “The greater the political importance of an issue, the more likely there is to be controversy about both program means and policy ends” (Rose, 1993, p. 22). Rose describes four analytical stages during lesson drawing (Rose, 1993, p. 27):

1. Search experience elsewhere.
2. Abstract a cause-and effect model from observations.
3. Create a lesson for the own situation.
4. Evaluate the estimated consequences of the implementation of the lesson.

The cause-and effect models in step 2 can be avoided by performing analogy analysis, which is much simpler due to decreasing irrelevant information. (Rose, 1993, p. 85).

Rose also mentions a categorisation of countries based on the size of the government and wealth. Countries can learn the best lessons from countries in the same category. This categorization is shown in table 2 (Rose, 1993, p. 109). This table does not play a large role in the case selection of this research, because it applies to general lessons, while this research focuses on learning lessons on specific road pricing policies.

<table>
<thead>
<tr>
<th>Size of government</th>
<th>Richest</th>
<th>Less rich</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big</td>
<td>Norway</td>
<td>The Netherlands</td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td>Belgium</td>
</tr>
<tr>
<td>Less big</td>
<td>United States</td>
<td>United Kingdom</td>
</tr>
</tbody>
</table>

Table 2: country categorization in terms of wealth and government size

Rose mentions 7 hypotheses that determine transferability of lesson drawing (Rose, 1993, p. 119).

1. No uniqueness in most or all of the elements.
2. No dependence on unusual or inimitable institutions.
3. Claims on the resources of law, public administrators and money within the scope of the agency.
4. Simple cause-and effect structure.
5. Small scale of change.
6. Great extent of interdependence of programs and asymmetries of power.
7. Great consistency of values between the program and the searcher.

2.3 Data collection

Data is collected for general information on road pricing, policy processes and factor analysis and which documents are used for specific information on toll projects and policy processes of toll projects. The terms that are used for searching information are road pricing, toll, policy process, initiative, policy preparation, decision making, policy implementation and decisive factors for success or failure. Information sources are the Ministry of Transport, Public Works and Water Management, the Norwegian Public Roads
Administration and scientific databases. The literature that is chosen for general information are policy documents from the Ministry of Transport, Public Works and Water Management, scientific articles on road pricing from Dutch and foreign authors, especially Norwegian authors, theses that already exist on road pricing in the Netherlands and comparison with foreign countries, Dutch Acts and Plans, literature on factor analysis and the evaluation of policy processes and advice reports from commissions. Interviews are performed with employees of the Ministry of Transport, Public Works and Water Management, the technical director of the NV Westerschelde tunnel and visits are made to Stockholm and Oslo during which presentations of employees of foreign Ministries gave insight in foreign policy processes. Furthermore literature is found on the case studies, in which their policy processes are described chronologically.

2.4 Case study approach
To learn lessons from past experience with toll projects 2 case studies are selected. The case study approach is discussed below.

2.4.1 Case selection
The following criteria are used to select 2 cases.
1) A similar political administrative culture
2) Public or political resistance
3) Financing infrastructure with toll as main motive
4) Recently built (from 1990)

1. A similar political administrative culture
Regional initiative and regional cooperation is a desired characteristic of the Dutch policy process, because the Ministry of Transport, Public Works and Water Management acknowledges that it needs local and regional support to implement the policy on the national level. The toll projects with the highest degree of this characteristic are mentioned in table 3. London is especially a good example for regional initiative that followed after changes in the national legislation. Norway has a bottom-up approach of implementing toll projects, which automatically leads to consensus and intense cooperation with regional parties. 8 countries with relevant cases were selected. From this criterion followed that at least one case study would be a Dutch toll project, because cultural similarities will make comparison of policy processes easier. A Dutch toll project should also comply with the other criteria. After this criterion 7 countries were left to choose the second case study from.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Road pricing type</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Netherlands (future toll projects and existing toll tunnels/bridge)</td>
<td>Infrastructure levy/ toll collection</td>
</tr>
<tr>
<td>Sweden (Stockholm)</td>
<td>Congestion levy/ cordon based charge</td>
</tr>
<tr>
<td>Norway (Oslo/Bergen/Trondheim)</td>
<td>Infrastructure levy/ toll collection</td>
</tr>
<tr>
<td>England (Birmingham, London, Edinburgh)</td>
<td>Toll collection/ cordon based charge</td>
</tr>
<tr>
<td>Italy (Rome)</td>
<td>Toll collection/ cordon based charge</td>
</tr>
<tr>
<td>Singapore</td>
<td>Reduction of vehicle use/ area charge</td>
</tr>
<tr>
<td>Denmark (Kopenhagen)</td>
<td>Reduction of vehicle use/ area charge</td>
</tr>
<tr>
<td>United States (Orange County, San Diego)</td>
<td>Value pricing/ express lanes</td>
</tr>
</tbody>
</table>

Table 3: Toll projects with regional initiative (Lecture Professor Bovy, Campus the Hague, may 18 2006), (www5, pp. 7-11) and (van der Sar, 2005)

2. Public or political resistance
Public resistance to pricing policies exists in many countries. Public resistance played the largest role in Edinburgh, where a referendum caused the toll projects to be cancelled. In Stockholm a referendum took place in September 2006 on the trial of a cordon based charge. At first many road users were opposed to the toll pilot, but the referendum received a relatively positive result. The toll projects in Norway have also received political and public resistance, but managed to realise the toll projects anyway. This leaves us with the following most relevant case studies. Toll projects in the Netherlands, toll projects in Norway, Edinburgh and Stockholm.
Chapter 2 Research approach

3. Motive of financing infrastructure with toll
The pricing motive is an external force that has an influence on the Dutch policy process. The main motive of the Dutch toll projects is financing of infrastructure. From the countries that are mentioned in table 2 this is only the main motive in Norway as well. From the 4 countries/cases only the 2 countries, the Netherlands and Norway remained. This meant that the second case study would be a Norwegian toll project.

4. Recently built toll projects
This criterion focused on recently built toll projects in the Netherlands and Norway, which were respectively the Westerschelde tunnel and the toll ring in Trondheim. Literature was checked and interviews were arranged to be certain that sufficient information was found to make a complete analysis of the policy processes. The first case study focuses on a Dutch toll tunnel, the Westerschelde tunnel. This case study analyses a policy process that has much in common with the policy process of the future toll projects, because it has the same culture and same actors that are involved and the same motive for road pricing. This case study can be very insightful for formulating recommendations to maximise the success of the future toll projects. The Westerschelde tunnel also was the last toll tunnel built in the Netherlands, had delays due to low political priority and much information is available. The only other Dutch toll tunnel that was recently built (1996) is the Wijker tunnel. Though, this toll project is less suitable as case study, because it applies shadow toll (the Dutch government pays toll for each vehicle that passes the tunnel). In consultation with the client one foreign case study is chosen, the toll ring in Trondheim in Norway. Norway is chosen, because the three first criteria all apply to Norway. Trondheim is chosen, because it was the last toll ring built in Norway, has already stopped with toll, because the objective of financing the infrastructure with toll is totally fulfilled and Trondheim has had more public and political resistance than Oslo and Bergen.

The case studies for this research are not selected based on the institutional structure or culture of the Netherlands, because it is also interesting for the Netherlands to see what the benefits and the pitfalls are of other institutional structures or cultures and they might even apply on the Netherlands partly. However, the institutional structure does define the success of a policy, which makes it important for the conclusions of this research.

2.4.2 Structure of the case studies
The case studies are divided in two parts, literature study and interviews. The literature study is an analysis of the policy process of both case studies. For the whole period of the policy process all policy process steps are discussed. For each policy process step a list of decisive factors for success or failure, involved actors and background information is given. Finally the found factors for success or failure are compared to a list of general factors for success or failure found in previous research. For the decisive factors for failure actions are linked to make use of them and for the decisive factors for failure actions are linked to avoid them. Interviews are held with the project leader of the construction of the Westerschelde tunnel, people from the Norwegian Public Roads Administration and with people from the project team AbvM. They were asked which decisive factors for failure they found important during the policy process of a toll project and which actions they proposed to improve the policy process. All factors that were found during the interviews are mentioned. Extra attention is paid to the factors that occur in all policy process steps. For these overall factors recommendations are made. The interviews are also used to validate the literature results.

2.4.3 Conditions of the Norwegian case study
External forces are factors outside the policy process that have an influence on the outcomes of interest. Examples of external forces are the economic environment, the technology developments and the preferences and behaviour of people (Walker, 2000, p.
4). The external force that is most relevant for this research is the behaviour of countries. To learn correct lessons, international differences in decision making on infrastructure have to be taken into account. According to de Jong et al some general differences exist (De Jong, 1998, p. 16): “differences in the institutional structure, the quality of the decision making evaluated by four quality norms and the effect of the institutional structure on the quality of the infrastructure.” Awareness of differences in decision making cultures avoids the use of policies that are not appropriate for the Dutch decision making culture. Cases for this research are not selected based on the institutional structure or culture of the Netherlands, because it is also interesting for the Netherlands to see what the benefits and the pitfalls are of other institutional structures or cultures and they might apply partly on the Netherlands. However, the institutional structure does define the success of a policy, which makes it important for the conclusions of this research.

**Institutional structure**

Four institutional dimensions of decision making structures and cultures are discussed by de Jong et al (De Jong, 1998, p. 17-18):

1. Federalism-Unitarianism
   - Own initiatives, financial means and consultation of lower governments versus a centralized government.
2. Democracy-technocracy
   - Debates and participation of social organizations versus procedures with experts, civil servants and scientists.
3. Holism-reductionism
   - Interdepartmental planning with multiple interests versus specific issues.
4. Corporatism-pluralism
   - Opportunism versus obligations between actors.

De Jong and Geerlings (2005, p. 185) have put some countries through an analysis with respect to these dimensions. In table 4 the dimensions are shown for the Netherlands and Sweden. It is assumed that Norway has the same values as Sweden, because they are both Scandinavian countries. The largest similarity is the level of democracy.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Federalism</th>
<th>Democracy</th>
<th>Integralism</th>
<th>Corporatism</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Netherlands</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Sweden</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

*Table 4: institutional dimensions of decision making structures and cultures*

**Quality of decision making**

Quality of decision making is evaluated by de Jong et al. in terms of four norms (De Jong, 1998, p. 24-25):

1. Speed.
2. Satisfaction of involved actors.
3. Cost benefit considerations.
4. Variation of used information.

2. Most countries have satisfied actors, mostly because they were involved. In the Netherlands a large gap between national and local government seems to exist, which has a negative influence on their mutual image (De Jong, 1998, p. 24-25).
3. In the Anglo-Saxon countries the emphasis is on costs and they don’t believe in macro-economical benefits, while other countries such as Germany strongly believe in these benefits. This is translated in high infrastructure expenses, a high
supply and less congestion. The Netherlands has a position in the middle, but move towards the German attitude (De Jong, 1998, p. 24-25).

4. The variation of used information is increased by two factors: allowing more veto powers in the decision making and keeping produced information and using it for the selection of alternatives. The Netherlands has a middle position (De Jong, 1998, p. 24-25).

**Effects of the institutional structure on the quality of the infrastructure**

De Jong et al. place the countries in a matrix with the axes mutation and cooperation. (De Jong, 1998, p. 76) Federalism and democracy are combined in the phrase mutation and holism and corporatism are combined in the phrase cooperation. The Netherlands has low mutation and high cooperation. Structures with low mutation and low cooperation have very limited possibilities of changing central proposals, because of limited veto powers. This restricts the variety of ideas. There are hardly incentives for the involved actors to cooperate, which causes the limited variety to be included for a small part. Efficiency is stimulated more than innovation. There is too little infrastructure construction to match the social demand (De Jong, 1998, pp. 77-78). Structures with low mutation and high cooperation have the same limitations of changing central proposals, but have strong incentives to cooperate, which leads to including the variety of ideas. There is not much innovation. Expert programmes can be implemented relatively fast and intact, but efficiency is not so high (De Jong, 1998, p. 77). Structures with high mutation and low cooperation can make considerable changes in central proposals due to a high amount of veto powers. This enlarges the variation of ideas. There are hardly incentives for involved actors to cooperate, which causes the large variety of ideas to be included for a small part. Both efficiency and innovation exist. Expert programmes are seldom implemented fast or intact, which ensures a better connection with social demand (De Jong, 1998, p. 78). The length of the pricing tradition is important as well. A long pricing tradition is defined here as longer than 10 years. Countries with a short pricing tradition have other decisive factors for success or failure, because they have to deal with technological, organizational and social problems during the start up of pricing policies. While the Netherlands has a short pricing tradition, Norway has a long pricing tradition (van der Sar, 2005, p. 111).

### 2.5 Conclusions

- A conceptual framework with the policy process steps called “appearance on the agenda of government decision makers, policy preparation, decision making, policy implementation and policy evaluation” assist in evaluating the policy process of toll projects.
- The external force called “behaviour of countries” assists in comparing Dutch toll projects with foreign toll projects.
- The outcomes of a policy process depend on the chosen motives, road pricing types and design choices.
- To learn lessons from past and foreign toll projects, decisive factors for success or failure in each policy process step are looked up.
- The case studies that are selected are toll projects that have a similar political administrative culture, that have financing infrastructure with toll as main motive, that have experienced public or political resistance, that are built recently (from 1990) and of which much information is available.
- In consultation with the client one Dutch case study and one foreign case study is chosen, respectively the Westerschelde tunnel and the toll ring in Trondheim in Norway.
- When comparing results of the Norwegian case study with the results of the Dutch case study differences in the institutional structure and the quality of decision making are taken into account.
Chapter 3 Road pricing

To understand the policy process of toll projects better chapter 3 gives more background on road pricing in terms of mechanisms, motives, types and the history of road pricing in the Netherlands. The Chapter also elaborates which road pricing plans and objectives exist in the Netherlands.

3.1 The mechanisms behind road pricing

The definition of road pricing that is used in this thesis is the increase of variable costs of vehicle use (Verhoef et al., 2005). Increasing variable costs increase the resistance to travel. When the resistance to travel increases by means of road pricing, traffic decreases. When the resistance to travel increases at a certain time and place, traffic is better distributed over time and space. This enables an increase of the total volume of traffic due to more efficient use of the road network, which means improved accessibility and mobility. Resistance to travel is not only caused by increasing variable costs, but also increasing travel time, less comfort, less reliability and less safety. (van Wee, 2002, p. 19) The mechanisms behind road pricing are made visual in figure 3. The resistance to travel influences the necessities and possibilities of road users, the accessibility and the volume, composition and distribution of traffic and transport over time and space (van Wee, 2002, pp. 17-25). The necessities and possibilities of road users are based on their economic situation, on psychological motives and the available amount of time. When someone’s economic situation is better, this person is less susceptible for road pricing measures. When travel time reductions have a higher value than the extra costs of road pricing, road users are probably inclined to pay for road pricing. Other road users might choose to travel at another time and place. Higher resistance due to road pricing measures decreases the accessibility of locations, because it costs people more money to reach locations. The volume of road users will decrease at the times and places when and where a higher resistance to travel exists. The influence of road pricing on the distribution of traffic and transport over time and space depends on the tariff differentiation with respect to time and place.
3.2 The Dutch history of road pricing

On limited scale toll projects have existed in the Netherlands or still exist. A short overview is given in table 5 (MinV&Wc, 2005, p. 40). These projects can be seen as small local initiatives. This might be the major reason that these pricing measures did not receive so much political resistance. The policy process of the Dutch toll tunnels and toll bridges are still interesting to learn lessons from for future toll projects, especially because the future projects involve regional governments on a high level.
3.2.1 Road pricing policies in various cabinets

Road pricing policies have met with much public and political resistance in the Netherlands. Since 1988 various cabinets have tried to introduce road pricing policies. An extra difficulty was that road pricing policies need long term planning for realisation, because it often requires a large system change. Long term planning is complicated by the change of a cabinet after 4 years. Each cabinet starts with an entirely new plan and has time constraints to achieve the implementation of a good road pricing scheme. This makes it important to search for anchors by means of partial decisions in each cabinet period to be able to grow to an end product.

3.2.2 Mobility plan

In 2004 the Ministry of Transport, Public Works and Water Management released a white paper for transport policy until 2020, called in Dutch the “Nota Mobiliteit”. (MinV&Wa, 2004). In the Mobility Plan the Ministry of Transport, Public Works and Water Management has the objective of improving the main infrastructure roads in order to strengthen the economic structure. The three main measures are infrastructure construction, better utilization of infrastructure and road pricing. The Ministry of Transport, Public Works and Water Management has chosen this package of measures to influence mobility and accessibility and believes that the measures on their own do not have sufficient effects. According to the Mobility Plan road pricing is essential for the reduction of travel time, improvement of reliability and strengthening of the environmental-economic structure within the budgetary constraints. (MinV&Wd, 2005, p. 25)

3.2.3 Platform Anders Betalen voor Mobiliteit (ABvM)

The Ministry of Transport, Public Works and Water Management and the Ministry of Finance created the Platform ABvM, which is the Dutch Acronym for “Anders Betalen voor Mobiliteit” (Paying differently for Mobility). The Ministries wanted to receive an advice on the possibilities of paying differently for the road use and at the same time contributing to improving mobility and accessibility (Platform ABvM, 2005, p. 61). One of the definitions of mobility and accessibility is that mobility refers to the ease of travelling and accessibility refers to the ease of reaching a destination (Stopher, 2004, p. 121). The definition of accessibility used by the Mobility Plan is reliability and predictability of the road network. (MinV&Wd, 2005, p. 10) “Reliability is expressed in the chance that a road user, that travels during the peak period, arrives at its destination in time.” (Directoraat-Generaal Rijkswaterstaat, 2005, p. 23) Predictability says something about the frequency of this chance. Mobility indicates the growth of the number of road users.

The Platform developed in 2005 an integrated plan of improving the mobility in the Netherlands. The emphasis was on financing infrastructure (toll) and converting fixed taxes into a price per kilometre differentiated to time, place and vehicle characteristics (kilometre price). The advice of the Platform meant to divide the road pricing measures in two phases. The toll phase as first phase was meant to precede the national kilometre price to show the public the usefulness, necessity and effectiveness of pricing in practice and it functions as a learning process for the implementation of the kilometre price. The main motive for toll projects is the ability to finance infrastructure improvements. These toll projects are all finite after having paid the necessary amount of money for respectively accelerated action and the construction of infrastructure. These
infrastructure projects improve accessibility in the short term and are all mentioned in the MIT (Meerjarenprogramma Infrastructuur en Transport, which stands for multiple years programme Infrastructure and Transport). The toll projects create opportunities for a broader application of PPP (Public Private Partnership). The Ministry of Transport, Public Works and Water Management believes that PPP has a positive effect on innovation, because private companies have more knowledge about the development of new technology and experience with economies of scale and will be involved more with a DBFM (Design, Build, Finance, Maintain) contract.

The Platform ABvM had the opinion that the absence of public acceptance with respect to road pricing was created by a lack of information on usefulness, effectiveness and efficiency of pricing policies (Platform ABvM, 2005, p. 11). This means that providing sufficient information on the policy measures might reduce the resistance of the public, political parties and social organisations and actors need to be involved during the implementation of pricing policies. The Platform ABvM has formulated some market principles in which the perspective of the road user is put at the centre (MinV&Wd, 2005, p. 27):

- The road user has to pay a price for the delivered service instead of taxes or levies.
- Costs shift from vehicle ownership to use.
- Profit is used for constructing, improving and maintaining road infrastructure and finding solutions for environmental issues.
- Collection is arranged in a national independent organisation.
- Private parties are heavily involved in developing project proposals.
- Road maintenance authorities become self-sufficient.

### 3.2.4 Mobility plan part III

After the report of the Platform ABvM adjustments were made almost entirely according to the advice of the Platform in the Mobility Plan part 3. A change with the report of the Platform was that in the Mobility Plan part 3 it was stated that road users start paying toll after the improvements have been made and not during the construction phase. The Ministry of Transport, Public Works and Water Management expects that this condition decreases public resistance to toll collection. The other change was that the target date for the kilometre price was set on 2012. The conditions for the introduction of the kilometre price are a cost reduction with a cost maximum of 5% of the estimated annual benefits. One of the consequences of the changes is that the toll projects and the kilometre price are not entirely sequential, unless the kilometre price does not make the target date of 2012. The toll projects do not end at the moment that the kilometre price begins. It takes more years to earn back the investment especially because the toll collection does not start until the infrastructure project is finished. The new situation is that toll projects only precede the kilometre price in some parts of the decision making. This might be a risk for convincing the public that road pricing is useful, efficient and effective. The relations between the toll projects and the kilometre price are shown in figure 4. At first the two types of road pricing policies are prepared separate from each other. A third issue is the reorganisation of the road maintenance authorities, which has a direct influence on the implementation of road pricing. At this point it is not sure what the interactions are between differently organising the road maintenance and the road pricing measures. To decrease the complexity all three issues of the initial package are dealt with separately.
To reach the objectives of the Mobility Plan, the Ministry of Transport, Public Works and Water Management believes that the toll projects have to be executed, because only expansion of the road network does not have sufficient effects on mobility and accessibility. While the toll projects are meant to have a positive effect on mobility in the short term, the kilometre price is meant to have a positive effect on mobility in the long term. Another difference is that toll has the objective of financing infrastructure to improve the supply side and the kilometre price has the objectives of fairness, accessibility, environment and safety and is focused on the demand side. There are many interactions and interfaces between toll and kilometre price, especially in the future implementation. Many technological decisions have to be made for both measures and knowledge needs to be shared. Therefore both pricing measures eventually need to be seen as a whole package. This brings extra difficulties with it, because of the differences between their objectives.

### 3.2.5 Toll projects and the kilometre price

The interaction between the organisation of the toll projects and the kilometre price creates extra complexity. One issue is fairness towards the road user. One of the objectives of the kilometre price is that the conversion of paying taxes for car ownership into paying for car use needs to have a neutral tax burden. When the tariffs of toll projects increase for some reason, it can jeopardise the objective of the kilometre price. Then the public and political support for the kilometre price might reduce. From this point of view the number of toll projects needs to be limited. On the other hand a sufficient number of toll projects needs to exist, because they contribute to convincing the public of the usefulness, necessity and effectiveness of the kilometre price. Furthermore the toll projects provide a good way of experimenting with the technology that can be used in the kilometre price project. They function as a learning process for the implementation of the kilometre price. Toll projects do not have the objective of a neutral tax burden, but the toll tariffs are expected to be low. Only when the tariffs are dramatically high, the influence on the kilometre price will be significant. The most important measure is to communicate the difference between the objectives to the road users and the press. The other measure is to establish a maximum toll tariff. Another issue is that there are many technological and organisational interfaces between toll projects and the kilometre price, especially in the future implementation. Many technological decisions have to be made for both measures and knowledge needs to be shared. Therefore both road pricing measures eventually need to be seen as a whole package. This brings extra difficulties with it, because some central decisions need to be made for all toll projects and the kilometre price at the same time. A measure to reduce problems with technical interoperability is the provision of a national framework with standards for the technology and organisation to insure the quality of the interfaces between the toll projects and the kilometre price. This is not only about the chosen technology, but also the chosen organisation for toll collection, privacy issues and enforcement.
3.3 Current developments

Current developments within the Ministry of Transport, Public Works and Water Management are described in this section in terms of organisation and policy procedures.

3.3.1 Organisation of ABvM

At the time of writing this thesis the policy preparation of road pricing is in the hands of project team ABvM that is part of the Ministry of Transport, Public Works and Water Management.

The organization of the project team is shown in figure 5.

![Figure 5: organisation of the project team ABvM](image)

Each group in the project team is discussed shortly below.

The Joint Fact Finding group is an umbrella organisation of social organizations, the business community, provincial and local councils, Framework Act Areas and other ministries. The objective is to make an inventory of options of policy choices and formulating the advantages and disadvantages of these options in a report to parliament in the fall of 2006. It is a preparation for decision making in the spring of 2007 and legislation in the summer of 2007. The project team ABvM used the advice of the platform concerning the lack of information by the public on usefulness, effectiveness and efficiency of pricing policies. To reduce the resistance of the public, political parties and social organizations much attention is given to formulating a communication plan towards the public and making all actors join the process of designing the pricing policy in a Joint Fact Finding group. Decision making is the group in charge of the communication plan and overall supervision. Differently organizing road management is cooperating with regional and local road maintenance authorities suggested by the Platform ABvM. Toll projects cooperate with regional councils to realise infrastructure projects with toll. Market consultation and technology is involved in reducing the costs of the kilometre price in cooperation with business society to prepare the tender of the kilometre price in 2008. International is researching foreign pricing projects to learn lessons from abroad. Legislation prepares road pricing laws, the Act Accessibility and Mobility (WBM) and the Act kilometre price. In figure 6 the go/ no go moments for toll are shown.
The toll projects are spread over the Netherlands, which is shown in figure 7. The projects are in different phases of the MIT and the possibility of toll collection has to be integrated in the process of the MIT. The planning of important decision moments is as follows:

- **June 2006**: evaluation of A15 financing plan and decision of the minister and the region to use toll.
- **Summer 2006**: Accessibility and Mobility Act discussed in parliament. The Accessibility and Mobility Act has to be adjusted, because at the time of writing this thesis it is not possible to execute toll collection on existing infrastructure. After the Act is adjusted it is possible to collect toll on the roads that are extensions of the toll projects. This makes the chance on detour effects smaller.
- **August/September 2006**: finishing feasibility studies toll projects. Administrative consultation MIT 2007: decisions with the regions where to apply toll and accelerated action price. Toll is one alternative that is examined during the plan study phase and is decided on during the alignment decision or even later in the process. At the moment accelerated action price will only be executed on the A2 Maasbracht-Geleen. The other toll projects might become accelerated action price projects in a later stage.
The Ministry and the regional authorities are cooperating together to define the advantages and disadvantages of the different options of toll projects on multiple locations. Finally the projects have to be prepared for an alignment mer (milieu effect rapportage, which stands for an Environmental Impact Assessment) study that examines the environmental aspects of the infrastructure implementation.

### 3.3.2 Policy procedures

In this paragraph the general policy process steps in the Netherlands are discussed, because the process influences road pricing policies and the potential success or failure. The policy process steps contribute to the institutional setting. To be able to make recommendations on organising the policy process differently to deal with the decisive factors for success or failure the current policy procedures need to be analysed. Therefore a comparison is made with the policy process steps in the conceptual framework of figure 2. The general structure of policy phases in the Netherlands is exploration (why?), plan study (what and how?) and realisation (when?). This structure is incorporated into the MIT (Long-range Programme Infrastructure and Transport). The MIT gives an overview of infrastructure projects that are or will be implemented and in which the Ministry of Transport, Public Works and Water Management is involved. Other parties do not have a formal role in this structure, but there are developments of
Chapter 3 Road pricing

involving more ministries and having a broader cooperation. Third parties also have the opportunity of participation. Only the Ministry of Housing, Spatial Planning and the Environment co signs some decisions due to the Alignment Act. The role of initiative takers can shift during the various phases of the project. The possible initiative takers are \((\text{MinV&Wb, 2004, p. 8})\):

- The government
- Decentralised authorities
- Third parties such as interest groups, inhabitants and private organisations

Initiatives of regional and local projects are in principal taken by the Provincial Executive, boards of regional public bodies and/ or Mayor and Aldermen. The role of initiative takers can shift during the various phases of the project. The initiative taker provides the necessary information for the decision moments and the Ministry of Transport, Public Works and Water Management prepares the decision moments. Sometimes private parties can also take care of planning and execution. \((\text{MinV&Wb, 2004, p. 8})\). 5 decision moments are divided over the three phases \((\text{MinV&Wb, 2004, p. 7})\):

- Exploration Intake decision
- Plan study Alignment/ Project decision
- Realisation Implementation decision
- Plan study decision
- Realisation decision

When the structure of the MIT process is compared to the policy process steps in the conceptual framework of chapter 2 the phases can be linked:

- Exploration Appearance on the agenda of government decision makers
- Plan study Policy preparation
- Alignment plan/MER Policy preparation
- All decision moments Decision making
- Realisation Implementation
- While the ex ante evaluation takes place during the exploration phase, the ex post evaluation of projects take place periodically classified by theme \((\text{MinV&Wb, 2004, p. 8})\).

In figure 8 the comparison is made visual.

Figure 8: Comparison of policy process steps
Chapter 3 Road pricing

**Exploration phase**

In the first decision moment the Ministry of Transport, Public Works and Water Management decides if the problem is included into the exploration table of the MIT. The Minister acknowledges that there is a possible traffic and transport problem that needs to be investigated. In the second decision moment the Minister decides if the problem and potential solutions need to be investigated. When this is the case the project is included in the plan study table. Projects with regional responsibility do not go through the exploration phase, but might enter the MIT process at decision moment 2 when the region or other third parties prove usefulness and necessity of the project (MinV&Wb, 2004, p. 7).

**Plan study phase**

During the plan study phase the problem is linked to the best solution. When consensus is reached the implementation is prepared. The Ministry of Transport, Public Works and Water Management is responsible for planning and decision making of all actions. Though, all actors have an obligation to reach consensus informally. Private parties and social organizations are heavily involved in developing project proposals. This ends with decision moment 3 where the Ministry of Transport, Public Works and Water Management makes a decision concerning the alignment location. At these decision moments the Ministry of Housing, Spatial Planning and the Environment co signs (MinV&Wb, 2004, p. 7). All projects that are related to the Alignment Act are also obligated to pass through a m.e.r., which is the Dutch acronym for environment effect reporting. When this is the case, the plan study starts with a start note. Based on the exploration, the start note and the directives for an alignment plan/MER (environment effect report) are formulated. The alignment plan/MER together with participation and advice from third parties helps the Minister of Transport, Public Works and Water Management to determine its position on the preferred alignment in agreement with the Minister of Housing, Spatial Planning and the Environment (MinV&Wb, 2004, p. 13). The design alignment decision follows, which gives more details. Based on participation, advice and reactions of third parties an alignment decision is taken (MinV&Wb, 2004, p. 14). The alignment decision determines that the Ministry of Transport, Public Works and Water Management dedicates itself to the realisation of the project and/or the financing. The project stays in the plan study phase until sufficient budget is available (MinV&Wb, 2004, p. 7). Further preparations are made such as a strategy plan for implementation, fitting in urban and rural planning, land acquisition and arranging permits (MinV&Wb, 2004, p. 14).

**Realisation phase**

The next phase is the realisation. When all preparations are completed the fourth decision moment, the implementation decision is made. After this decision the projects are transferred from the plan study table to the realisation table. When a project is finished decision moment 5 indicates the completion (MinV&Wb, 2004, p. 7).

**Management phase**

Then the project goes to the management phase, which does not belong to the MIT process anymore. Toll collection on the main infrastructure is arranged in a national independent organization (the infra fund). This makes it possible to send the road user an integral bill and have a smooth transition to the kilometre price. Preconditions of this organization are reliability, user-friendliness, privacy protection, protection against a monopoly, certification of equipment, European interoperability and enforcement. In addition the financing of the infrastructure is transparent. Road maintenance authorities become self-sufficient and play a part in the new system. This phase can be left out of consideration, because this research is only interested in the policy process.
3.4 Road pricing policies

Differences in road pricing policies influence the outcomes of interest. The most important policy choice is the type of road pricing that is used, which is influenced by the motives of the policy maker. Each country makes choices about their motives for road pricing, the type of road pricing and design options within the road pricing types.

3.4.1 Motives

Professor Bovy mentioned motives for implementing road pricing (Lecture Professor Bovy, 2006) that have an overlap with the objectives of Bliemer (presentation Bliemer, 2006). Below, a combination is made.

- The user pays the costs/financing infrastructure
  Underlying principle: road users are desired as much as possible. The toll projects belong in this category.
- The user pays for a service according to the market principle/improve accessibility
  Underlying principle: as much congestion as possible is desired to provide only the paying road users a higher level of quality. Differently organising road maintenance belongs in this category.
- Regulation of reduction of vehicle use, reduction of congestion or reduction of externalities such as emissions.
  Underlying principle: road users are desired as few as possible.

Verhoef et al also mention the motive of fairness. (2004, p. 11, p. 6)
This motive desires cost variabilisation (paying for vehicle use instead of vehicle ownership), price differentiation and a tariff based on distance instead of paying for a whole area. The kilometre price belongs in this category.

Not all countries use all these motives for the introduction of road pricing, but it occurs that they use a combination of motives. The future toll projects in the Netherlands have the main motive of “the user pays the costs”. The difference between the first two motives is that “user pays the costs” internalises the external costs, while “user pays for a service” generates revenues. In table 6 an overview is given on the motives of road pricing linked to the selected projects. The most important motive has more crosses. The most important reason for toll projects in the Netherlands is the user pays the costs motive. Regulation is only seen as an additional effect.

<table>
<thead>
<tr>
<th>Countries</th>
<th>User pays costs/ financing infrastructure</th>
<th>User pays service/ improve accessibility</th>
<th>Regulation</th>
<th>Fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch future toll projects</td>
<td>XX</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dutch existing toll tunnels</td>
<td>XX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trondheim</td>
<td>XX</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 6: international differences in motives for road pricing (Lecture Professor Bovy, 2006) (presentation Bliemer, 2006) (Verhoef, 2004, p. 11, p. 6)

3.4.2 Types of road pricing

Bovy (Lecture Professor Bovy, Campus the Hague, may 18 2006) comes up with types of road pricing that are almost similar with the types that are mentioned by van Wee and Dijst (www5, pp. 7-11) under other names. These road pricing types are highly dependent on the motives that are chosen by a country. Below, the types of both sources are combined.

- Excise
  Fuel excise is a very simple type of road pricing. It provides the incentive to drive less kilometres and buy a vehicle with less fuel consumption. It is not possible to implement differentiation of time, place and environmental characteristics.

- Infrastructure levy/kilometre charge
Road users pay per kilometre with a flat or differentiated rate. When a kilometre charge is differentiated by time and place, it can be called congestion charge. A kilometre charge can enable variabilisation of the road costs by converting fixed taxes to costs per kilometre.

- **Infrastructure levy/ toll collection**
This type of toll collection exists in Trondheim. Toll collection is mostly used for financing construction, maintenance or exploitation of infrastructure. This type is similar to the future toll projects in the Netherlands.

- **Infrastructure levy/ accelerated action price**
This type of road pricing will be implemented in the Netherlands. Toll projects will be constructed earlier than financial resources are available. The interest rate of the loan is paid by toll. A combination of toll collection and accelerated action price will also be possible in the Netherlands. This is the case when a project is financed by toll and extra costs for realising the project earlier is also paid by toll.

- **User levy/ toll collection**
This is the classical pricing measure and exists in France, Austria, Italy, Spain, Birmingham and the Dutch toll tunnels that exist or have existed. Road users have to pay an amount of money at passage of a toll point.

- **Value pricing/ express lanes**
Value pricing is applied to a road without congestion that is parallel to a road that is free of charge, but with congestion. The tariff depends on the severity of the congestion on the other road. Examples are San Diego and Orange County express lanes. A price is paid for time and for reliability. Lanes with a pricing measure and parallel to other lanes that are free of charge make travelling without congestion possible, which makes the accessibility of the road network more reliable and predictable.

- **Reduction of vehicle use/ area charge**
This type is used in Singapore only at the Central Business District. This type needs to be complemented with other transport possibilities such as the improvement of public transport.

- **Congestion levy/ cordon based charge**
A congestion levy exists in London and Stockholm. It is an area charge that is applied in urban areas with the motive of improving congestion or air quality. Road users pay at passage of the border of an urban area or for staying in the urban area.

- **Congestion levy, safety levy/ kilometre charge**
This levy is based on the covered kilometres. This does not have to be linked to infrastructure costs. It can also be linked to congestion or safety costs.

- **Parking levy**
A simple type of road pricing that is politically accepted is a parking levy. It has the same fair principle of paying for the use of infrastructure and it reduces vehicle ownership and vehicle use in certain areas.

- **Ride levy**
This is a levy for each specific ride. This influences the number of rides, especially for short distances.

- **Emission dependent levy/ kilometre charge**
Emission characteristics are linked to the covered kilometres and the vehicle characteristics. The height of the levy depends on the amount of emitted substances.

- **Peak levy/ toll collection or kilometre charge**
This type of pricing is fair, because the peak users cause the capacity costs.
An overview of the types of road pricing linked to the corresponding motives is given in Table 7. The most important motive has more crosses. Financing infrastructure is the main motive of toll collection on infrastructure. Road pricing types that pay for a service are focused on increasing the user quality. Regulation is mostly linked to reduction of congestion/emissions or reduction of car use at all. Road pricing types often have the motive of fairness, because it is fair to pay differently for each specific situation.

<table>
<thead>
<tr>
<th>Road pricing types</th>
<th>User pays costs/financing infrastructure</th>
<th>User pays service/improve accessibility</th>
<th>Regulation</th>
<th>Fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excise</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Infrastructure levy/kilometre charge</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>XX</td>
</tr>
<tr>
<td>Infrastructure levy/toll collection</td>
<td>XX</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>User levy/toll collection</td>
<td>X</td>
<td>XX</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Value pricing/express lanes</td>
<td>XX</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Reduction of vehicle use/area charge</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congestion levy/cordon based charge</td>
<td>XX</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congestion levy, safety levy/kilometre charge</td>
<td>XX</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking levy</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ride levy</td>
<td></td>
<td>XX</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Emission dependent levy/kilometre charge</td>
<td>XX</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak levy/congestion charge</td>
<td></td>
<td>XX</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Table 7: types of road pricing linked to motives (Lecture Professor Bovy, Campus the Hague, may 18 2006) (van Wee and Dijst, www5, pp. 7-11)

3.4.3 Design options
There are many variables to take into account when designing a pricing measure. Verhoef et al mention four important characteristics (2004, pp. 102-104):

- Coverage of the pricing measure
  This is a specification of the pricing measure in terms of the covered part of the road network and the covered road user types.
- Height and design of the pricing measure
  This indicates the foundation of the pricing measure (maximisation revenues, investment size, government budget) and pricing principle (distance, per passage, staying in an area). Some of this is shown in Table 8 made by Bliemer (presentation Bliemer, 2006).

<table>
<thead>
<tr>
<th>Dynamic price</th>
<th>Road segment</th>
<th>Cordon</th>
<th>Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable price</td>
<td>Orange County</td>
<td>Stockholm</td>
<td>Kilometre charge</td>
</tr>
<tr>
<td>Fixed price</td>
<td>Toll roads</td>
<td>London</td>
<td>Germany</td>
</tr>
</tbody>
</table>

Table 8: road pricing measures

- Degree of differentiation
  Differentiation can be implemented for distance, place, time, vehicle characteristics and number of passengers.
- Use of revenues
  Revenues can be used in public funds or for specific purposes such as financing infrastructure, decreasing excise, investing in public transport.
- Complementary measures and actions is a fifth variable mentioned extra by the MC ICAM programme (European Commission, 2004, p.7).
  These measures are policies other than pricing measures such as improving public transport or changes at road maintenance authorities that might not be linked to the pricing revenues.
In conclusion, each country makes choices about their motives for road pricing, the type of road pricing and design options within the road pricing types. These choices are kept in mind during the evaluation of the policy processes of Dutch and foreign toll projects, because they influence the outcomes of interest enormously.

3.5 Conclusions

- Resistance to travel has the elements of travel time, travel costs, comfort, reliability and safety. The resistance to travel influences the necessities and possibilities of road users, the accessibility and the volume, composition and distribution of traffic and transport over time and space.
- Road pricing policies need a long term planning for realisation, because it often requires a large system change. This makes it important to search for anchors by means of partial decisions in each cabinet period to be able to grow to an end product.
- On limited scale toll projects have existed in the Netherlands or still exist.
- In the Mobility Plan the Ministry of Transport, Public Works and Water Management has the objective of improving the main infrastructure roads in order to strengthen the economic structure. The three main measures are infrastructure construction, better utilization of infrastructure and road pricing.
- The Platform AbvM (Paying differently for Mobility) came in 2005 with an integrated plan of improving the mobility in the Netherlands. The emphasis was on financing infrastructure (toll) and converting taxes into paying for infrastructure use and regulation (kilometre price).
- The interaction between the organisation of the toll projects and the kilometre price creates extra complexity in terms of fairness towards the road user and technological and organisational interfaces between toll projects and the kilometre price, especially in the future implementation.
- At the time of writing this thesis the policy preparation of road pricing is in the hands of project team ABvM that is part of the Ministry of Transport, Public Works and Water Management. The organization of the project team has the divisions “Joint Fact Finding, decision making, Differently organising road management, toll and accelerated action price, market consultation, international and legislation.
- Policy process steps that are used in the Netherlands on infrastructure projects are the exploration phase, the plan study phase and the realisation phase. The policy process steps together have 5 decision moments.
- Differences in pricing policies influence the outcomes of interest. The most important policy choice is the type of road pricing that is used, which is influenced by the motives of the policy maker. Each country makes choices about their motives for road pricing, the type of road pricing and design options within the road pricing types.
Chapter 4 Factors from previous research

In chapter 4 general decisive factors for success or failure are described that are found in scientific literature on policy processes. These factors can be used to examine various policy processes. In this research the factors are used to categorise the decisive factors for success or failure that are found in the policy process of toll projects.

4.1 General decisive factors for success or failure

To analyse the implementation process of different foreign road pricing schemes, Ieromonachou has structured decisive factors for success in a consistent framework (Ieromonachou, 2005, p. 1). He believes that the implementation of the policy and political and public resistance make road pricing radical. Therefore key factors that promote as well as constrain the implementation of road pricing are identified for the UK, Norway and Italy. Although these factors are called decisive factors for success, some are more likely to be a decisive factor for failure. Decisive factors for success that are mentioned by Ieromonachou (2005, pp. 122-123) are:

- Enabling learning.
- Support measures (financial incentives and other actors’ goals).
- Motivations of key actors.
- The evolution of expectations.
- Barriers (social, political, institutional or financial).
- Acceptance.
- Relationship to the existing regime (degree of change in the system).

Ison and Rye mention a few possible approaches when studying policy implementation. (Ison, 2003, p. 224) There is the analysis of failure, rational models and the bottom-up approach. Rational models identify factors that influence successful implementation. It is also called the top-down approach, because much attention is paid to the objectives of the policies. The bottom-up approach focuses on other actors and their interactions. Ison and Rye discuss ten conditions with respect to the top-down approach (Ison, 2003, pp. 224-225):

1. That circumstances external to the implementing agency do not impose crippling constraints.
2. That adequate time and sufficient resources are made available to the programme.
3. That the required combination of resources is actually available.
4. That the policy to be implemented is based upon a valid theory of cause and effect.
5. That the relationship between cause and effect is direct and that there are few, if any, intervening links.
6. That there is a single implementing agency.
7. That there is complete understanding of, and agreement upon, the objectives to be achieved; and that these conditions persist throughout the implementation process.
8. That tasks are fully specified in correct sequence.
9. That there is perfect communication and coordination.
10. That those in authority can demand and obtain perfect compliance.
Van der Sar mentions some pitfalls when implementing road pricing (van der Sar, 2005, pp. 55-56, 61-62):

Concerning actors.
- Too much emphasis on classical, top-down steering.

Concerning decision making.
- Insufficient openness.
- Lack of a sense of urgency.

Concerning technologically complex project management.
- Too much emphasis on technology.
- Unjust satisfaction with the absence of interests protection.
- Insufficient flexibility.

Concerning transition management (the principle of phasing and small steps).
- No preference for small projects and learning processes.
- Too early or too rash starting new paths (backlashes).
- Lock-in situations.
- Short term and ad hoc thinking.

All mentioned decisive factors for success or failure are described in relation to the five policy process steps and sometimes used for multiple policy process steps, which is shown in table 9. Some factors are mentioned differently by another source, but have the same meaning. These factors are combined to one phrase. An explanation of the factors is given in the second column. These factors will be discussed again in the case studies in chapter 5 and 6. The factors assist in finding actions for the Ministry of Transport, Public Works and Water Management to maximise the success of toll projects.

4.2 Conclusions

- 7 general decisive factors for success or failure are found from previous research; sense of urgency/ perfect compliance with those in authority, but no crippling constraints external to the implementing agency/ flexibility in technology/ a simple implementing agency/ institutional barriers/ a valid theory of direct cause and effect/ adequate time and sufficient resources and the required combination of adequate resources available.
- Means to create a sense of urgency are financial barriers, support measures, political barriers, social barriers and communication and coordination.
Chapter 4 Factors from previous research

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Motivations of key actors, sense of urgency. (Financial barriers, support measures/other actors’ goals, political barriers, social barriers, communication and coordination).</td>
<td>Motivation to stay in the policy process and go to the next policy process step. Make use of a window of opportunity.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Perfect compliance with those in authority, but no crippling constraints external to the implementing agency.</td>
<td>Implementation has to be executed as it is meant to be by policymakers, but policymakers need to solve obstacles for the implementing agency.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3 Flexibility in technology.</td>
<td>Dealing with unexpected results, being able to learn and adapt, avoiding a lock-in situation at the beginning of the project.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 A simple implementing agency.</td>
<td>A clear organisation with a sharing of responsibilities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5 Institutional barriers.</td>
<td>Conflicts with legislation and regulation.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 A valid theory of direct cause and effect.</td>
<td>Insight into the possible end results and instruments with little uncertainty/ risk.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7 Adequate time and sufficient resources and the required combination of adequate resources available.</td>
<td>Resources are necessary for realising toll projects.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 9: decisive factors for success or failure for each policy process step
Chapter 5 The policy process of the Westerschelde tunnel

In chapter 5 the policy process of the Westerschelde tunnel is discussed in chronological order. The important decisive factors for success or failure are categorised for each policy process step separately and are compared to the general categories of decisive factors for success or failure from chapter 4. The factors are used in chapter 7 to propose actions that can improve the policy process of toll projects.

5.1 Chronological description of the policy process

The Westerschelde tunnel has collected toll from March 14, 2003, and is still operational. It is the most recently built toll tunnel project in the Netherlands and continues to exist until a certain amount of the infrastructure costs is paid for (MinV&Wc, 2005, p. 40). The Westerschelde tunnel connected the peninsulas Zeeuws-Vlaanderen and North-Beveland of the Province of Zeeland to replace ferries that crossed the river the Westerschelde, which joins the North Sea. Below, information on each policy process step and an overview of decisive factors for success or failure and involved actors is given in chronological order.

1930-1966 Appearance on the agenda

This policy process step can be compared to the exploration phase of the MIT. The river crossing has a long history of initiatives and preparation (Heijboer, 2004, p. 7). Subjects of discussion were:

- Benefit.
- Necessity.
- Choice of route.
- Financing of costs.

Already in 1930 businessmen from Goes noticed the disadvantages of the ferry connections. They designed an outline plan for a tunnel under the Westerschelde with sunken down tunnel elements (www8). After that time only the Zeeuwsch-Vlaanderen Chamber of Commerce repeatedly mentioned the inadequateness of the ferry connections (Heijboer, 2004, p. 12). In 1953, after the flood disaster, the Delta Plan was drawn up and the damming of the Westerschelde was considered to protect the peninsulas better against floods. This idea was blocked by Belgium, because the
Chapter 5 The policy process of the Westerschelde tunnel

Westerschelde is the shipping route to and from Antwerp. The Deltaplan created possibilities for improving the accessibility of the peninsulas. Roads could be built on top of the new crossings. The province of Zeeland even constructed and financed extra crossings such as the Zeeland bridge across the Oosterschelde. Bridging of the Westerschelde was more expensive and it needed the national government that paid an annual contribution for the operation of the ferries as investor. The Ministry of Transport, Public Works and Water Management did not comply due to high costs and too little insight in the traffic effects of the Deltaplan. In 1955 the Zeeuwsch-Vlaanderen Chamber of Commerce did a study on the traffic flows between Zeeuwsch-Vlaanderen and the rest of the Netherlands and concluded that a fixed crossing was necessary. In 1956 the Provincial Executive told the Cabinet and the Lower House for the first time that a fixed crossing was necessary.

Summary

List of decisive factors for success:
- Lobbying of the commercial business community and regional bodies: Westerschelde tunnel on the agenda.

List of decisive factors for failure:
- Interests of Belgium.
- Costs.
- Government cooperation.

Involved actors:
- Businessmen in Zeeland (problem owners/initiative takers/users).
- Zeeuwsch-Vlaanderen Chamber of Commerce (problem owner/initiative taker).
- Belgian government (problem causer).
- Province of Zeeland (decision maker/financier/problem owner).
- Ministry of Transport, Public Works and Water Management (decision maker).
- Provincial Executive (decision maker/problem owner).
- Cabinet (decision maker).
- Lower House (decision maker).

1966-1972 Policy preparation

This policy process step can be compared to the plan study phase of the MIT. In 1966 the Westerschelde appeared on the agenda of the Ministry of Transport, Public Works and Water Management, which led to the start of policy preparation. This decision can be compared to decision moment 1 and 2 of the MIT, the decision to acknowledge a traffic problem and to investigate the problem and the solutions. The Directorate-General for Public Works and Water Management Zeeland Department started a study on a connection beneath or above the Westerschelde. The Ministry of Transport announced that the route would be chosen in 1968. In 1967 the Foundation Fixed Bank Connection Westerschelde was set up. In 1968 the Foundation designed ten alternative alignments. The Ministry of Transport, Public Works and Water Management preferred the route between Kruiningen and Perkpolder (www8). In the spring of 1968 the contracting party ‘Combinatie Westerschelde (CWS)’, which was the constructor of the Zeeland bridge, presented a plan for the financing, construction and operation of a toll connection between Kruiningen and Perkpolder. This resulted in a choice for this route, which was shorter and therefore cheaper than the other routes (Heijboer, 2004, p. 14). In 1969 a steering committee studied the technical, planning and financial-economic aspects. In 1970 the Minister of Transport, Public Works and Water Management mentioned that the start of construction was aimed at 1973 (www8). In 1972 the design was finished. The Ministry of Transport, Public Works and Water Management made an optimisation adaptation, because the project was too expensive (Heijboer, 2004, p. 14). This was the first part of the policy preparation history.
Summary

List of decisive factors for success:
- Initiative by the contractor CWS.

List of decisive factors for failure:
- Costs.
- Government decision making.

Involved actors:
- Ministry of Transport, Public Works and Water Management (decision maker/proBLEM owner/financier).
- The Directorate-General for Public Works and Water Management Zeeland Department (problem solver/decision maker/initiative taker).
- Foundation Fixed Bank Connection Westerschelde (problem solver).
- Contracting party 'Combinatie Westerschelde (CWS) (Problem solver/initiative taker).
- Steering committee (problem solver).

1972-1986 Decision making

This policy process step can be compared to decision moment 3 and 4 of the MIT, the decision to start the implementation and the choice for the alignment. In 1972 the Westerschelde project was ready for the decision making phase for the first time. However, the implementation phase did not start due to politics (Heijboer, 2004, p. 15). Possible reasons for the delays were too low priority, no consensus about the financing structure or a bad economic tide. In 1972 the Minister of Transport, Public Works and Water Management postponed the decision to approve the start of construction. In 1974 the Minister of Transport, Public Works and Water Management mentioned that the decision would not be made earlier than 1975. In 1975 the Prime Minister announced that the decision was postponed, but would take place in the same year. In 1976 a decision on the time of construction could not be made due to financial problems. In 1978 the choice was made to construct a bridge tunnel combination with sunken down tunnel elements between Kruiningen and Perkpolder. In 1980 the Ministry of Transport, Public Works and Water Management decided that the tunnel bridge combination would not be constructed due to financial reasons. The Provincial States carried a motion, in which a decision from the government in 1980 was demanded. In 1981 the government and cabinet agreed that construction would start in 1982 or 1983. In 1982 the fall of the cabinet (van Acht II) created the problem that the Ministry of Finance changed its mind about the Westerschelde tunnel. In 1983 the Minister of Transport, Public Works and Water Management cancelled the project for the whole period of government (www8).

Summary

List of decisive factors for success:
- Pressure from the Provincial States.

List of decisive factors for failure:
- Government decision making.
- Financial situation.

Involved actors:
- Ministry of Transport, Public Works and Water Management (decision maker/financier/problem owner).
- Cabinet (decision maker).
- Provincial States (decision maker).
- Government (decision maker).

This policy process step can be compared to the plan study phase of the MIT. In 1986 the Province of Zeeland considered the private sector as financier (Heijboer, 2004, p. 16). A new steering committee with government and provincial representatives started with new studies. A route in the middle of the peninsulas was introduced. In 1990 the Minister of Transport, Public Works and Water Management promised a budget of €18.7 million per year. In 1991 the Provincial States chose a route between Terneuzen and Ellewoutsdijk, a central route that made ferries on the Westerschelde unnecessary (Heijboer, 2004, p. 16). This decision can be compared to decision moment 3 of the MIT, the choice for the alignment. When the reference design was almost ready in mid 1991 new ideas were considered (Heijboer, 2004, p. 16). This resulted in an extra reference design for a twin-tube bored tunnel, which had a general outline due to lack of time. The Civil Engineering Division of the Directorate-General made the design for Public Works and Water Management. Extra soil investigations were necessary (Heijboer, 2004, p. 17). At the beginning of the 1990’s the Province of Zeeland searched for public/private financiers (Heijboer, 2004, p. 7). “In 1991 the Province of Zeeland requested companies to participate in the designing and tendering for the crossing, including access roads” (Heijboer, 2004, p. 18). In the spring of 1992 two parties started with their designs, Kombinatie Middelplaat Westerschelde (KMW) and the Konsortium Westerschelde Oeververbinding (KWOV). The policy process was ready for the next phase, decision making (Heijboer, 2004, p. 18).

Legislation

The Westerschelde Tunnel Act has the following stipulations (Heijboer, 2004, p. 23):

- The government is allowed to establish the NV.
- The road of the Westerschelde Tunnel is a public road.
- Toll may be charged with a limitation of the starting tariff and annual increase of tariffs.
- The Province of Zeeland is the official authority with respect to taking traffic measures, while implementation is vested in the NV.
- A period of 30 years is allocated for the payment of the tunnel costs with the possibility of an extension to 50 years when the costs are not paid off after 30 years.

Design choices

With respect to transport studies, the option of a bored tunnel made shipping through the Westerschelde to and from Antwerp possible during construction (Heijboer, 2004, p. 2). With respect to financial feasibility, the total investment in the tunnel was € 750 million, from which 40% is paid by means of toll collection and 60% by means of government subsidies. €635 million euro were direct construction costs, the rest of the budget was necessary for land acquisition, permits, spatial fitting-in planning, personnel, consultancies, accommodation and insurances. The eventual budget increased with 6%. The total amount of expenses is €1.3 billion, which includes operation costs (€225 million) and maintenance (€300 million) (Heijboer, 2004, p. 9). The price of the original design had to be reduced by at least 70 million euro to make the tunnel financially feasible for toll collection (Heijboer, 2004, p. 19).

Communication

To deal with the surroundings, for example owners of land, people living in the neighbourhood and administrative bodies, bottlenecks had to be listed constantly and contact had to be kept with the surroundings. Problems with the classical method of land acquisition were solved with a cooperation premium. Landowners got paid 20% more than the value of their land if they abandoned legal procedures. Dealing with the surroundings should be the responsibility of the client, not the contractor. An important part of dealing with the surroundings is communication. The Westerschelde tunnel
project aimed at creating goodwill and having an active and open set up (Heijboer, 2004, p. 270). The project environment gradually changed from hostile into enthusiastic (Heijboer, 2004, p. 271).

Summary

List of decisive factors for success:
- Results of a feasibility study on bored tunnel designs; the harbour at Antwerp would not have to block shipping and would avoid direct and indirect costs, the environment and landscape would be spared and there were less extreme construction circumstances than the tunnel-dam-bridge alternative (Heijboer, 2004, p. 17).
- Relationship between Minister Maij-Weggen and regional administrator van Gelder
- Communication with surroundings.

List of decisive factors for failure:
- Decision making of the Ministry of Transport, Public Works and Water Management.
- Disagreement on route choice between the Province of Zeeland and the Ministry of Transport, Public Works and Water Management.
- Costs.

Involved actors:
- Ministry of Transport, Public Works and Water Management (decision maker/financier/problem owner).
- Province of Zeeland (decision maker/problem owner).
- Provincial States (decision maker/problem owner).
- Civil Engineering Division of the Directorate-General for Public Works and Water Management (problem solver).
- Contracting party Combinatie Westerschelde (CWS) and Konsortium Westerschelde Oeververbinding (KWOV) (problem solvers).
- Land owners (problem owners/users).

1993-1996 Decision making

This policy process step can be compared to decision moment four of the MIT, the decision to start the implementation. At the end of 1992 it was decided that the main design of KMW was the best (Heijboer, 2004, p. 18). Still, cost reduction was necessary, which led to the design choice of a smaller twin-tube tunnel. The consequence of this was that private financiers demanded higher yields to take over risks (Heijboer, 2004, p. 20).

In 1993 the contracting party Kombinatie Middelplaat Westerschelde (KMW) was chosen as contractor (www8). On September 29 1995 the Council of Ministers decided to take over all the rights and obligations from the Province of Zeeland and take care of all the financing. They agreed to establish a public limited company, the NV Westerschelde tunnel, of which the government (95%) and the Province of Zeeland (5%) were shareholders (Heijboer, 2004, p. 21). The reasons for the NV were first that the financing of the project was not allowed to affect the national budget. The government could lend money to the NV and receive shares in return, which kept a nil balance. Secondly, toll charging was seen as a matter for a private company. Thirdly, this way the Westerschelde tunnel could be held outside the MIT, which is the Dutch acronym for the Long Term Programme for Infrastructure and Transport. When the Westerschelde had been in the MIT, other projects in the Randstad would have been postponed. Furthermore the objectives of the Westerschelde, which are increasing accessibility, stimulating the economy of the Province of Zeeland and increasing safety, differed from the objective of the MIT, which is sorting out infrastructural bottlenecks. Fourthly, the already selected contracting party could remain instead of planning an international tender process (Heijboer, 2004, p. 22). “The parliament decided that there had to be a
special Westerschelde Tunnel Act” (Heijboer, 2004, p. 23). On June 27 1996 the Lower House ratified the cabinet’s decision on the establishment of an NV. On June 29 1996 the Minister of Transport, Public Works and Water Management signed a Design-Build-Maintenance Contract with KMW for the design, the construction and the 10-year maintenance of the tunnel. The NV was responsible for the construction, technical management, maintenance and operation of the river crossing for a period of 30 years (Heijboer, 2004, p. 21). Advantages of a DBM contract are (Heijboer, 2004, p. 262):

- The design process is focussed on an efficient implementation.
- The choice of design is determined by the possibility of an efficient implementation.
- It takes into account good accessibility for manpower, equipment and materials.
- Better use of the creativity of the market.
- Unambiguous definition of liabilities.
- High quality due to the link between maintenance, design and building.
- The client knows the price at an early stage.

Disadvantages of the DBM contract were:

- Little influence of the client on the construction process.
- Little insight of the client into the costs due to the establishment of the pricing at an early stage.
- More interaction between the contractor and the client necessary than desired.
- The client bore the ultimate risks such as disasters and risks with man-made objects in the soil larger than 0.5x0.5x0.5 metres.

Reasons for a DBM contract were (Heijboer, 2004, pp. 262-263):

- Lack of expertise in the Netherlands on bored tunnels.
- Politicians wanted a fixed price for the design and construction.

Summary

List of decisive factors for success:

- Initiative of the Provincial Council of Zeeland.
- Window of opportunity (more need for a crossing after the completion of the Delta Works in 1986).

List of decisive factors for failure:

- Priority, no consensus about the financing structure or a bad economic tide.
- Costs.
- Yield demands of private financiers to take over risks due to the less expensive design choice with a lower expectation of vehicle passes.

Involved actors:

- Ministry of Transport, Public Works and Water Management (decision maker/financier/problem owner).
- Province of Zeeland (problem owner/decision maker).
- Contractor Kombinatie Middelplaat Westerschelde (KMW) (problem solver).
- Council of Ministers/ Cabinet (decision makers/financiers/problem owners).
- Parliament/Lower House (decision makers).
- NV Westerschelde tunnel (financier/problem solver).

1996-2003 Policy implementation

This policy process step can be compared to the realisation phase of the MIT. The advantages of an NV were first, the operation independently from governmental regulations and procedures, which made the organisation and personnel policy efficient and attuned to the project’s requirements. Secondly, the larger distance from the Ministry of Transport, Public Works and Water Management made the NV less sensitive to political influences and internal developments of the Ministry. Difficulties were first, extra tensions and conflicting interests of making profit by stimulating as much traffic as
Chapter 5 The policy process of the Westerschelde tunnel

possible versus decreasing vehicle use. Secondly, a cultural shift by the Directorate-
General for Public Works and Water Management was necessary, which succeeded. They
had to become the consultant, while the NV was the client that took the responsibility,
determined the rules and took the decisions (Heijboer, 2004, p. 23). “The Kombinatie
Middelplaat Westerschelde (KMW) designed and constructed the tunnel and maintains it
for the first 10 years. KMW is made up of six construction companies: BAM Infrabouw
BV, Heijmans NV, Voormolen Bouw BV (all from the Netherlands), the Belgian company
Franki NV and the German companies Philipp Holzmann AG (until 2002) and Wayss &
Management Zeeland Department and the Civil Engineering Division of the Directorate-
General for Public Works and Water Management supported the NV during the
construction of the tunnel respectively in the spatial fitting-in planning, land acquisition
and permits, and the supervision of the design and construction processes” (Heijboer,
with the details of the necessary planning procedures, the land acquisitions and the
obtaining of the various permits. The contractor started with the further elaboration of
the design and the construction planning of the actual implementation” (Heijboer, 2004,
In 1998 Minister Jorritsma of Transport, Public Works and Water Management performed
the start act for construction (www8). The originally planned delivery date was November
15 2002, but the extension of the scope with respect to safety measures and problems
with land acquisition caused the delivery date to be March 15 2003 (Heijboer, 2004, p.
8). March 14 2003 the tunnel was thrown open for traffic (www8). This moment can be
compared to decision moment 5 of the MIT, which is the moment of completion. “After
the operating period of 30 years, the NV transfers the tunnel with access roads to the
government for a nominal amount” (Heijboer, 2004, p. 10). After this period the tunnel is
free of charge. The starting points of the project management were (Heijboer, 2004, p.
264):

- Good preparation with respect to risk analyses and risk management.
- Knowledge of the contract.
- Good cooperation between subprojects and the various disciplines.
- Safety of the employees.
- Quality of the personnel.
- A problem solving attitude aimed at cooperation.
- Aims are linked to time, budget, result and quality.

Summary

List of decisive factors for success:
- Supervision from the Civil Engineering Division of the Directorate-General for
  Public Works and Water Management, which made the project controllable.
- Advantages of an NV; efficiency, less political influences.
- A bonus/malus system caused the contractor to do everything to make the
  planned delivery date.

List of decisive factors for failure:
- Interests of the NV and the Ministry of Transport, Public Works and Water
  Management.
- Less integration of design and construction than expected due to too little
  coordination between subcontractors.

Involved actors:
- Contractor Kombinatie Middelplaat Westerschelde (KMW) (problem solver).
- Civil Engineering Division of the Directorate-General for Public Works and Water
  Management (problem solver).
- Directorate-General for Public Works and Water Management Zeeland Department
  (problem solver).
• NV Westerschelde Tunnel (problem solver).
• Ministry of Transport, Public Works and Water Management (financier/problem owner).

2003 Policy evaluation

Only the first year almost 3.7 million vehicles used the tunnel, which was 29% more than expected (MinV&Wc, 2005, p. 43-44). This shows how much influence a toll tunnel can have on traffic intensities. Some general lessons learned from Dutch toll tunnels are (MinV&Wc, 2005, p. 44):

• When road users don’t use a toll tunnel, they rather make a detour than switch to another modality.
• Detour effects of toll can be limited when a subscription card is offered to road users.
• Especially long distance traffic makes another route choice and origin-destination traffic around the toll tunnel continues to use the connection.
• Commuter traffic is more willing to make a detour than average traffic. This group is price-sensitive.

In Appendix II a summary is given of the factors that existed during the policy process of the Westerschelde tunnel project.

5.2 Overall decisive factors for success or failure

To have more information for the Ministry of Transport, Public Works and Water Management to deal with decisive factors for success or failure, an interview was held with the technical director of the NV Westerschelde tunnel. One of the deliverables of this interview is a list of the most important decisive factors for success or failure and actions linked to those factors to deal with those factors. Those decisive factors for success or failure are combined with the decisive factors for success or failure that were already mentioned in 5.1.

Category: sense of urgency

1. Sense of urgency
   This is necessary for a process change. The region really wanted the tunnel, because the ferries would be replaced with a more comfortable tunnel that is open 24 hours a day. This was also interesting for the business community, which provided local support. The sense of urgency in the Westerschelde tunnel project was created when all actors understood that the traffic situation has to change to be able to improve the mobility.

2. Lack of priority at a national level

Category: financial barriers

3. Costs
   The total costs of the toll tunnel were a decisive factor for failure, but no real solutions exist for this factor.

4. Economic tide

5. Financial demands of contractor when risks increase

Category: support measures, other actors’ goals

6. Costs
   The costs for road users are dealt with in a good manner. Road users already paid for the ferries. The toll tariff started at the level of the ferry tariff, which was 10 guilders at the time. Road users need to be reassured that the toll tariff is not too high. Road users tend to think the most negative scenario. Truck drivers are willing to pay more than passenger vehicles. Therefore passenger vehicles had a lower tariff than trucks. Most road users except for foreigners took subscriptions. Administrators approve when their voters are satisfied.
Chapter 5 The policy process of the Westerschelde tunnel

7. Interests of other actors
8. Dealing with the surroundings such as land owners
9. Bonus/ malus incentives for the contractors

Category: political barriers
10. Government cooperation
11. Pressure from the Provincial States

Category: social barriers
12. Lobbying of commercial business community and regional bodies
13. Involvement of all actors

The Ministry of Transport, Public Works and Water Management, the Directorate-General of Public Works and Water Management, the Directorate-General for Passenger Transport (DGP), Main Directorate Legal Affairs (HDJZ), The Ministry of Finance, the tax inspectorate, The Directorate Financial Economical Affairs (FEZ) of the Ministry of Education, Culture and Science, The Ministry of Economic Affairs, International Road Federation (IRF), Administrators, Inter Provincial Consultation (IPO), Association of Dutch Municipalities (VNG), Transport organisations, Cycle and Automobile Industry (RAI), Union of Car dealers and Garage owners (BOVAG), Own Transport Organisation (EVO), Transport and Logistics Netherlands (TLN), General Dutch Cyclist Union (ANWB), Chamber of Commerce.

Category: communication and coordination
14. Communication
Hiring an advertising agency to show road users the comfort of the system, give a good overview of the financial transactions, easy accessibility and good tariff policy.

Category: Perfect compliance with those in authority, but no crippling constraints external to the implementing agency
15. Initiative of the contractor
16. The establishment of an NV (efficiency and less politics)

Category: flexibility in technology
17. Less integration of design and construction than expected

Category: a valid theory of direct cause and effect
18. Feasibility study results
19. Clarity

The public needs to be informed on the necessity of toll, which was in this case to be able to partly finance the infrastructure. The process steps need to be clear. A chance for toll projects to succeed is to use them as a pilot to prove necessity step by step and at the same time experience with technology. Discussions about traffic effects should be avoided, it should be explained to the public that toll is only used to finance infrastructure and to experience with technology for the kilometre price, not for regulation of traffic. To begin simple, toll can start with charging only during peak hours. Paying toll on existing infrastructure can be explained with improving the quality and extra maintenance of the existing infrastructure and money necessary to change the whole road configuration between existing and new infrastructure.

Category: adequate time and sufficient resources and the required combination of adequate resources available
20. Supervision from the Civil Engineering Division of the Directorate-General for Public Works and Water management
5.3 Conclusions

- There was little public resistance, because the toll tunnel replaced ferries.
- For the implementation a public limited company was established amongst others to make better use of private decisiveness.
- The total costs were 1.3 billion euro of which 40% was paid with toll collection.
- Decisive factors for success or failure that were found in most policy process steps were costs, interests of other actors and government decision making. The priority at the level of the national government was low, because they were not convinced right away that the tunnel was a good investment for the regional economy. Furthermore contractors, regional governments and the national government had to agree on the design and construction of the tunnel.
- The most important decisive factor for success or failure during the appearance on the agenda was lobbying of the commercial business community and regional governments. The most important decisive factor for success or failure during policy preparation was taking into account the interests of the road users. Road users received low tariffs, were offered subscriptions and the route choice of the tunnel was optimal. These measures made the toll system fair.
- The most important decisive factor for success or failure during decision making was making use of a window of opportunity. The priority increased after all policy process steps were tied up in a good manner.
- The most important decisive factors for success or failure during implementation were supervision from actors with knowledge, advantages of a public limited company, financial incentives for actors and integration of design and construction. Knowledge, a sufficient level of motivation, a professional attitude to work efficiently and sufficient integration of all tasks are imperative to maximise the success of the implementation phase. Only the integration was a problem during the implementation of the Westerschelde tunnel.
- Policy evaluation: the Westerschelde tunnel is a successful toll project.
Chapter 6 The policy process of the Trondheim toll ring

Foreign toll projects can be used as input for the design of the Dutch policy process. The Netherlands have their own cultural and legal background to take into account, but can still learn from foreign countries with a similar institutional background and similar ideas concerning toll projects. In chapter 6 the policy process of the Trondheim toll ring in Norway is discussed in chronological order. The important decisive factors for success or failure are categorised for each policy process step separately and are compared to the general categories of decisive factors for success or failure from chapter 4. The factors are used in chapter 7 to propose actions that can improve the policy process of toll projects.

6.1 Chronological description of the policy process

Norway has approximately 4.5 million inhabitants and the population is mostly concentrated around the four large cities, which are Oslo, Bergen, Trondheim and Stavanger. Norway has more than 75 years of experience with toll roads (van der Sar, 2005, p. 89). The first toll project in modern history started in 1932 (the Vrengen bridge). More than 100 projects have followed the same concept. Besides toll 6 cities have an area levy with financing as main reason as well (Oslo, Bergen, Namsos, Kristiansand, Stavanger and Tonsberg) (van der Sar, 2005, p. 90). Trondheim used to have an area levy, but paid off the whole infrastructure. Reasons for financing road infrastructure with toll are (van der Sar, 2005, p. 89):
- Growth of road traffic.
- Lack of road capacity.
- Increasing costs of road maintenance.
- Lack of financial means for public transport.

The area levy in Trondheim started in October 1991. The project in Trondheim had the aim of improving accessibility and stimulation of environmental friendly transport. The revenues of the area levy are necessary for investing in mainly roads, but also public transport, safety and environment. The area levy had little support from the population. 70% was against the levy. The resistance decreased after the implementation below 50% after 2 months and later on stayed between 35 and 45% (van der Sar, 2005, p. 91). Trondheim uses automatic toll collection with modern electronic permits (Ieromonachou, 2006, p. 367). Below information on the policy process and an overview of decisive factors for success or failure and involved actors per policy process step is given.

1985 Appearance on the agenda of government decision makers

Norway traditionally has a bottom-up approach when it concerns toll projects. Local actors, such as public authorities, businesses or civilians have to take the initiative (van der Sar, 2005, p. 92). Every toll project shall be based on local initiative and local
willingness to pay. The steps that follow after the initiative are (van der Sar, 2005, p. 92):

- The establishment of a toll company, which should be owned by local authorities and should not have profit as aim (policy preparation).
- Creating support within local and provincial councils (policy preparation).
- Approval from the road maintenance authority (Norwegian Public Roads Administration) and parliament (decision making).
- Creating financial means, performing studies and tendering (policy preparation).
- Toll collection (policy implementation).
- Discontinuance of the project after realisation costs are paid off (decision making).

“The process of toll ring implementation was initiated in 1985, during the last stage of preparing a new transportation plan for Trondheim” (Langmyhr, 2001, p. 5). Actors from the County Roads Office and leading politicians cooperated together to find a solution for the traffic problems. The City Council decided to have a feasibility study on a local financial contribution to road construction with additional funds from the State. Objectives were to increase the mobility, to alleviate the environmental degradation of the city centre and to attract the oil industry to the region (Langmyhr, 2001, p. 5). "When the project was first announced, 70% of the general public opposed the scheme, but this subsequently dropped to around 50%.” (Ieromonachou, 2006, p. 372) These were mostly local retailers in the city centre that feared a decrease of customers (Ieromonachou, 2006, p.372).

**Summary**

**List of decisive factors for success:**
- Cooperation between the County Roads Office and leading politicians.

**Involved actors:**
- County Roads Office (decision maker/ financier/ problem solver).
- Politicians (decision maker/ problem solver).
- City Council of Trondheim (decision maker/ financier/ problem owner).
- Local retailers (users/ problem causers).

**1985-1987 Policy preparation**

From 1985 planning, public debate and negotiations with central authorities took 2 years. During that time the County Roads Office actively informed households in Trondheim on the necessity of toll by means of the media and brochures. During the planning period more feasibility studies were performed on different charging methods (Langmyhr, 2001, p. 5).

**Summary**

**List of decisive factors for success:**
- Information provision to road users.

**Involved actors:**
- County Roads Office (problem solver).
- Road users (problem causers).
Chapter 6 The policy process of the Trondheim toll ring

1987 Decision making

In November 1987 75 out of 85 votes in the City Council agreed on a toll ring. One right wing and two left wing parties gave opposition in the City Council. The labour party supported the toll ring and the conservative party agreed on toll under the condition of the construction of two road projects (Langmyhr, 2001, p. 5). "All road projects involving user fees need to be approved by local and regional political bodies, and sanctioned by the National Parliament". A criterion for planning single projects is a maximum cost uncertainty of 10%. Transport investment packages are allowed to have uncertainty of 25%. (Langmyhr, 2001, p. 4)

Summary

List of decisive factors for success:
- Making use of political support.

Involved actors:
- City Council (decision makers).

1987-1989 Policy preparation

In 1987 the Brundtland Commission report “Our common future” led to an increase in environmental awareness. This changed the earmarking of revenues, such as spending money to relieve streets of heavy through-traffic. Other environmental choices were made on the fee structure such as not allowing monthly passes and higher fees during the morning peak hours (Langmyhr, 2001, p. 6). “In 1988 Trondheim introduced its first toll road, a new road parallel to an old highway” (Swedish national Road Administration, 2002). In June 1990 a proposal for traffic demand management was proposed in the City Council, which went further than the Central Government policy (Langmyhr, 2001, p. 6).

Legislation

In 2001 legislation made road pricing possible as an instrument for traffic management (van der Sar, 2005, p. 91).

Design choices

With respect to financial feasibility a transport investment package is financed by 60% user fees and 40% stated funds. 82% of this amount goes to the construction of roads. Total costs were 280 million euro (www9).

Communication

To deal with the public resistance concerning toll in general and the resistance of the local retailers in particular the environment of the city centre was rejuvenated (Ieromonachou, 2006, p. 372). Before opening the toll ring, much effort was spent on information campaigns to explain the necessity to the road users (Wærsted, 2005, p. 3). The public accepts toll better when they see where and how the money is used and makes them understand the real cost of environmental and social expenses of heavy traffic (Ieromonachou, 2006, p. 372). It was made clear to road users that extra funding was the only way to realise the extra capacity in the short term (Odeck, 2001, p. 6) The information campaign also led to some changes in favour of the road users (Wærsted, 2005, p. 4).
- Subscribers only had to pay once in an hour.
- There was a maximum total payment per month.
- The tag that had to be placed in the car was free of charge.
- Discount was 40 to 60%.
- Direct payment from the bank was possible.
Post payment was also possible.
The passages were free during the weekends.

The City Council of Trondheim decided to improve existing retail and commercial centres in order to preserve the character and economic vitality of the town (Ieromonachou, 2006, p. 372).

**Summary**

**List of decisive factors for success:**
- Investment in improvements of objectives of the users.
- Information spreading by the County Roads Office to households in Trondheim.
- Support from some political parties.

**List of decisive factors for failure:**
- Opposition from political parties in the City Council.

**Involved actors:**
- Road users (users/ problem causers).
- County Roads Office (decision makers/ problem solver).
- Political parties (decision makers).
- City Council (problem owner/ decision maker).

**1989-1991 Policy implementation**

In Oktober 1991 a part of the toll ring came into operation. This can be compared to decision moment 5 of the MIT, the moment of completion. The original toll ring in Trondheim started with 11 unattended electronic charging points and one attended toll station. The motorists had to pay Monday to Friday when entering the city (NPRA, 2006). 8 implementation features of the Trondheim toll ring are recognised (www10). Toll revenues were used for local transportation improvements of multiple modes.

1) The electronic toll tag was given away free to promote it.
2) The technical design that allowed 10 out of 12 toll plazas to be unattended reduced the operating costs.
3) Converting vehicle data into charges each night and deleting time/ place information protects privacy. Another alternative is anonymous subscriptions.
4) A discount is given to tag users.
5) There was an advertisement push to sign-up tag users.
6) The toll road was opened immediately before an election.
7) All the toll plaza’s were designed within existing rights-of-way, which saved time.

**Summary**

**List of decisive factors for success:**
- Goals of other actors were taken into account.
- Much time and money was spent on promotion of tags.

**List of decisive factors for failure:**
- Opening the toll immediately before an election.

**Involved actors:**
- Road users (users).
Chapter 6 The policy process of the Trondheim toll ring

1991-1993 Policy evaluation

After the implementation of the toll ring in 1991 traffic that passed the ring decreased with 10% in peak and off-peak charging hours. In the evenings and weekends the decrease was 8%. There were no indications of changes in shopping trip destinations, but shopping trips increased in toll-free periods and decreased in tolled periods. Furthermore use of public transport and cycling increased slightly (www9). Public attitudes concerning the toll ring changed from 2/3 negative/ very negative before implementation to 1/3 negative/ very negative two years after implementation (www10). “The new transport plan of 1992 offered an opportunity for evaluation and renegotiations” (Langmyhr, 2001, p. 6). Already in 1988 some actors at the County Roads Office foresaw an increase in charging points. More revenues were necessary, because loans still had to be paid back, construction turned out more expensive and state funds diminished. The evaluation report was published in December 1993. Its conclusion was to increase the number of charging points and prolong opening hours. This way a larger group of users would have to pay, which is fair (Langmyhr, 2001, p. 7).

1992-1995 Appearance on the agenda of government decision makers

Political parties still were opposed to the cordon pricing system and the investment package. The anti-road pricing action group actively used the local press and had influence through a right-wing party. “The environmental movement criticised the road-supply-bias of the plans” (Langmyhr, 2001, p. 6). The results were that a differentiated charging system was necessary and that all new major roads were postponed with at least 3 years. Reasons were a general decline in traffic and a financial crisis in the health sector, which made infrastructure investments less necessary. In 1995 a new transport plan was put on the agenda again. New projects received a fair charging system (Langmyhr, 2001, p. 7). The local politicians accepted the transport plan, but had divergent preferences. The County Roads Office analysed several alternatives (Langmyhr, 2001, p. 8).

Summary

List of decisive factors for success:
• Support from politicians by making the toll system fair

List of decisive factors for failure:
• Opposition from political parties, the anti-road pricing action group and environmental movement

Involved actors:
• Anti-road pricing action group (problem causer)
• Political parties (decision makers)
• Environmental movement (problem causer)

1996-2005 Policy preparation/ decision making/ implementation/ evaluation

A compromise was made before the City Council meeting in June 1996. The toll ring was allowed to become a zonal system that was more suitable for demand management. The concession was that a future demand management charging system was rejected and the toll system would be terminated no later than 2005 (Langmyhr, 2001, p. 8). “In 1996 one station was added to charge a popular by-pass route through a dwelling area” (Langmyhr, 2001, p. 3). In June 1996 the city board decided to differentiate the levy according to zones and time. The reasons were the need for new financial means and the demand of a fair system by road users. In 1998 the Trondheim toll ring was extended by adding 6 more toll stations. Due to a change in use of frequency for On board Units the NPRA had to leave the old one at 853 mhz. The toll ring was divided in 7 zones in 1998.
Chapter 6 The policy process of the Trondheim toll ring

This provided the possibility to travel uncharged to most daily facilities such as schools and local shops (Langmyhr, 2001, p. 7). The zonal system had disadvantages for road users that pass several stations in a day and don't have an electronic tag. Road users with an electronic tag were charged once an hour, but other road users had to pay more and had to stop several times. In January 1998 implementation of the zonal system and the new pricing regime started. In the evaluation report of December 1998 negative public reactions came forward about the disadvantages of zones for road users without tags and about the largeness of the city centre zone, which is unfair (Langmyhr, 2001, p. 8). In 2001 Norway introduced a toll charging technology, Autopass, using a frequency on 5,8 ghz. In Oktober 2001 the city board decided on a new cordon around the city centre (van der Sar, 2005, p. 91). The first of November 2003 the toll ring was extended once again. Due to a cost overrun on the last city bypass project, 6 more toll stations were established in order to gain more toll revenue (NPRA, 2006). The toll system stopped at December 31 2005, because the funding motive did not transfer to a demand management motive. Politicians insisted that the promise was kept to cancel a toll project that remained longer than 15 years (Jeromonachou, 2006, p. 372). The initial plan was to end the toll ring in 2007, but when an important road project in the Trondheim Road Package lost its support in the Trondheim City Council the end date shifted to 2005 (Wærsted, 2005, p. 6). At the time of writing this thesis not all roads that are financed with the toll revenues are built yet.

Summary

List of decisive factors for success:
- Taking into account the objectives of all political parties
- Making the system fair towards the road users
- Electronic Fee Collection that is integrated with the other Norwegian toll projects.

Involved actors:
- Politicians (decision makers)
- City Council (problem owner/ decision maker)

In Appendix III an overview is given of the factors that existed during the policy process of the Trondheim toll ring and these factors are linked to lessons that can be learned.

6.2 Overall decisive factors for success or failure

To have more information for the Ministry of Transport, Public Works and Water Management to deal with decisive factors for success or failure, an interview was held with the Norwegian Public Roads Administration. One of the deliverables of this interview is a list of the most important decisive factors for success or failure and actions linked to those factors to deal with those factors. Those decisive factors for success or failure are combined with the decisive factors for success or failure already mentioned in 6.1.

Category: support measures, other actors’ goals

1. Public resistance
Environmetal groups and many students (Trondheim has a technical university) saw the toll ring as barrier between the fjord and the city and as more pollution. The municipality of Trondheim had to invest much in tunnels to make a deal that was acceptable for all actors. Tunnels released the city of much through traffic. Furthermore the city grew, which created a window of opportunity for building more roads in the new part of the city. This was especially a window of opportunity, because Trondheim does not have traffic congestion problems such as Oslo and Bergen. Road users do not have resistance against paying toll on congested bridges or paying toll when bridges or tunnels replace ferries. In those situations the benefits are higher than the costs.
2. Fairness
The municipality made the toll system fair by letting road users pay toll one amount for one zone. The zones were not allowed to be too large.

Category: political barriers

3. Political promises
Politicians always promised that the toll ring would be removed in 2005. Therefore no new infrastructure projects financed by means of toll could start in 2005. The toll revenues were also partly used for public transport. Public transport has also suffered much from the loss of toll, because extra government funding has ceased after public transport investments of the municipality of Trondheim became too low. Infrastructure has a much lower priority in Norway than health and education. This makes it more difficult to realise toll. Especially the right wing parties are against building new roads.

4. Making use of political support
Cooperation between the County Roads Office and leading politicians. The mayor of Trondheim had good connections with parliament.

5. Opposition from political parties in the City Council

Category: social barriers

6. Opening the toll immediately before an election

Category: communication and coordination

7. Information provision to road users
One of the issues was to convince people to use toll to finance infrastructure. With advertising and marketing (showing commercials) road users were approached to use tags with a discount on their toll. The commercials also mentioned the argument of less long queues at the toll point when using tags.

8. The mayor of Trondheim had close communication with the Ministry of Transport.

Category: institutional barriers

9. Direct agreements between government levels
The municipality of Trondheim had as only municipality a direct toll agreement with the Ministry of Transport. Other municipalities have their toll agreements with the regional Public Roads Administration. This was a benefit for the policy process.

6.3 Conclusions

- Public and political resistance existed. Local retailers were afraid to lose shopping public. Environmental organisations, students and political parties protested against the toll ring, because a part of the toll ring would form a barrier between the fjord of Trondheim and the city.
- The total costs for the toll ring were 280 million euro of which 60% were paid with toll collection.
- Decisive factors for success or failure, that were found in most policy process steps, were taking into account the interests of all involved actors and fairness. Closing a package deal with politicians made the realisation of the toll ring possible. The municipality made a package deal with the political parties that represented the environmental organisations. The package deal arranged that 18% of the toll revenues became an investment in public transport and that environmentally friendly solutions such as tunnels were integrated in the toll ring. Fairness was important for decreasing public resistance. The toll ring changed in a toll system with zones to distribute the toll costs in a fair manner to all road users.
- The most important decisive factors for success or failure during the appearance on the agenda were cooperation between the local government and politicians and a bottom-up approach of putting the toll ring on the agenda.
The most important decisive factor for success or failure during policy preparation was investing time and money in information provision and preparing a package deal. The municipality executed a large information campaign to convince the public on the usefulness and necessity of the toll ring and the advantages of using tags. The most important decisive factors for success or failure during decision making were political support and resistance, which resulted in a package deal and the bottom-up approach of taking decisions.

The most important decisive factors for success or failure during implementation were information provision, electronic fee collection integrated with other Norwegian toll projects and time of implementation too close before new elections.

Policy evaluation: The toll project in Trondheim was successful.
Chapter 7 Improving the policy process

The following question is answered in chapter 7. How can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of the toll projects? First, the decisive factors for success or failure during the policy process of a toll project are categorised for each policy process step. Secondly, actions are proposed for those factors to improve the policy process of toll projects. The actions are linked to various actors. Actions that specifically support the realisation of toll are indicated separately from the actions that support the realisation of the infrastructure projects in general. In Appendix IV a table describes all actions for each policy process step and indicates which actions were proposed in which interview.

7.1 Factors and actions for all policy process steps

The decisive factors for success or failure that were found in the two case studies in various policy process steps were costs, government decision making, taking into account the interests of all involved actors and fairness.

Actions for the Ministry of Transport, Public Works and Water Management

- The priority at the national level for financing toll projects is mostly low. Priority for realising infrastructure needs to increase. The national government needs to listen to the regional ideas of realising new infrastructure. Work together with the regional governments on a regular basis to listen to their interests and make this a part of the process.
- Work together with the contractors on a regular basis to integrate the design and construction phase in a sufficient manner.
- Make package deals with politicians on the distribution of the revenues or environmentally friendly solutions.

To realise toll:
- Make the toll system fair for all road users in terms of toll distribution.
- The priority at the national level for financing toll projects is mostly low. Priority for realising toll needs to increase. A precondition for realising toll projects is being clear to the regional governments at an early stage that no money will become available to finance those infrastructure projects. Budget allocation needs to be reorganised.

Actions for regional governments

- Make package deals with politicians on the distribution of the revenues or environmentally friendly solutions.

To realise toll:
- Involve the interests of the road users sufficiently in the policy plans. Make the toll system fair for all road users.

7.2 Appearance on the agenda

The most important decisive factors for success or failure during the appearance on the agenda were lobbying of the commercial business community and regional governments and a bottom-up approach of putting the toll ring on the agenda.

Actions for the Ministry of Transport, Public Works and Water Management

- Lobbying for the projects.
- Identify a mobility problem.
- Let regional governments have more autonomy in proposing toll projects.
• Let regional governments play a larger role during the plan studies.

To realise toll:
• Lobbying for toll.
• Making regional governments understand that no money will be given to finance other infrastructure projects than agreed upon. A current example where the Ministry of Transport, Public Works and Water Management explained this too late was on the A4 Delft-Schiedam project.
• Find a sufficient number of toll projects for which it is certain that toll is necessary for financing.
• Change the organisation within the Ministry in terms of budget distribution.
• Change legislation to be able to collect toll on existing infrastructure.

Actions for regional governments
• Lobbying for the projects. A current example is the Province of Gelderland that is lobbying for the expansion of the A15. Start a local/ regional platform for discussing the possibilities of toll projects.

7.3 Policy preparation
The most important decisive factors for success or failure during policy preparation was taking into account the interests of other actors and investing time and money in information provision.

Actions for the Ministry of Transport, Public Works and Water Management
• Make package deals with regional governments, landowners and environmental organisations. Involve all actors (market, administrators, politicians) and create space in the process to use the feedback from other actors. Arrange meetings with all actors far in advance of decision moments. Listen to their interests and process them in the policy plans. The A6/A9 project is a current example where environmental organisations were opposed to government plans and no solution was found.
• Put other actors in research commissions to let them make their own decision.
• Involve other ministries; broaden the scope of road pricing with subjects as economy, employment and commuters.
• Convince parliament members individually, not only in a commission.
• Take the responsibility of being a good facilitator.
• Involve regional governments more during the plan study.
• Let regional directorates manage the projects.
• Execute an ex-ante evaluation such as the “kostenmonitor”.

To realise toll:
• Have a direct toll agreement and direct communication with municipalities.
• The departments within the Ministry should have the same objectives concerning toll. This includes agreement on budget distribution. This can be realised with sufficient internal consultation.

Actions for regional governments
• Be more involved during the plan studies.
• Do not have too strict rules for technology choices to avoid technological limitations in the course of time.
• Test the robustness of the contractors in terms of reliability of delivery.
• Do not link all aspects of the project to avoid complexity of technology.
Chapter 7 Improving the policy process

- Create a professional organisation by having sufficient knowledge in terms of conceptual choices, jurisdiction, industry, commercial contracts and tender procedures to understand the contractor.

To realise toll:
- Give the road users a fair toll system with low tariffs and the possibility of subscriptions.
- Give road users sufficient information on the usefulness and necessity of the toll projects and the advantages of using tags.
- Have a direct toll agreement and direct communication with the Ministry of Transport, Public Works and Water Management.
- Carry out a thorough analysis of toll design choices such as having sufficient space near the tolled roads for foreigners to pay when they don’t have a tag.
- Delay choices to have more certainty of toll technology.
- Leave the technological choices of toll to the market.

**Actions for contractors**

- The framework for the contractor has to include all rules from the EU in terms of innovation and open competition.
- The framework for the contractor has to include all rules from the EU in terms of legal protection.

To realise toll:
- Take initiative on developing a design for toll projects and developing technology.

### 7.4 Decision making

The most important decisive factor for success or failure during decision making was making use of a window of opportunity, political support and resistance, which resulted in a package deal and the bottom-up approach of taking decisions.

**Actions for the Ministry of Transport, Public Works and Water Management**

- Make decisions on projects that are suggested by regional governments to have regional commitment.
- Have direct communication with municipalities.
- Separate main issues from side issues and take decisions and don’t come back to it during the process.

To realise toll:
- Make toll projects invulnerable by using them as pilots to create experience for the kilometre price and demonstrating usefulness and necessity.
- Take the risk of implementing unpopular policies if you know that toll projects are the most efficient and effective means to achieve your objectives.

**Actions for regional governments**

- Compensating for the low priority at the national level by lobbying for the projects.
- Have direct connections with parliament.
- Have direct communication with the Ministry of Transport, Public Works and Water Management.
- Find financial resources. Communicate with the market, administrators and politicians.
7.5 Policy implementation
The most important decisive factors for success or failure during policy implementation were supervision from actors with knowledge, advantages of a public limited company, financial incentives for actors, integration of design and construction, information provision, integration of organisation with other toll projects and period of implementation.

Actions for the Ministry of Transport, Public Works and Water Management

- Let actors with knowledge supervise the implementation of projects.
- Let private companies play a large role in implementing projects, possibly in a limited public company to avoid delays, separate political and administrative space and create a professional attitude to work efficiently.
- Give financial incentives to all involved actors to work together during the implementation such as a bonus malus system for the contractors to speed up the construction period.

Actions for regional governments

- Provide a hard framework for the contractor and leave as much as possible open for the contractor to decide. Make clear agreements in a DBFM contract.
- Pay attention to the integration of the design and the construction.

To realise toll:

- Hire an advertising agency for being open to the public and cooperating with the press. Be honest and understandable to the road users. Prove the necessity and reliability (a fair system) by executing a pilot and use the pilot to experiment with technology. Avoid the discussion of traffic effects. Limit it to one pilot to avoid risks.

7.6 Policy evaluation
During policy evaluation a check needs to take place on the preconditions of the Mobility plan, which are public acceptance, improvement of the accessibility, a free alternative next to the toll infrastructure, minimal costs and transparency.

Actions for the Ministry of Transport, Public Works and Water Management

To realise toll:

- Check the toll projects on an improved traffic situation (reduced travel time, improved accessibility). Guarantee that road users do not have to pay toll when the infrastructure is congested.
- Check the toll projects on low toll tariffs in particular for passenger cars, the possibility of subscriptions and fairness of toll distribution to all road users.
- Check the toll projects on information provision to road users and tariff controllability.

7.7 Conclusions
Many actions exist to support the realisation of toll projects. Some actions support the realisation of the infrastructure projects in general and other actions are specifically focused on realising toll. The most important action for all process steps in general is making package deals with regional governments, contractors and politicians. The most important actions for all process steps to realise toll are:

- Make the toll system fair for all road users in terms of toll distribution.
- Being clear to the regional governments at an early stage that no money will become available to finance those infrastructure projects. Budget allocation needs to be reorganised.
For each policy process step the most important actions are:

- Appearance on the agenda.
  Finding political support through all government levels. Politicians need to be convinced by having a toll system that is fair for the population.
- Policy preparation.
  Toll projects seen in a broader perspective; not only finance infrastructure, but also have sufficient benefits for road users, have environmental friendly design choices, in short have a high degree of usefulness and necessity. Broaden the scope with subjects as economy, employment and commuters.
  - Decision making.
  Have direct communication with decision makers.
  - Policy implementation.
  Let actors with knowledge play a large part during the policy implementation.
Chapter 8 Conclusions and recommendations

On limited scale toll projects have existed in the Netherlands or still exist. In the Mobility Plan the Ministry of Transport, Public Works and Water Management has the objective of improving the main infrastructure roads in order to strengthen the economic structure. The three main measures are infrastructure construction, better utilization of infrastructure and road pricing.

**The research question of this thesis report is:**
What are the decisive factors for success or failure when implementing road pricing policy in particular toll/accelerated action price projects in the Netherlands and how can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of toll and accelerated action price projects?

At the end of this chapter the research question will be answered. First, each sub question will be discussed separately in the following sections.

1. Which road pricing plans and objectives exist in the Netherlands?
2. Which decisive factors for success or failure in policy processes can be found in previous research?
3. Which lessons for maximising the success of toll and accelerated action price projects can be learned from past experiences in the Netherlands and abroad?
4. How can the Dutch Ministry of Transport, Public Works and Water Management improve the policy process to maximise the success of the toll and accelerated action price projects?

### 8.1 Road pricing

The Platform AbvM (Paying differently for Mobility) developed in 2005 an integrated plan of improving the mobility in the Netherlands. The emphasis was on financing infrastructure (toll) and converting fixed taxes into a price per kilometre differentiated to time, place and vehicle characteristics (kilometre price). At the time of writing this thesis the policy preparation of road pricing is in the hands of project team ABvM that is part of the Ministry of Transport, Public Works and Water Management. Differences in pricing policies influence the outcomes of interest. The most important policy choice is the type of road pricing that is used, which is influenced by the motives of the policy maker. Each country makes choices about their motives for road pricing, the type of road pricing and design options within the road pricing types.

### 8.2 Decisive factors for success or failure

The following 7 general decisive factors for success or failure are found from previous research.

- **Sense of urgency.**
  Means to create a sense of urgency are financial barriers, support measures, political barriers, social barriers and communication and coordination.
- **Perfect compliance with those in authority, but no crippling constraints external to the implementing agency.**
- **Flexibility in technology.**
- **A simple implementing agency.**
- **Institutional barriers.**
- **A valid theory of direct cause and effect.**
- **Adequate time and sufficient resources and the required combination of adequate resources available.**

These factors can be used to examine various policy processes. In this research the factors are used to categorise the decisive factors for success or failure that are found in the case studies.
8.3 Lessons from past experiences

The decisive factors for success or failure that were found in many policy process steps were:

1. Taking into account the **interests of all involved actors**, category support measures (other actors’ goals)
2. **Costs**, category financial barriers
3. **Government decision making**, category political barriers
4. **Fairness**, category support measures (other actors’ goals)

These factors contribute to the degree of political and public resistance. Therefore actions are proposed for these factors to maximise the success of toll projects. The most important action for all process steps to increase public and political support in general is to make package deals with regional governments, contractors and politicians. The most important actions for all process steps to increase public and political support to realise toll are:

- Make the toll system fair for all road users in terms of toll distribution.
- Being clear to the regional governments at an early stage that no money will become available to finance those infrastructure projects. Budget allocation needs to be reorganised.

8.4 Recommendations

The following 4 global directions of advice will assist in improving the policy process in order to maximise the success of toll projects.

1. **Regional involvement.**
   Decisive factor: interests of all involved actors.
   The most interesting solution of increasing the success of toll projects is regional involvement. The Dutch Mobility Plan ‘Nota Mobiliteit’ states that the role of the national government is to lay down a framework for decentralised policies (MinVenWf, 2005, p. 11). Regional involvement corresponds with the principle of the Dutch Mobility Plan ‘Nota Mobiliteit’: “Centraal wat moet, decentraal wat kan” (which means centralised organisation of subjects for which centralised organisation is necessary and decentralised organisation of subjects for which decentralised organisation is possible) (MinVenWf, 2005, p. 10). The advice is to involve regions and municipalities more in the policy making and give them more autonomy on choosing toll projects. Four promising ways of increasing regional involvement are found in literature and interviews; the introduction of a bottom-up approach, organising a regional platform for toll project, involving regional governments more during the plan study phase and providing national legislation that enables regional initiatives.

2. **Leadership.**
   Decisive factor: government decision making and costs.
   Leadership to make unpopular decisions on road pricing measures that are necessary for achieving the objectives of the Mobility Plan and leadership towards the regions that no extra money will become available for infrastructure projects. Road pricing projects in London, Norway and Stockholm show that strong leadership can make it happen that a project is realised. The projects also show that public support always increases after the road users experience the accessibility improvement caused by the road pricing policy. Eventually the strong leader will be praised for its actions. Leadership towards the regions concerning financial agreements is only possible when the organisation within the Ministry changes in terms of budget distribution. When one department makes a financial agreement with regional governments, financial resources from another part of the Ministry of Transport, Public Works and Water Management interfere. It is very important that internal communication tunes general policies.

3. **Partial decisions in each cabinet.**
   Decisive factor: government decision making.
   Road pricing policies have met with much public and political resistance in the Netherlands and in foreign countries. Furthermore road pricing policies need long term
planning for realisation, because it often requires a large system change. Long term planning is complicated by the change of a cabinet after 4 years. Each cabinet starts with an entirely new plan and has time constraints to achieve the implementation of a good road pricing scheme. This makes it important to search for anchors by means of partial decisions in each cabinet period to be able to grow to an end product.

4. Communication to the public.
Decisive factor: fairness.
Explain road users the usefulness and necessity of toll projects with commercials and executing pilots. Communication by means of large commercial campaigns in London and Norway has resulted in a fairly positive public opinion of road pricing policies. A pilot in Stockholm of a few months also turned the majority of the public in favour of road pricing, because the traffic effects became clear.

8.5 Overall conclusions
The most important action for all process steps in general is making package deals with regional governments, contractors and politicians. The most important actions for all process steps to realise toll are:

- Make the toll system fair for all road users in terms of toll distribution.
- Being clear to the regional governments at an early stage that no money will become available to finance those infrastructure projects. Budget allocation needs to be reorganised.

For each policy process step there are much more actions to undertake to improve the policy process. In short, 4 global directions of advice can be given. Each direction of advice also has some risks to take into account. These risks are also described below.

1. Regional involvement.
The advice is to involve regions and municipalities more in the policy making and give them more autonomy on choosing toll projects. The risk of regional involvement is that regions will put more pressure on the national government to realise infrastructure projects that are controversial and not desirable from a welfare perspective. Some toll projects will improve a traffic situation for too few people. This is a dilemma of mobility growth versus costs. Other toll projects will improve the traffic situation for a large group of people and will lead to loss of wealth for a small group of people. This is a dilemma of mobility growth versus a high traffic flow. The consequences of not using toll for infrastructure projects is not building a road at all or increased taxes, which is not fair for less frequent road users. Therefore it is the task of the national government to keep the balance between too little or too many toll projects. The national government should always be able to block projects that are not remunerative and keep their decision making power. Approval from the Ministry of Transport, Public Works and Water Management has to be made legally compulsory.

2. Leadership.
Leadership to make unpopular decisions on road pricing measures that are necessary for achieving the objectives of the Mobility Plan and leadership towards the regions that no extra money will become available for infrastructure projects. The risk of making unpopular decisions is that a public campaign might protest against the policies and be able to stop the policies with the parliament as blocking instrument. This might jeopardise the existence of road pricing policies altogether. Public resistance can also have a delayed effect during the next elections, in which a cabinet might be chosen that will reverse the policies. This might lead to the necessity of taking over the financing costs of the toll projects by the Ministry of Transport, Public Works and Water Management. The risk of leadership towards the regions with respect to available money is that no infrastructure projects will be realised at all. Regions can blame the Ministry of Transport, Public Works and Water Management for this very easily. Therefore leadership always have to be combined with the first direction of advice, regional involvement, to increase public and political support.
3. **Partial decisions in each cabinet.**
Search for anchors by means of partial decisions in each cabinet period to be able to grow to an end product. The risk of this advice is that actors will lose trust in the road pricing policy. They might fear that the end result will never be achieved due to political changes and politicians not keeping their promises. Staying in dialogue with all actors and listening to their interests can prevent this.

4. **Communication to the public.**
Explain road users the usefulness and necessity of toll projects with commercials and executing pilots. The risk of communicating with the public through commercials is that too complex notions cannot be explained in a simple way. The consequence is that the message to the public is not complete and makes it easy to have criticism on the policies. Another risk is communicating with the public too early or too late. This might cause resistance in an early stage, in which policies are not entirely developed yet. This leaves the public confused. When the communication starts too late, feedback from the public has become impossible and resistance can arise out of lack of knowledge. Therefore simple information needs to be spread at earlier stages of the policy process. More detailed information can be given closer to the implementation date. The risk of executing pilots to prove the necessity, usefulness and effectiveness of the road pricing policies to the public is that the pilots fail. When toll pilots have a negative effect on the traffic situation and have higher costs than benefits, public resistance will increase. This might jeopardise the road pricing policies altogether. Therefore pilots need to be as simple as possible in terms of organisation and scope.
Chapter 9 Reflection

In chapter 9 the choices that are made during this research are reflected on such as the methodological approach and the difficulties with the interaction between toll projects and the kilometre price.

Scientific theories

Factor analysis is used in this thesis to learn lessons across time and space. Factor analysis detects the decisive factors for success or failure in policy processes. Factors are variables, with a high score indicating success and a low score indicating failure. The purpose of this thesis is to learn lessons for the Dutch toll projects. This theory is chosen, because the definition of success that is used during this research is that infrastructure projects have to be realised with toll. Factor analysis assists in finding the factors for success or failure of realising infrastructure projects by means of toll. Other theories focus on other definitions of success such as social economical effects of toll or the acceptance of toll and changed travel behaviour caused by toll. When the focus is on process management, the chance increases that content is forgotten. This might lead to negotiated nonsense. Therefore the importance of the content must not be forgotten in the policy process. There were 5 preconditions linked to the objective of maximising the success of toll projects: public acceptance, improvement of the accessibility, a free alternative, minimal costs and transparency. This research is primarily focused on creating a process in which these preconditions can be reached, especially public acceptance and transparency. To make sure that the preconditions are a part of the content, they need to be quantified as much as possible. The role of the preconditions should be indicated for each policy process step and the degree in which the end product of a policy process step needs to correspond with the quantified preconditions. All actors should agree on this before each policy process step starts.

Case selection

The following will be discussed concerning case selection.
1. The objective of the research.
2. The difference between toll projects in Norway and toll projects in the Netherlands.
3. The difference between toll projects in the past (the Westerschelde tunnel) and toll projects in the future.
4. Follow-up studies.

1. This research focuses on the objective of realising infrastructure by means of toll. To reach this objective public and political support has to increase. This research only focused on learning lessons from success cases. This has several reasons.
   - The success cases have positive results. The cases are good examples of how policy processes should be to realise infrastructure projects by means of toll.
   - Even success cases have had factors that can lead to failure. It is interesting to examine in which way is dealt with the factors that can lead to failure.

The consequence of this choice is that failure cases also need to be examined to have a complete picture of the influence of decisive factors for success or failure on the policy process. This might give more insight in the possibilities of compensating the influence of decisive factors for failure with a decisive factor for success such as strong leadership.

2. International differences exist with respect to decision making and motives for road pricing. This influences the conclusions of the lessons that are learned from decisive factors for success or failure in foreign toll projects. When both case studies are compared to each other, differences in culture are noticed.
• The policy process in the Netherlands is more consensus driven than the policy process in Norway. Norway has had the same problems with public and political resistance, but had more leadership to implement the unpopular policy anyway. This can be explained by the differences in the decision making structure and culture of the two countries, which is described in section 2.4.3 of this report. The Netherlands is more pluralistic than Norway, which means that more obligations exist between actors.
• Norway is more federalist, which means that the lower governments take more initiatives, have more financial means and consult the central government more.
• Furthermore the Netherlands has a low speed of decision making with an unpredictable length and a gap between national and local government.
• The length of the pricing tradition is important as well. A long pricing tradition is defined here as longer than 10 years. Countries with a short pricing tradition might have other decisive factors for success or failure, because they have to deal with technological, organisational and social problems during the start up of pricing policies. While the Netherlands has a short pricing tradition, Norway has a long pricing tradition. This difference will make it more difficult to implement road pricing policies in the Netherlands than in Norway.

In short, all these differences between the Netherlands and Norway explain why the policy process of toll projects will probably take longer and will be more difficult to execute in the Netherlands. A factor that can speed up the policy process is that toll projects in the Netherlands are more necessary than in Norway. The Netherlands has much worse traffic situations and infrastructure bottlenecks that need to be dealt with. Therefore road users can understand the necessity of road pricing policies and benefit from them.

3. When the Westerschelde tunnel case is compared to future toll projects the greatest differences are:
• The administrative context of the Westerschelde tunnel differs from that of the future toll projects. The Westerschelde tunnel might have less public resistance, because the toll tunnel replaced ferries. Also in Norway it is noticed that toll projects are more acceptable when they replace ferries.
• A difficult process in combination with the kilometre price. Future toll projects have the difficulty of being implemented simultaneously with the kilometre price, which creates extra difficulties in terms of conflicting objectives.

4. Only 2 case studies are performed; one Dutch case and one foreign case. Each case had its own decisive factors for success with which the policy process went easier than toll projects in general. Other case studies can give more clarity on making toll projects a success. Other foreign toll projects that are especially interesting to learn lessons from are:
• Edinburgh. Public and political resistance was so high here, that a referendum led to never starting the toll project.
• Stockholm Stockholm is the example that pilots contribute to decreasing public resistance on toll.
• London London established a cordon levy by means of strong leadership from mayor Ken Livingstone.

**Respondent selection**

The 2 interviews with people that were involved in the policy process of the Westerschelde tunnel and the Trondheim toll ring were a good input for the thesis. The interviewed people had a central role during the whole policy process and had gathered much information on the subject after the policy process ended to publish it. Interview
with other persons would not have given so much key-information in the same period of time. The interview with people from the Projectteam AbvM also gave much relevant information, because these persons are experts on the history of road pricing policies in the Netherlands and have knowledge on the role of the Ministry of Transport, Public Works and Water Management. More interviews can lead to additional information. When more interviews are held, conflicting opinions have to be considered. This asks for a different approach of data processing by means of aggregation methods or a search for iterations.

**Directions of advice**

All actions to deal with the decisive factors for success or failure are potential subjects of further research. To give the Ministry of Transport, Public Works and Water Management more insight in the policy process steps the following recommendations are made for further research on the specific policy process steps.

- **Appearance on the agenda**
  Finding political support through all government levels. Politicians need to be convinced by having a toll system that is fair for the population.

- **Policy preparation**
  Toll projects seen in a broader perspective: not only finance infrastructure, but also have sufficient benefits for road users, have environmentally friendly design choices, in short have a high degree of usefulness and necessity. Broaden the scope with subjects as economy, employment and commuters.

- **Decision making**
  Have direct communication with decision makers.

- **Policy implementation**
  Let actors with knowledge play a large part during the policy implementation.
## Appendix I: Literature list


Milton Keynes: the Open University.


Ministerie van Verkeer en Waterstaat en ministerie van Volks- en Ruimtelijke Ordening en Milieubeheer (MinV&We), Uitvoeringsagenda van Nota naar Mobiliteit, 2005. Den Haag: ministerie van Verkeer en Waterstaat en VROM.


Swedish National Road Administration (2002) Road pricing in urban areas, Borlänge.


## Lectures/ presentations/ seminars


## Internet

www1 www.westerscheldeunnel.nl

www2 www.amwb.nl

www3 nl.wikipedia.org

www4 http://nl.wikipedia.org/wiki/Nederlandse_kabinetten_sinds_WO_II


www6 http://wolfgang-gruenewald.de/Westerschelde-Dateien/image002.jpg

www7 http://www.anwb.nl

www8 www.westerscheldeunnel.nl, archief, voorgeschiedenis

www9 http://www.progress-project.org/Progress/tron.html


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## Appendix II The Westerschelde tunnel

<table>
<thead>
<tr>
<th>Period</th>
<th>Policy step</th>
<th>Factors in case study</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930-1963</td>
<td>Appearance on the agenda</td>
<td>Lobbying of commercial business community and regional bodies.</td>
<td>Social barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interest of Belgium.</td>
<td>Support measures (other actors’ goals).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Costs.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government cooperation.</td>
<td>Political barriers.</td>
</tr>
<tr>
<td>1966-1972</td>
<td>Policy preparation</td>
<td>Initiative of the contractor.</td>
<td>Perfect compliance with those in authority, but no crippling constraints external to the implementing agency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Costs.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government decision making.</td>
<td>Political and financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government decision making.</td>
<td>Political barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial situation.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dealing with the surroundings.</td>
<td>Support measures (other actors’ goals).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government decision making.</td>
<td>Political barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disagreement on route choice.</td>
<td>Support measures (other actors’ goals).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Costs.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Priority and economic tide.</td>
<td>Sense of urgency, political and financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Costs.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contractor demands due to risk sharing.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td>1996-2003</td>
<td>Policy implementation</td>
<td>Supervision from the Civil Engineering Division of the Directorate-General for Public Works and Water management.</td>
<td>Adequate time and sufficient resources and the required combination of adequate resources available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The establishment of an NV (efficiency and less politics).</td>
<td>Perfect compliance with those in authority, but no crippling constraints external to the implementing agency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Costs.</td>
<td>Financial barriers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bonus/ malus system for contractors.</td>
<td>Support measures (other actors’ goals)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adequate time and sufficient resources.</td>
<td>Adequate time and sufficient resources.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less integration of design and construction than expected.</td>
<td>Flexibility in technology.</td>
</tr>
</tbody>
</table>
### Appendix III The Trondheim toll ring

<table>
<thead>
<tr>
<th>Period</th>
<th>Policy step</th>
<th>Factors in case study</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>Appearance on the agenda</td>
<td>Cooperation between the County Roads Office and leading politicians.</td>
<td>Political barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public resistance.</td>
<td>Support measures (other actors’ goals)</td>
</tr>
<tr>
<td>1985-1987</td>
<td>Policy preparation</td>
<td>Information provision to road users.</td>
<td>Communication and coordination</td>
</tr>
<tr>
<td>1987</td>
<td>Decision making</td>
<td>Making use of political support.</td>
<td>Political barriers</td>
</tr>
<tr>
<td>1987-1990</td>
<td>Policy preparation</td>
<td>Investment in improvements of objectives of the users.</td>
<td>Support measures (other actors’ goals)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information spreading by the County Roads Office to households in Trondheim.</td>
<td>Communication and coordination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Support from some political parties.</td>
<td>Political barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opposition from political parties in the City Council.</td>
<td>Political barriers</td>
</tr>
<tr>
<td>1989-1991</td>
<td>Policy implementation</td>
<td>Goals of other actors were taken into account.</td>
<td>Support measures (other actors’ goals)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Much time and money was spent on promotion of tags.</td>
<td>Communication and coordination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opening the toll immediately before an election.</td>
<td>Social barriers.</td>
</tr>
<tr>
<td>1992-1995</td>
<td>Appearance on the agenda</td>
<td>Support from politicians by making the toll system fair.</td>
<td>Support measures (other actors’ goals)</td>
</tr>
<tr>
<td></td>
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<td>Opposition from political parties, the anti-road pricing action group and environmental movement.</td>
<td>Political barriers</td>
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<tr>
<td>1996-2005</td>
<td>Policy preparation/ decision making/ implementation/ evaluation</td>
<td>Taking into account the objectives of all political parties.</td>
<td>Support measures (other actors’ goals)</td>
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<td></td>
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<td>Making the system fair towards the road users.</td>
<td>Support measures (other actors’ goals)</td>
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</table>
**Appendix IV Actions for each policy process step**

(1) = Ideas from the Westerschelde tunnel interview

(2) = Ideas from the Trondheim toll ring interview

(3) = Ideas from the project team AbV

<table>
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<th>Categories of decisive factors for success or failure</th>
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<th>Appearance on the agenda of government decision makers</th>
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<tr>
<td>Motivations of key actors:</td>
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<td>Improve the traffic situation (reduce travel time, improve accessibility) (1) (2)</td>
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<td>Sense of urgency</td>
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<tr>
<td>a) Financial barriers</td>
<td>Motivation to stay in the policy process and go to the next policy process step</td>
<td>Identify a mobility problem (1)</td>
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<td></td>
<td>Make use of a window of opportunity with the following means:</td>
<td>a) Find a sufficient number of toll projects for which it is certain that toll is necessary for financing (1)</td>
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<td></td>
<td>a) Financial deficit needed for implementing a project with toll or money needed to implement the project at all</td>
<td>Money should not be reserved for the projects within the whole Ministry (3)</td>
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<td></td>
<td>b) Incorporate goals of all actors to avoid public resistance</td>
<td>b) Put other actors in research commissions to let them make their own decision (3) Make a package deal (2) Involve other ministries; broaden the scope of road pricing with subjects as economy, employment and commuters (3)</td>
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<td>b) Support measures (other actors’ goals)</td>
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<td></td>
<td>b) Give financial incentives (1) A bonus malus system for the contractors to speed up the construction period (1)</td>
<td>b) Use low toll tariffs in particular for passenger cars and do not increase tariffs extra (1) Make tariffs controllable (1) Offer the users a subscription (1) Distribute toll to all</td>
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<tr>
<td>c) Political barriers</td>
<td>d) Social barriers</td>
<td>e) Communication and coordination</td>
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<tr>
<td>c) Make use of political sense of urgency</td>
<td>d) Equality/ short and long term thinking/ openness, process Involvement</td>
<td>e) Cooperation between actors, agreement on the common objectives and its conditions, communication to the public</td>
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<td>c) Convince parliament members individually, not only in a commission (1)</td>
<td>d) Involve all actors (market, administrators, politicians) (1) Have a direct toll agreement between municipalities and the Ministry (2) Take the responsibility of being a good facilitator (3) Involve regional governments more during the plan study (3) Create space in the process to use the feedback from other actors (3)</td>
<td>e) Arrange meetings with all actors far in advance of decision moments (1) Have direct communication between municipalities and the Ministry The departments within the Ministry should have the same objectives. This can be realised with sufficient internal consultation (3)</td>
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<td>c) Make toll projects invulnerable by using them as experience for the kilometre price (1) Have direct connections between municipalities and parliament (2)</td>
<td>d) Be honest and understandable (1)</td>
<td>e) Have direct communication between municipalities and the Ministry (2)</td>
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<td>e) Have contact with road users through commercials and press (2)</td>
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<td>e) Hire an advertising agency for being open to the public and cooperating with the press (1)</td>
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<td>e) Have contact with road users in a fair manner (2) Make sure that the road user has benefits; guarantee that road users do not have to pay toll when the infrastructure is congested (3)</td>
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<tr>
<td>Appendix IV Actions for each policy process step</td>
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<td>2 Perfect compliance with those in authority, but no crippling constraints external to the implementing agency</td>
<td>Implementation has to be executed as it is meant to be by policymakers, but policymakers need to solve obstacles for the implementing agency</td>
<td>Provide a hard framework for the contractor and leave as much as possible open for the contractor to decide (1) Public private partnership (1) Making clear agreements in a DBFM contract (3)</td>
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<td>3 Flexibility in technology</td>
<td>Dealing with unexpected results, being able to learn and adapt, avoiding a lock-in situation at the beginning of the project</td>
<td>Do not have too strict rules for technology choices to avoid technological limitations in the course of time (1) Carry out a thorough analysis of design choices such as having sufficient space near the tolled roads for foreigners to pay when they don’t have a tag (1) Delay to have more certainty of technology (1)</td>
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<td>4 A simple implementing agency</td>
<td>A clear organisation with a division of responsibilities</td>
<td>Test the robustness of the contractors in terms of reliability of delivery (1) Let regional directorates manage the projects (1) Do not link all aspects of the project to avoid complexity of technology (1) Leave the technological choices to the market (1)</td>
<td>Use an NV (Public Limited Company) to avoid delays and separate political and administrative space (1)</td>
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<td>5 Institutional barriers</td>
<td>Conflicts with legislation and regulation</td>
<td>Change the organisation within the Ministry in terms of budget distribution (3) Give local and regional governments their own platform for stimulating toll projects (3) Change legislation to be able to collect toll on existing infrastructure (3)</td>
<td>The framework for the contractor has to include all rules from the EU in terms of innovation and open competition (1) The framework for the contractor has to include all rules from the EU in terms of legal protection (1)</td>
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<td>A valid theory of direct cause and effect</td>
<td>Insight into the possible end results and instruments with little uncertainty/risk</td>
<td>Execute an ex-ante evaluation such as the &quot;kostenmonitor&quot; (3)</td>
<td>Separate main issues from side issues and take decisions and don’t come back to it (1) Take the risk of implementing unpopular policies if you know that toll projects are the most efficient and effective means to achieve your objectives (2)</td>
<td>Prove the necessity and reliability (a fair system) by executing a pilot and at the same time experiment with technology. Avoid the discussion of traffic effects. Limit it to one pilot to avoid risks (1)</td>
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<td>7</td>
<td>Adequate time and sufficient resources and the required combination of adequate resources available</td>
<td>Resources are necessary for realising the toll project</td>
<td>Create a professional organisation by having sufficient knowledge in terms of conceptual choices, jurisdiction, industry, commercial contracts and tender procedures to understand the contractor (1)</td>
<td>Find financial resources, Communicate with the market, administrators, politicians (1)</td>
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Appendix A: paper

Regional involvement to maximise the success of toll projects

Bregtje Bax

Delft University of Technology, Faculty of Technology, Policy and Management, October 30 2006

Abstract

Road pricing in the Netherlands has been on the agenda since 1988, but has been not successful. Many national initiatives have never been implemented due to public and political resistance. The Ministry of Transport, Public Works and Water Management in the Netherlands wants to use road pricing measures in combination with infrastructure construction and better utilisation of infrastructure to increase mobility. One part of the road pricing policy in the Netherlands is the introduction of toll projects and so called ‘accelerated action price’ projects that have as main objective financing of infrastructure. The Ministry of Transport, Public Works and Water Management in the Netherlands want to learn from past experiences with toll projects in the Netherlands and foreign toll projects to increase the success of future toll projects. Research on the policy processes of the Westerschelde tunnel in the Netherlands and the Trondheim toll ring in Norway indicated that one of the instruments to increase the success of toll projects is increasing regional involvement. Four promising ways to have more regional involvement are the introduction of a bottom-up approach, establishing a regional platform for toll projects, giving regional governments more influence in the plan study phase of toll projects and providing national legislation that enables regional initiatives. The aim of this paper is to analyse the expected positive and negative effects of regional involvement during the policy process of toll projects in the Netherlands and to identify measures to maximise the positive effects of regional involvement. These measures should keep a balance between centralised and decentralised organisation.

Keywords: toll, success, regional involvement, public and political resistance, policy process

1. Introduction

Road pricing in the Netherlands has been on the agenda since 1988, but has been not successful. Many national initiatives (Rekening Rijden, Spitsvignet and Kilometerheffing) have never been implemented due to public and political resistance (van der Sar, 2005, p. xi, 69-73).

The Ministry of Transport, Public Works and Water Management in the Netherlands, hereon after just called the Ministry of Transport, Public Works and Water Management, wants to use road pricing measures in combination with infrastructure construction and better utilisation of infrastructure to increase mobility (MinVenWc, 2005, pp. 20-25). The Ministry of Transport, Public Works and Water Management has new policy plans for road pricing; the introduction of a national kilometre price and the realisation of toll projects and so called ‘accelerated action price’ projects to improve the traffic situation at bottlenecks in the road network (MinVenWc, 2005, pp. 25-28). The kilometre price has the objective of converting taxes into paying for a price per kilometre for fairness and to improve accessibility. The toll projects and accelerated action price projects have the objective of respectively partially financing infrastructure and financing the earlier realisation of infrastructure (MinVenWc, 2005, pp. 25-28).

The Ministry of Transport, Public Works and Water Management wants to learn from past experiences with toll projects in the Netherlands and foreign toll projects to increase the success of future toll projects. To increase the chance that toll projects are implemented, public and political resistance need to be reduced. Research on the policy processes of the Westerschelde tunnel in the Netherlands and the Trondheim toll ring in Norway indicated that one of the instruments to increase the success of toll projects is increasing regional involvement.
The aim of this paper is to analyse the expected positive and negative effects of regional involvement during the policy process of toll projects in the Netherlands and to identify measures to maximise the positive effects of regional involvement. These measures should keep a balance between centralised and decentralised organisation.

2. **Research approach**

The Ministry of Transport, Public Works and Water Management wants to learn from past toll projects to increase the success of toll projects. For this purpose two cases have been carried out, one Dutch case and one foreign case. In this section the following will be discussed.

- The case selection
- The results from the cases
- Further examination of one instrument to increase the success of toll projects

2.1 **Case selection**

The first case study is a Dutch toll project, the Westerschelde tunnel. The case selection was based on the following limiting conditions:

- The same culture and same kind of actors that are involved. All Dutch toll projects fulfill this limiting condition.
- The same motive for toll projects. The main motive for toll projects in the Netherlands is financing of infrastructure.
- Political or public resistance. The Westerschelde tunnel had delays due to low political priority. There was no serious public resistance.
- Much information available.

The actual selection criterion was the year in which the toll project was realised. From 1965 some local toll projects were implemented in the Netherlands. The KIl tunnel in Dordrecht and the Westerschelde tunnel are still operational (*MinVenWb, 2005*, p.40). The Westerschelde tunnel was the last toll tunnel built in the Netherlands (2003). The only other Dutch toll tunnel that was recently built (1996) is the Wijker tunnel. Though, this toll project is less suitable as case study, because it applies shadow toll (the Dutch government pays toll for each vehicle that passes the tunnel).

One foreign case study is chosen, the Trondheim toll ring in Norway. Norway is chosen, because the toll projects in Norway fulfill the following limiting conditions:

- A similar political, administrative culture
- Public and political resistance
- The main motive of financing infrastructure with toll

Another limiting condition was the largeness of the project. There are 3 large toll projects in Norway; Oslo, Bergen and Trondheim. Trondheim is chosen, because it was the last toll ring built in Norway (1991) and Trondheim has had more public and political resistance than Oslo and Bergen.

2.2 **Results from the Cases**

The two cases were examined on decisive factors for success or failure. In table 1 the factors are categorised for the following policy process steps from the thesis of Twaalfhoven (1999, pp. 16-18).

1. Appearance on the agenda
2. Policy preparation
3. Decision making
4. Policy implementation

1. Appearance on the agenda of government policy makers is the phase in which the policy process is influenced by the actors that take the initiative to start a project. The government decision makers decide which issues appear on the agenda and which scope is used.

2. After the initiation of a project, issues for action are formulated in the phase of policy preparation. (*Twaalfhoven, 1999, p. 17*) Policy preparation is the part of the policy process where amongst other things the preconditions for a project are determined. Policy preparation gives an elaboration on the project and design choices with the related argumentation.
3. Decision-making is a task executed by the parliament, the regions and the Minister. Approvals of all final choices are given in this policy process step, which includes legislation approvals, design choice approvals and contracts with the involved actors.

4. Policy implementation is the part of the policy process in which tasks are executed to start the realisation of the policy such as tendering.

<table>
<thead>
<tr>
<th>Policy process steps</th>
<th>The Westerschelde tunnel</th>
<th>The toll ring in Trondheim</th>
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<tr>
<td>All policy process steps</td>
<td>Costs, interests of other actors, government decision making</td>
<td>Taking into account the interests of all involved actors, fairness</td>
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<tr>
<td>Appearance on the agenda</td>
<td>Lobbying of the commercial business community and regional governments</td>
<td>Cooperation between the local government and politicians, a bottom-up approach</td>
</tr>
<tr>
<td>Policy preparation</td>
<td>Taking into account the interests of the road users</td>
<td>Investing time and money in information provision, preparing a package deal</td>
</tr>
<tr>
<td>Decision making</td>
<td>Making use of a window of opportunity</td>
<td>Political support and resistance, which resulted in a package deal, the bottom-up approach of taking decisions</td>
</tr>
<tr>
<td>Policy implementation</td>
<td>Supervision from actors with knowledge, advantages of a public limited company, financial incentives for actors, integration of design and construction</td>
<td>Information provision, electronic fee collection integrated with other Norwegian toll projects, time of implementation too close before new elections</td>
</tr>
</tbody>
</table>

Table 1: decisive factors for success or failure

Each policy process step has its own decisive factors for success or failure. The most important general factor in both cases was involving other actors during the policy process to increase political and public support. 3 global directions of advice are recommended to increase the success of toll projects. These 3 directions of advice indicate in which way the policy process of toll projects can change for 3 important actor groups.

1. Regional involvement
   Involving regions and municipalities more in the policy making and giving them more autonomy on choosing toll projects.

2. Government leadership
   Leadership to make unpopular decisions on road pricing measures that are necessary for achieving the objectives of the Mobility Plan and leadership towards the regions that no extra money will become available for infrastructure projects.

3. Communication to the public
   Explain road users the usefulness and necessity of toll projects with commercials and executing pilots.

2.3 Further examination of one instrument to increase the success of toll projects

The most interesting solution of increasing the success of toll projects is regional involvement. The Dutch Mobility Plan ‘Nota Mobiliteit’ states that the role of the national government is to lay down a framework for decentralised policies (MinVenWc, 2005, p. 11). Regional involvement corresponds with the principle of the Dutch Mobility Plan ‘Nota Mobiliteit’: “Centraal wat moet, decentraal wat kan” (which means centralised organisation of subjects for which centralised organisation is necessary and decentralised organisation of subjects for which decentralised organisation is possible) (MinVenWc, 2005, p. 10). Therefore regional involvement is further examined in this paper to find a balance between centralised and decentralised organisation.
Four promising ways of increasing regional involvement are found in literature and interviews.

1. The introduction of a bottom-up approach
2. Organising a regional platform for toll project
3. Involving regional governments more during the plan study phase
4. Providing national legislation that enables regional initiatives.

These four ways are not a complete list of ways to increase regional involvement. Specific examples for each way are found to elaborate.

Finally, the expected positive and negative effects of regional involvement that are found in interviews are described. This is not a complete list.

3. Possibilities of regional involvement

To increase regional involvement, the structure of the policy process has to change. Four ways to increase regional involvement are described below.

3.1 Bottom-up approach

An example of higher regional involvement than in the Netherlands is Norway. Norway also had to deal with public and political resistance during the policy process of toll projects, but managed to realise more than hundred toll projects so far. A key factor in their success is their bottom-up approach, in which municipalities are the ones to decide together whether they want a toll project, which increases regional involvement (van der Sar, 2005, p. 92).

The steps that follow after the initiative are (van der Sar, 2005, p. 92):

- The establishment of a toll company, which should be partly owned by local authorities and should not have profit as aim (policy preparation)
- Creating support within local and provincial councils (policy preparation)
- Approval from the road maintenance authority (Statens Vegvesen) and parliament (decision making)
- Creating financial means, performing studies and tendering (policy preparation)
- Toll collection (policy implementation)
- Discontinuance of the project after realisation costs are paid off (decision making)

In the Netherlands exists a top-down approach. To reach the objectives of the Mobility Plan concerning the mobility growth the Ministry of Transport, Public Works and Water Management believes that the toll and accelerated action price projects have to be executed, because the projects substantially improve the traffic flow on certain locations (MinVenWc, 2005, p. 26). Decentral governments have the task to implement the national directives.

The possibilities of the bottom-up approach in the Netherlands exist in terms of letting regional governments propose which locations need a substantial improvement in traffic flow. When regional governments propose a toll project, the chance of realisation increases. The bottom-up approach is important for the policy process steps appearance on the agenda and decision-making.

3.2 Regional platform

A good example of the establishment of a regional platform is found in Denmark. In Denmark exists a stronger tradition of local autonomy than in the Netherlands (de Jong and Geerlings, 2005, p. 186). In Denmark both local as central government contribute equally to infrastructure whereas in the Netherlands financial resources are for 80% delivered by central government (de Jong and Geerlings, 2005, p. 189). This changes the perception on direct accountability and involvement for both actors. It also enables local and regional authorities to keep their own opinions on what is best for respectively the municipalities and regions.
Copenhagen has a regional organisation called HUR (Hovedstadens Udviklingsrad), which has similarities with the Dutch Framework Act areas. Differences between HUR and the Dutch Framework Act areas are the degree of planning freedom and infrastructure investment (de Jong and Geerlings, 2005, p. 191). Copenhagen is discussing a pricing policy on regional level, which will keep money in the region to reinvest in public transport projects. The Dutch Framework Act areas are not allowed to do that, because their policies depend on national resources and they will not receive the toll revenues (de Jong and Geerlings, 2005, p. 190).

When regional platforms for toll projects are established, the success of realising toll projects will probably increase. De Jong and Geerlings suggest that the Framework Act areas in the Netherlands learn from Danish regional bodies to organise themselves and represent the surrounding municipalities and cities. (de Jong and Geerlings, 2005, p. 190). When the Dutch Framework Act Areas are given more freedom to organise themselves in regional platforms for toll projects money should be made available to invest in infrastructure projects.

3.3 More involvement during the plan study phase

This section is specifically linked to the policy process that exists in the Netherlands. The general structure of policy phases in the Netherlands is exploration (why?), plan study (what and how?) and realisation (when?). This structure is incorporated into the MIT (Long-range Programme Infrastructure and Transport) (MinVenWa, 2004, p. 7). During the plan study phase the problem is linked to the best solution. When consensus is reached the implementation is prepared. The Ministry of Transport, Public Works and Water Management is responsible for planning and decision making of all actions. Though, all actors have an obligation to reach consensus informally. This phase ends with a decision moment where the Ministry of Transport, Public Works and Water Management makes a decision concerning the alignment location. At this decision moment the Ministry of Housing, Spatial Planning and the Environment co signs (MinVenWa, 2004, p. 7). All projects that are related to the Alignment Act are also obligated to pass through a m.e.r., which is the Dutch acronym for environment effect reporting. When this is the case, the plan study starts with a start note. Based on the exploration, the start note and the directives for an alignment plan/MER (environment effect report) are formulated. The alignment plan/MER together with participation and advice from third parties helps the Minister of Transport, Public Works and Water Management to determine its position on the preferred alignment in agreement with the Minister of Housing, Spatial Planning and the Environment (MinVenWa, 2004, p. 13). The design alignment decision follows, which gives more details. Based on participation, advice and reactions of third parties an alignment decision is taken (MinVenWa, 2004, p. 14). The alignment decision determines that the Ministry of Transport, Public Works and Water Management dedicates itself to the realisation of the project and/ or the financing. The project stays in the plan study phase until sufficient budget is available (MinVenWa, 2004, p. 14). Further preparations are made such as a strategy plan for implementation, fitting in urban and rural planning, land acquisition and arranging permits (MinVenWa, 2004, p. 14).

Regional governments can be involved more during the policy preparation than is currently the case. To make use of their expertise and increase their perception of direct accountability the Ministry of Transport, Public Works and Water Management could ask the regional governments to make initial proposals for the plan study phase. These proposals should be based on solid arguments and should always have the approval of the Ministry of Transport, Public Works and Water Management and the Ministry of Housing, Spatial planning and the environment. This way
of increasing regional involvement focuses on the policy process step policy preparation.

3.4 National legislation on regional initiatives

A good example of national legislation that enabled a regional road pricing initiative is England. “The Government provided the Mayor and London authorities with the opportunity to introduce congestion charging as part of the Greater London Authority (GLA) Act 1999 (the legislation which provided for the establishment of the office of the Mayor of London, the Greater London Authority and Transport for London)” (www1). The Transport Act 2000 made road user charging possible for local authorities outside of London. The Secretary of State for Transport still needs to approve such schemes. In Scotland, the Transport (Scotland) Act 2001 made the same possible for Scottish local authorities. In Wales there are no authorities developing congestion charging schemes at present. Currently there are three road pricing schemes in the UK; in London, Durham and on the Dartford River Crossing (www1).

There is a large difference between the type of laws in the UK and the type of laws in the Netherlands. The UK has common laws while the Netherlands has civil laws. Common law countries are free to perform any activity unless law forbids it. Civil law countries are centralised states with high control over economic activities. Activities can only be performed when it is specified in legislation (Snelson and Chahbani, 2006).

This makes it even more important for the Netherlands to lay down regional possibilities for road pricing in legislation. The national legislation increases the possibilities for regional and local governments to steer travel behaviour by means of road pricing. This increases the chance that regional governments will take the initiative for toll projects.

4 Expected positive effects of regional involvement

The expected positive effects of regional involvement in the Netherlands during the policy process of toll projects are as follows.

4.1 Increasing regional support

When regional governments are more involved during the policy preparation and have more decision making power, they will have more enthusiasm for the proposals on toll projects, because they put time, energy and knowledge in the proposals as well. This increases the perception on direct accountability and involvement. They will probably take more responsibility for realising the toll projects.

4.2 Increasing political support

Regional governments will actively push the proposals for toll projects to get it accepted at the Dutch parliament when they are more involved. The expected positive effect of increased regional lobby is that the Ministry of Transport, Public Works and Water Management is not the only messenger for implementing toll.

When the proposals are made at the regional level it will deal with the potential problems at an early stage. After regional political parties approve the proposals, they will pass through a smooth process when the projects have to be approved at higher political levels.

4.3 Higher quality of infrastructure and mobility effects

It is better to make the initial proposals on toll projects at a regional level with the involved regional actors. Each toll project will have a tailor made solution with its own local characteristics. Regional governments have more knowledge on the usefulness and necessity of infrastructure improvements in their own region. More regional involvement has a positive influence on the quality of the toll projects and the mobility effects.
5 Expected negative effects of regional involvement and measures to maximise the positive effects

The expected negative effects of regional involvement in the Netherlands are as follows.

5.1 Increasing regional power

The risk of regional involvement is that regions will put more pressure on the national government to realise infrastructure projects that are controversial and not desirable from a welfare perspective. Some toll projects will improve a traffic situation for too few people. This is a dilemma of mobility growth versus costs. Other toll projects will improve the traffic situation for a large group of people and will lead to loss of wealth for a small group of people. This is a dilemma of mobility growth versus a high traffic flow. The consequences of not using toll for infrastructure projects is not building a road at all or increased taxes, which is not fair for less frequent road users.

The national government should always be able to block projects that are not remunerative and keep their decision making power. Approval from the Ministry of Transport, Public Works and Water Management has to be made legally compulsory.

5.2 Interaction with the kilometre price

Another expected negative effect of regional involvement in the Netherlands is the interaction between the organisation of the toll projects and the kilometre price. One of the objectives of the kilometre price is that the conversion of paying taxes for car ownership into paying for car use needs to have a neutral tax burden (MinVenWc, 2005, p. 27) When the tariffs of the toll projects increase for some reason, it can jeopardise the objective of the kilometre price. Then the public and political support for the kilometre price might reduce. From this point of view the number of toll projects need to be limited. On the other hand a sufficient number of toll projects need to exist, because they contribute to convincing the public of the usefulness, necessity and effectiveness of the kilometre price. Furthermore the toll projects provide a good way of experimenting with the technology that can be used in the kilometre price project. They function as a learning process for the implementation of the kilometre price. When the national government rejects many proposals from the regional governments, it might undermine the whole concept of giving regional governments more decision making power. Toll projects do not have the objective of a neutral tax burden, but the toll tariffs are expected to be low. Only when the tariffs are dramatically high, the influence on the kilometre price will be significant. The most important measure is to communicate the difference between the objectives to the road users and the press. The other measure is to establish a maximum toll tariff.

Another issue is that there are many interactions and interfaces between toll projects and the kilometre price, especially in the future implementation. Many technological decisions have to be made for both measures and knowledge needs to be shared. Therefore both pricing measures eventually need to be seen as a whole package. This brings extra difficulties with it, because some central decisions need to be made for all toll projects. This limits the freedom of decision making for regional governments.

A measure to reduce problems with technical interoperability is the provision of a national framework with standards for the technology and organization to insure the quality of the interfaces between the toll projects and the kilometre price.
6 Conclusions

The aim of this paper is to analyse the expected positive and negative effects of regional involvement during the policy process of toll projects in the Netherlands and to identify measures to maximise the positive effects of regional involvement. These measures should keep a balance between centralised and decentralised organisation.

Four promising ways to increase regional involvement are described.
1. The introduction of a bottom-up approach
2. Organising a regional platform for toll projects
3. Involving regional governments more during the plan study phase
4. Providing national legislation that enables regional initiatives.

The most appropriate way of increasing regional involvement in the Netherlands is a combination of those ways. They all have potential for implementation.

The expected positive effects of regional involvement are increasing regional and political support and a higher quality of infrastructure and mobility effects. The expected negative effects of regional involvement are increasing regional power and increasing complexity of the implementation of the kilometre price. To benefit from the expected positive effects of regional involvement in the policy process of toll projects, the expected negative effects need to be reduced.

An appropriate way of dealing with increasing regional power is making an approval from the Ministry of Transport, Public Works and Water Management legally compulsory. An appropriate way of dealing with the interaction between toll projects and the kilometre price is focusing on the realisation of a limited number of toll projects to avoid reduction of political support for the kilometre price. The number of toll project should not be too small to preserve the advantages of convincing the public of usefulness, necessity and effectiveness and the possibility of experimenting with the toll technology on a smaller scale. Other measures are to communicate the difference between the objectives to the road users and the press and to establish a maximum toll tariff. The Ministry of Transport, Public Works and Water Management also needs to provide the regional governments with a framework of central decisions that are necessary for the integration of the technology and organisation of toll projects and the kilometre price in the future.

References


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