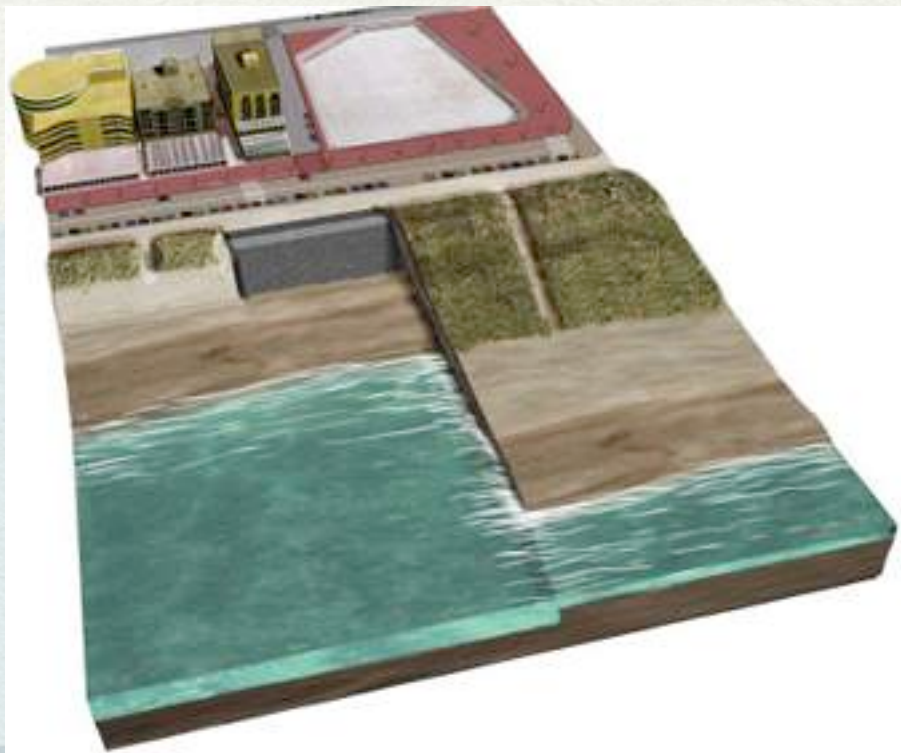


# Lessons Learnt from Coastal Reinforcement Noordwijk aan Zee

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## **1. Coastal Reinforcement Noordwijk**

In 2000, the 3<sup>rd</sup> Dutch 'Kustnota' mentioned the influence of climate change and the therewith-related rise in sea level (min.  $\pm 20$  cm, max.  $\pm 85$  cm) and heavier storms on the coastal foundations<sup>1</sup>. In the continuation of 2<sup>nd</sup> 'Kustnota', which was based on dynamical enforcement of the coastal foundations using sand nourishments, the 3<sup>rd</sup> 'Kustnota' mentioned that most of the coastal areas were declared to be safe, with exceptions for areas with relatively small dune areas or dikes. For those areas, the so-called 'weak-links', an integrated approach was needed, protecting the hinterland from floods, but without interrupting local spatial developments. The 3<sup>rd</sup> 'Kustnota' formed an incentive for further investigations of the possible weak-links. Eventually on the 31<sup>st</sup> of January 2003, the 'Process plan weak links in the Dutch coast' appeared, developed by the 'Administrative Coordination Coast'. In this plan, several weak-links were investigated and identified<sup>2</sup>. One of those weak-links was assumed later that year to be the coastal foundation located in 'Noordwijk aan Zee'. The outcome "high priority" of this plan formed, stimulated the province of Zuid-Holland to create a project called 'Kustvisie Zuid-Holland' in 2004. The project led to the development of several project groups designated to the weak links located in Zuid-Holland<sup>3</sup>.

For the weak link in Noordwijk, the project group "Reinforcement weak link Noordwijk" was initiated, which consisted (like instructed by the process plan weak links) of the Director General of Public Works and Water Management (central government), the Province of Zuid-Holland, the Rijnland District Water Board and the Municipality of Noordwijk. Eventually the project group, which was led by the Rijnland District Water Board, started to search for possible reinforcement measures. This led to 7 different variants in the preliminary memorandum of the 3<sup>rd</sup> of May 2005. From the 7 variants, 3 measures were opposed to be landward measures, 3 measures to be seaward measures and one measure to be a 'consolidating' measure<sup>4</sup>.

In the period after May 3<sup>rd</sup>, several parties got the opportunity in the so-called 'period of reply' to give their views on the selection of measures. Eventually there were ten reactions of the interested parties on which the Water Board officially reacted in September 2005<sup>5</sup>. From the memorandum of reply, it got clear that the landward measures were not an opportunity to implement. This meant that the other 4 measures were investigated in more detail in terms of costs and effects, and were taken into the draft reinforcement plan, which appeared in June 2006<sup>6</sup>. Eventually after two more information events in February and June 2006, the Water Board decided to implement one of the seaward measures. This measure was supposed to be the so-called 'dike in dune' measure, which was about creating a concrete embankment inside the dunes in combination with widening the dune areas. This measure was taken into 'the concept of a dune reinforcement plan', which was sent to the province of Zuid-Holland in July 2006.

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<sup>1</sup> Ministry of Transport, Public Works and Water Management. 3e Kustnota (3rd Policy Document on the Coast). Traditions, Trends and Future. The Hague, December 2000.

<sup>2</sup> Administrative Coordination Coast (Bestuurlijk Overleg Kust). Process plan weak links in the Dutch coast (Procesplan zwakke schakels in de Nederlandse kust). The Hague, January 2003

<sup>3</sup> Kustvisiezuidholland (2004). [Online] Available from: [www.kustvisiezuidholland.nl](http://www.kustvisiezuidholland.nl).

<sup>4</sup> Rijnland District Water Board, Preliminary memorandum reinforcement weak link Noordwijk, May 2005.

<sup>5</sup> Rijnland District Water Board, memorandum of reply reinforcement weak link Noordwijk, September 2005.

<sup>6</sup> Rijnland District Water Board, draft reinforcement plan weak link Noordwijk, June 2006.

This was followed by another memorandum of reply in which different parties got another chance to give their views and opinions. This happened in October and November 2006. Some of the opinions and view led to some amendments in the concept plan, which eventually resulted in the final reinforcement plan of January 2007, drawn up by the Water Board, and was sent to the province for approval<sup>7</sup>. The province approved the plan in March 2007.

In September 2007 the project started with the implementation phase by reinforcing the coastal foundations in Noordwijk. The implementation phase ended in April 2008. By implementing the reinforcement plan in the winter period, they did not disturb the beach pavilions.

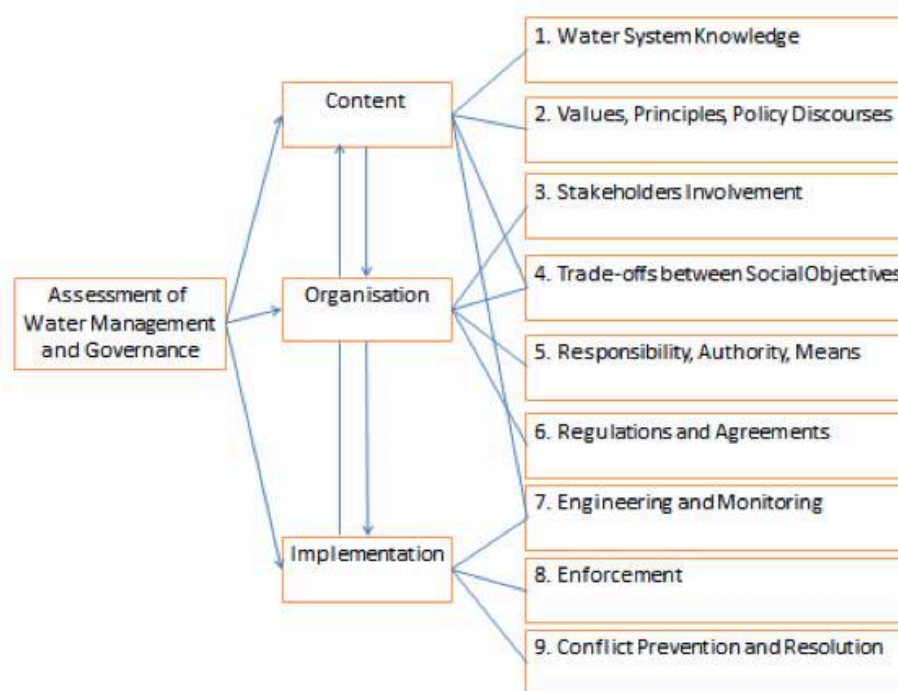


Figure 1: Assessment Framework

In total, the entire project took about 3,5 years, which is relatively fast. Since the project has become such a success there are questions rising about why it has been a success and whether aspects of the project could have been improved.

The aim is therefore to assess the policy of the reinforcement project in Noordwijk and eventually to give recommendations on improvement of the policy designs for other coastal reinforcement projects. To assess the policy an integrated method to assess water management is used. The assessment is divided in 3 parts (Content, Organization and Implementation), which subsequently are consisting of 9 building blocks (see Figure 1). For each of the building block, the reinforcement policy is assessed using assessment criteria<sup>8</sup>. This assessment is about to be highlighted in the following sections and where needed also options for improvements or recommendations are given. At the end final remarks are given on the project and some final recommendations are given for other projects.

<sup>7</sup> Rijnland District Water Board, final reinforcement plan weak link Noordwijk (Noordwijk- Dijk in Duinen), January 2007.

<sup>8</sup> R. Brouwer, J. Edelenbos, P. Hellegers, M. Kok, S. Kuks, H.F.M.W. van Rijswick. *An Integrated Method to Assess the Governance of Water*. November 2012.

## **2. Content**

In this section knowledge about the water system, values, principles, policy discourses and the involvement of stakeholders are highlighted. Thereby assessment criteria are used to determine whether sufficient knowledge is present for the project Noordwijk and whether gaps are present in the knowledge base. Eventually this information is used to give some ideas for improvement of the Noordwijk policy.

### **2.1 Water System Knowledge**

The following assessment criterion is used for assessing knowledge about the water system:

*Is there sufficient knowledge of the existing water system in order to deliver the required service level of societal functions; if not, what are the gaps; is sufficient knowledge available to assess the impact on the water system because of changes in environment and societal functions.*

As already described in the introduction there was a very clear problem description in the Preliminary memorandum<sup>9</sup>, which is conducted by Arcadis, a Dutch leading engineering consultancy and Alkyon, a hydraulic consultancy and research<sup>4</sup>. These two renowned consultancies made a strong first step by conducting a broad environmental analyse on the following topics:

- Coastal morphology
- Geology and water
- Nature
- Spatial quality
- Cultural history
- Residential and living environment
- Future developments until 2020

The coastal morphology describes clearly the current morphological processes of the coastal area. A research has been done on the forming of the coastal area and whether there are ground pollutions. Moreover the status of ground and surface water were investigated. For the nature aspects a flora and fauna abundance list was set up and the legitimate policy was checked. The spatial quality focuses on the characteristic of Noordwijk and the cohesion of the different segment of the area (boulevard, dunes, beach and sea). In the project area there are also several cultural values present, which were listed. The functions of the area and residential locations are also known.

The next step in the plan study was to investigate possible solutions to attain the desired goals. In the 'Strategic vision Dutch Coast 2050' (February 2002) three different spatial possibilities were introduced: landward, consolidate and seaward<sup>9</sup>. In the preliminary memorandum the measures are described to sustain the safety in two different time scales: a plan period of 50 year and 200 year. Moreover he possible solutions had to persists different principles and preconditions. Firstly, the sea defence had to satisfy the

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<sup>9</sup> Provinces North- and South Holland. Strategic vision Dutch Coast 2050 (Hollandse Kust 2050). February 2002

hydraulic precondition from the 'Technical Advisory Water Defences'<sup>10</sup>. Secondly, risk control in relation to societal values in the area or in other words how to reduce the risk of coastal erosion and impact on hotels and houses along the boulevard. At last the enforcement of the sea defence had to accompany the enforcement of the spatial quality of Noordwijk.

According to these different principles and preconditions eight different variants were developed in the Preliminary memorandum<sup>4</sup>. The zero scenario; doing nothing, is used as a reference for the plan study. For the other seven variants the necessary technical measures specifications were investigated. From these seven variants four were chosen as the most possible (see Table 1) and were further assessed by their affects on the different aspects of the environmental for a time scale of 50 year. The affects on a time-scale of 200 year were assessed under the aspect/criteria 'sustainability'. Two other extra criteria's were investment and maintenance costs and social costs and benefits. In the assessment also the extra hinder during construction was taken into account.

<b>Alternative</b>	<b>Principle</b>
1	Consolidation with sand
2	Seawards with dam
3	Seawards with low dam
4	Seawards with dike in dune

*Table 1: Possible alternatives<sup>4</sup>*

For the implementation of the coastal reinforcement it is also investigated which materials are the best to use. Moreover there was striven for a sustainable building policy and maintenance.

#### *Improvements and recommendations*

There have been enough water system knowledge; the environmental analysis and plan study formed an all-encompassing research that covered technical, environmental, societal and policy aspects of the above listed topics. However it remains unknown whether there are models used to investigate the future affects of the different variants on for example coastal development. What is remarkable that the base of the project, climate change was not much included. It is likely that climate change and its changing weather patterns will also have effect on coastal morphology, (ground) water and nature. Adaptation on these affects it would be good to also investigate the effects of climate change not only focused on sea level rise, but on all environmental aspects.

## **2.2 Values, Principles and Policy Discourses**

The following assessment criterion is used for assessing knowledge about values, principles and narratives:

*Is there sufficient knowledge of shared and conflicting values, principles represented by different policy discourse coalitions?*

Lots of values have been mentioned in the policy plans of the 'dike in dune' project. Of these values the most important values or the boundary conditions have already been mentioned in the '3<sup>rd</sup> Kustnota'. In the 3<sup>rd</sup> Kustnota there is observed that pressure

<sup>10</sup> Technische Adviescommissie Waterkeringen (TAW)

increases from the sea, but from land as well and that therefore a new integrated policy is needed to take safety and spatial quality into account. Especially in the inhabited regions near the coast it was important to have attention for the spatial quality since spatial developments were obstructed by the so-called 'ja mits, nee tenzij' principle<sup>11</sup> which made it more difficult for municipalities to expand their areas. This forced them to develop more landward instead of seaward<sup>1</sup>.

Because the 3<sup>rd</sup> Kustnota is one of the fundamental policy directives these values are more or less forwarded in plans like the process plan weak links and the preliminary memorandum. These plans have both aims to develop approaches for preventing the land from flooding with maintenance of the spatial quality.

In the preliminary memorandum are next to safety and spatial quality also other values mentioned. These values are nature/ ecology, recreation/ tourism (economic development → beach pavilions) and cultural history. For the effect of the seven proposed measures of this plan on these values environmental & societal analyses have been implemented. Because spatial quality could not be maintained in case the landward measures were implemented, the landward measures were canceled directly<sup>4</sup>. The effects of the four other measures on these values were highlighted in the societal cost and benefit analysis. In this analysis there was also attention for nuisance and the changing view on sea (which can lead to decrease in value of the houses). From this analysis could be concluded that the eventually implemented measure 'dike in dunes' had no negative influence on the changing view value<sup>12</sup>.

What has been so successful with the 'dike in dune' project is that a lot of values were respected, because the eventual implemented measure was based on values in their best conditions. For example, to avoid nuisance and to respect tourism the construction phase was performed in the winter period. The dike in dune also promoted safety, gave the possibility for spatial and economic developments, sustained cultural historical buildings and created space for nature developments into the dunes.

What concerns principles used in the process, the principles used can be found in several groups, but they are not clearly stated in the policy plans: 1) institutional principles, 2) principles of good governance, proportionality and public participation, 3) environmental principles and 4) technical principles<sup>8</sup>.

Institutional principles used are the principles of decentralization or subsidiarity (EU-law) since the fact that the Water Board instead of the central government led the project. What concerns the principles of good governance; proportionality and public participation can be said that especially public participation got attention. Since several periods of reply were organized, where public parties got their chance to share their opinions with the project group 'reinforcement weak link Noordwijk', a good overview was created on the impact of different measures on the society. The precautionary principle is the representative of the environmental principles, which gave the opportunity to use sand nourishments for broadening the coastal zone for the purpose of protection of citizens against flooding. Therefore exemptions were made on the Water Framework Directive

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<sup>11</sup> Yes but, No unless (Ja mits, nee tenzij) principle is a construction policy for coastal establishments, which gives restrictions for construction activities in the surrounding and the centre of the establishment sits own.

<sup>12</sup> SEO Economic Research. Societal cost- and benefit analysis for the draft reinforcement plan weak link Noordwijk. 2006

(WFD)<sup>13</sup> on European Level. Technical principles were used in the project using the principle of starting the project with a global design for several measures (preliminary memorandum), which eventually evolved in a more detailed design for the measure of preference (final reinforcement plan)<sup>8</sup>.

#### *Improvements and Recommendations*

There is sufficient knowledge of values in this project. Enough attention is given to values such as safety, spatial quality, nature, tourism and cultural history. What concerns principles it would be probably a good idea to give more attention to principles used in the entire reinforcement project since it is not clear which principles are used. Therefore will be recommended to have a formulation and statement of the principles in the policy documents.

### **2.3 Stakeholders Involvement**

The following assessment criterion is used for assessing knowledge about stakeholder involvement.

*Are all relevant stakeholders involved in a proper way, and are there interests considered in problem analysis, solution search and decision-making?*

The coastal reinforcement in Noordwijk concerned many different stakeholders from local authorities to businesses and environmental organizations. Of course all these stakeholders had other interests and views on the possibilities of the coastal reinforcement. Therefore stakeholders were already involved during the early stages (beginning 2005) of this project. This involvement was in forms of information, participation and stakeholder meetings.

The second involvement in the project found place after the 'Projectnota and reinforcement plan were set up and submitted to the provincial executive of the province of South Holland in July 2006. Both of these documents, the applications and draft decisions for the required licenses were made available for the public in the period between 2 October and 12 November 2006. In this period everyone could express their view on the different documents and licenses. In this period 22 views were submitted from all kind of different stakeholders as for example: Inhabitants, different hotels, a sailing club and different environmental organizations. After the period a memorandum of reply was set up wherein all the 22 cases were described. Based on this memorandum nine adjustments had been made for the reinforcement plan.

The nine different adjustments were implemented in the final reinforcement plan, which was adopted during the joint assembly of the Rijnland District Water board on 31 January 2007. The approval of the plan by the provincial executive of South Holland found place one month later on 1 march 2007<sup>2</sup>. Against the approval of the dike reinforcement plan was also administrative legal recourse to the Administrative Law Division of the Council of State possible. This also applied to the other decisions that were taken (licenses). The legal recourse was used by an association of apartment owner, but was not proved valid.

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<sup>13</sup> WFD (32). Directive 2000/60/EG



From this moment the court decided that the plan could continue and the coastal reinforcement as such was not open for discussions anymore.

#### *Improvements and Recommendations*

From already the orientation phase of the project on different stakeholder groups were involved. The stakeholders did not only have a passive roll in the project, but also an in-depth roll by being invited to come up with ideas about the different alternatives. In a next phase of the project insight in the concept coastal reinforcement plan was possible and 22 stakeholders submitted their view, which also shows the width participation of the project. In the memorandum of reply can be read that all these submission were extensively discussed. Also the seven adjustments that had been made after the submissions showed that the stakeholders were taken serious and also gave the stakeholders the feeling that they are heard. The possibility for administrative legal recourse can also be seen positively. The fact that not many persons used this power is may also a positive outcome of the early participation possibilities of the people. The conclusion can be drawn that the stakeholder involvement during the project was more than sufficient and no more improvements are needed.

### **3. Organization**

In this section the organizational processes are assessed. To assess these processes and to look whether an agreed service level is reached, insights are given in the trade-offs between social objectives, the organization of responsibilities, authorities and associated means and the adaptiveness of regulations and agreements. To assess these processes criteria are used from the integrated assessment method.

#### **3.1 Trade-offs**

The following assessment criterion is used for assessing the trade-offs between social objectives.

*Are agreed service level decisions based on trade-offs of costs, benefits and distributional effects of various alternatives?*

The service level agreements between public and the project group are based on trade-offs of costs and benefits of various alternatives. Distributional effects are not present since it is known that the central government will finance the entire project.

Like stated before there were seven alternatives to increase safety in the hinterland. Before these alternatives were formed, the following boundary conditions were maintained<sup>4</sup>:

- Conservation of characteristics of Noordwijk aan Zee, which are the boulevard with a seaward dune of +10 m (r.t. NAP).
- Raising the level of the boulevard is no option.
- Spatial and economic developments have to be possible.

The seven alternatives were created based on these conditions. Next to these alternatives there was also the null-scenario. Since there were more cons (increasing risk for flooding and decreasing safety) than pros (no investment costs) in this scenario this alternative had been skipped immediately from the list of options.

Approximately the same happened for the landward measures. According to the review of alternatives (see Figure 2 (Dutch)) what concerned costs and benefits, the costs for the landward measures would be high ( $\pm$  25 million euros for initial investments and no extra maintenance costs) and the benefits would be negative (decreasing spatial quality due to increasing construction restrictions and demolition of buildings, and increasing risk for flooding on long term)<sup>4</sup>.

For seaward measures the costs would be lower for investment (9-13 million euros), but maintenance costs would be higher ( $\pm$  1-2 million euros per year). For these measures spatial quality would increase and the risk for flooding on long term would decrease. Also there would be more space for recreation and nature developments. The consolidating measures were based on the benefits positioned somewhere between. Costs remained relatively low ( $\pm$  5million euros for investment and  $\pm$  1 million euros for yearly maintenance). Since costs were high and benefits were negative for landward measures and the fact that landward measures did not fulfil the aims of improving risk control and spatial quality, these measures were not taken into the draft reinforcement plan<sup>4</sup>.

	Landwaarts			Consolideren	Zeewaarts		
	L1	L2	L3		C1	Z1	Z2
Kustmorfologie	0	0	0	0/-	-	0/-	-
Bodem en water	0	0	0	0	0/+	0/-	0
Natuur	0/-	0/-	0/-	0/+	0/+	0/-	0/+
Ruimtelijke kwaliteit							
- bestaande ruimtelijke kwaliteit	--	--	--	0/-	-	-	0/-
- mogelijkheden ruimtelijke ontwikkelingen	--	--	--	+	++	++	++
Cultuurhistorie	0/-	0/-	0/-	0	0	0	0
Woon- en leefomgeving	--	--	--	0/-	0/-	0/-	0/-
Risicobeheersing	0	0	0	+	++	++	++
Kosten (miljoen euro)							
- aanleg	25,5	25,5	25,5	4 / 5,5	13	9 / 3	11,5
- Jaarlijkse extra onderhoud	0	0	0	0,6 / 0,8	2	0	1,1
Maatschappelijke kosten en baten	-	-	-	++	++	+	++
Duurzaamheid							
- eenvoud	-	-	-	++	++	+	++
uitbreidbaarheid/invloed omgeving							
- aanlegkosten (mln euro)	9,5	25	39	17 / 20	25,5	9	17 / 20,5
- Jaarslijjk extra onderhoud (mln euro)	0	0	0	2,5 / 3	3,8	0	2,5 / 3,1

Figure 2: Review of different measures (L = Landward, C= Consolidating and Z = Seaward) for coastal morphology, soil and water, nature, spatial quality, cultural history, environment, risk control, costs, societal costs and benefits and sustainability. Source: Preliminary memorandum, 2005

In the 'societal cost and benefit analysis a trade-off session followed for the seaward and consolidating measures. In Figure 3, results (Dutch) are given of the cost- and benefit analysis for the remaining measures.

Investment costs are varying from 7.6 million euros for widening of the dunes (consolidating/ seaward measure) to 14.5 million euros for a high dam. The 'dike in dune' measure, which has been performed, has the second lowest investment costs (12.9 million euros). For the most expensive measures (> 10 million euros) the maintenance costs are however lower than for the consolidating measures. The same measures have also better scores for spatial development and risk for coastal erosion. What concerns changing views, the benefits for the 'dike in dune' remain neutral. The value of experience is negative for all measures, but is least negative for the most negative measures. This makes that if all costs and benefits are taken together that the 'dike in dune' measure is the best measure, which could be performed. The scores have eventually been improved in terms of nuisance by constructing the dike during winter period. This means that looking to the entire picture, the service level agreements are based on trade-offs between costs and benefits of various alternatives<sup>10</sup>.

	1 DUINVERBREDING	2 HOGE DAMWAND	3 LAGE DAMWAND MET ZAND	4 DIJK IN DUIN
Investeringskosten	-7,6	-14,5	-13,5	-12,9
Kosten onderhoud	-2,5	-1,5	-1,5	-1,5
Verminderde schade afslag	1,3	1,9	1,9	1,9
Mogelijkheden voor ruimtelijke ontwikkelingen	1,8	7,4	7,4	7,4
Waarde van verloren uitzicht		-3,4		
Overlast van aanleg	-0,2	-0,4	-0,4	-0,4
Effecten op flora en fauna	nihil	nihil	Nihil	nihil
Belevingswaarde	PM –	PM -	PM -	PM -
Saldo (baten min kosten) (exclusief baten toegenomen veiligheid)	-7,2 PM—	-10,4 PM-	-6,0 PM-	-5,4 PM-
Verminderde schade overstromingen	10,4	10,4	10,4	10,4
Saldo (baten min kosten) (inclusief baten toegenomen veiligheid)	3,2 PM—	0,0 PM-	4,4 PM-	5,0 PM-

Figure 3: Results of cost and benefit analysis for consolidating measures (1) and seaward measures (1-4) based on investment and maintenance costs, decreasing erosion damage, possibilities for spatial developments, value of lost view, nuisance, effects on flora and fauna and value of experience. Source: SEO Economic Research, 2006.

### Improvements and Recommendations

The service level agreements are based on trade-offs of costs and benefits of various alternatives. Since distributional effects are not present there can be said that improvements are not needed on first sight.

### **3.2 Responsibility, Authority and Means**

The following assessment criterion is used for assessment of responsibility, authority and means:

*Are authorities, responsibilities and means well-organized to deal with water issues at the appropriate administrative scale(s) in a participative and integrative way?*

For the success of a project a clear division of responsibilities and means among the different authorities is very important. The coastal reinforcement Noordwijk is a subproject of the national weak link project, from which also the task divisions are stemming. According to 'Process Plan weak links in the Dutch Coast' the following different authorities are involved:

- Government
- Province South Holland
- Rijnland District Water Board
- Municipality Noordwijk
- Others (inhabitants, investors, stakeholders)

### *Government*

The dunes in Noordwijk are a state (public) property, which are owned by the Directorate-General for Public Works and Water Management Department. The State Secretary Traffic and Water Management is according to the 'Flood Defences Structure Act'<sup>14</sup> end responsible for the design, maintenance and water safety policy of primary water defences. Focusing on the weak link project and the importance of spatial planning the inter-ministerial coordination between VROM<sup>15</sup>, LNV<sup>16</sup> and Economical Affairs<sup>17</sup> is also an important task. Moreover The State Secretary Traffic and Water Management is the manager of the total process of the weak links project and also co-finances.

### *Province*

The most important task of the Province is the development and coordination of the regional vision. Moreover the 'Spatial Planning Act'<sup>18</sup> describes that the Province is responsible for the development of regional plans and the approval of municipalities zoning plans. The 'Flood Defences Structure Act' describes that the Province has the supervision on primary water defences and has to assess the reinforcement plans from the Water Board.

### *Water Board*

The Water Boards are responsible for managing and maintenance of the primary water defences. Moreover the water boards have to assess the water defences every 5 year to check whether they still satisfy the safety norms as described in the 'Flood Defences Structure Act'. In practice the Water Boards are working closely together with the municipalities in the urban areas and with the landowners in outlying areas.

### *Municipalities*

Municipalities are primarily responsible for the spatial planning of its own area. In practice this is mostly focused on urban areas and economical important areas. In the coastal zones the special outlying areas are of importance. The tasks of the municipalities in the weak links projects and thus also the coastal reinforcement of Noordwijk are: economical development, housing, traffic and transport, nature and landscape. The spatial planning of the municipalities is mainly based on the 'Spatial Planning Act': the task to establish the spatial planning of the outlying and urban areas.

### *Others*

Inhabitants, investors and other stakeholders can be involved in the orientating and development phase of the weak link projects.

### *During the Noordwijk project*

The State Secretary of Traffic and Water Management<sup>19</sup> is in charge for the realization of the plan studies of the coastal reinforcement of Noordwijk. Moreover the Ministry of Traffic and Water Management is responsible for the coordination within the ministries on

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<sup>14</sup> Wet op de waterkering

<sup>15</sup> Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (Ministry of Housing, Spatial Planning and the Environment)

<sup>16</sup> Ministerie van Landbouw Natuur en Voedselkwaliteit (Ministry of Agriculture, Nature and food quality)

<sup>17</sup> Ministerie van Economische zaken (Ministry of Economic Affairs)

<sup>18</sup> Wet op de ruimtelijke ordening

<sup>19</sup> Staatssecretaris van Verkeer en Waterstaat

the spatial planning. The State Secretary of Traffic and Water Management conducts this task after consultation with the Administrative Consultation Coast<sup>20</sup>. The following parties are involved in this consultation:

- State Secretary Traffic and Water Management together with VROM, LNV, and EZ;
- Presidents of the Provincial Consultancy on Coasts;
- Representatives coastal Water Boards;
- Representatives coastal Municipalities.

The next phase was the plan development of the coastal reinforcement Noordwijk. In this phase the same parties as listed above were involved. Besides the stakeholders of the project were involved. Together they formed a project group, which decided on the cooperation agreements (see next chapter). The group was managed by the Province South Holland in the form of a deputy chairman of a regional steering committee. Besides the deputy chairman the Chief Engineer Director of the Regional State Secretary of Traffic and Water Management is involved (as for instance vice-director) to guarantee a simultaneously cooperation between Province and Government. The Provincial Consultation Coast<sup>21</sup> and Provincial Spatial Commission<sup>22</sup> were functioning as a sounding board during the plan study phase and gave advice on the results of the study.

For the final plans a consensus had to be made in the Administrative Consultation Coast. During this consultation the different parties also indicated their financial contribution to the project. The final approval had to be done by the Provincial Executive<sup>23</sup>. In the final phase the Water board is responsible for the executive of the project.

#### *Financial Cost*

The financial costs regarding to dike reinforcement of a primary flood defences were financed by the central government (article 98 Water Act<sup>24</sup>). This also applies for the compensations costs that arose from administrative acts or the costs of measures to be taken to restrict losses.

#### *Improvements and Recommendations*

In the Noordwijk project not only water safety, but also spatial quality and economical development should be improved. Due to these different goals there were also quite a lot of parties involved in the project. That the project was a subproject of the Weak Link project and was organized from a 'top-down approach' gave in this case its advantages. The project organization, responsibilities and means were already clearly described in the Process plan weak links in the Dutch Coast and provided a good basis for the Noordwijk project. On the urban planning aspects the different parties as province, municipalities and water board had many interfaces, which could have led to ambiguities but worked out good.

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<sup>20</sup> Bestuurlijk Overleg Kust (BOK)

<sup>21</sup> Provinciaal Overleg Kust

<sup>22</sup> Provinciale Planologische Commissie

<sup>23</sup> Gedeputeerde Staten

<sup>24</sup> Waterwet

### **3.3 Regulations and Agreements**

The following assessment criterion is used for assessing regulations and agreements.

*Are regulations and agreements legitimate and adaptive; what are the main problems?*

The regulations and agreements used and made in the weak-link policy of Noordwijk have been legitimate and adaptive. The aims for flood protection and improving spatial quality, which have resulted in the performed 'dike in dune' measure, have their foundations in the 3<sup>rd</sup> Kustnota and the 'Nota Ruimte (mainly directed to spatial quality)'. From a legal point of view flood protection and spatial quality are founded in Art. 21 of the Dutch Constitution, which states:

*"It shall be the concern of the authorities to keep the country habitable and to protect and improve the environment."*

This means that flood protection (protection environment) and spatial quality (improvement environment) are of public interest, which forms an exemption for the further implementation of the Water Framework Directive (WFD)<sup>25</sup>, which is the main European legislation concerning environmental protection of coastal areas. The same applies nowadays for the Marine Strategy Framework Directive (MSFD), but since the MSFD has been introduced in 2008 this legislation could not be adapted yet to the weak-link policy in Noordwijk. The same counts for the Environmental Impact Assessment (EIA) Directive introduced in 2009, which requires an environmental assessment of proposed measures and is there to integrate environmental considerations. An environmental review has however been implemented by a so-called 'MER' review procedure which was required by the Council Directive<sup>26</sup> and the Environmental Management Act<sup>27</sup>. Since the project area (beach and boulevard) is not covering a part of the EHS<sup>28</sup> area no permits are required for the Nature Protection Act and the Habitat Directive<sup>29</sup>. These legislations are forced in the dune areas north and south of Noordwijk, since these areas belong to the EHS. In terms of environment only permits had to be requested for the Flora and Fauna Act. Other permits, which have been requested, are permits for the Earth Removal Act, the Spatial Planning Act, the Public Works and Water Management Act (nowadays Water Act) and the byelaw of the District Water Board<sup>30</sup>

Since the central government was obligated to fulfil Art. 21 of the Dutch Constitution an attempt had to be taken to increase safety in Noordwijk and at the same time to maintain spatial quality. Therefore a project group was established, represented by the Directorate-General for Public Works and Water Management Department South Holland (owner, manager and responsible of the coast line, which is founded in the Water Act<sup>31</sup> nowadays), the province of South Holland (supervision primary flood defences<sup>32</sup> and responsible for regional spatial planning by developing structural concepts and regional

<sup>25</sup> Art. 4.7c, WFD, Directive 2000/60/EG

<sup>26</sup> Council Directive, Directive 1985/337/EEG

<sup>27</sup> Art. 7.2, Environmental Management Act (Wet Milieubeheer)

<sup>28</sup> EHS → Ecological Main Structure

<sup>29</sup> Habitat Directive, Directive 1992/43/EEC

<sup>30</sup> H.K. Gilissen, M. Kok, J. Edelenbosch, H.F.M.W. van Rijswijk, P. Hillegers and G. Teisman, *Governance analysis case Noordwijk: 'weak links' along the coast*, Paper for the Conference 'Deltas in Time of Climate Change', Rotterdam 29 September 2010

<sup>31</sup> Art. 2.7 and Art. 3.1 Water Act (Waterwet)

<sup>32</sup> Art. 3.9 (1) Water Act (Waterwet)

plans, which is founded in the Spatial Planning Act<sup>33</sup>), the Rijnland District Water Board (responsible for the primary flood defences, which is founded in the Water Act<sup>34</sup> nowadays) and the municipality of Noordwijk (same as province, but on local scale<sup>35</sup>). The costs of the project are fully paid by the central government, since the reinforcement of the coast in Noordwijk was of national interest<sup>36</sup>. The agreements made between the representatives are formulated in a multiple-party-agreement supplied by the process plan weak links where representatives have the possibility to make agreements about priority aspects, primarily responsibilities, deadlines, share of costs, organization of the project, advice and decision-making, and communication.

In the project of Noordwijk representatives have also succeeded to fulfil the obligations of the Aarhus Convention. According to the Aarhus Convention of 1998 the parties of an environmental related project are obligated to involve public in the decision-making processes, to give access to information and to give access to justice in environmental matters in accordance with the provisions of this Convention<sup>37</sup>. During the entire period 2005-2008 there were two periods (May- September 2005 and October/ November 2006) where public parties (e.g. apartment owners, hotel and restaurant owner, and beach pavilion owners) were involved in the decision-making process. Several ideas and opinions (10 reactions in 2005 and 22 in 2006) were shared with the project group and some of the opinions/ideas have led to amendments in the project plans. During the project there were also possibilities for interested parties to appeal against the decisions made. Eventually, shortly after the approval of final reinforcement plan (March 2007) there was one appeal at the Dutch Council of State, which was about obstruction of the view on from the apartment of one of the citizens<sup>38</sup>. The judge declared this appeal to be unfounded.

This makes clear that opinions and ideas were taken seriously, which eventually could explain the big success of the project in Noordwijk.

#### *Improvement & Recommendations*

The regulations and agreements can be concluded to be legitimate and adaptive. No improvements are needed on first sight.

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<sup>33</sup> Art. 2.2 and Section 3.5 Spatial Planning Act (Wet Ruimtelijke Ordening)

<sup>34</sup> Art. 7 Flood Defences Structures Act (Wet op de Waterkering)

<sup>35</sup> Art. 2.1 and Section 3. 1 – 3.4 Spatial Planning Act (Wet Ruimtelijke Ordening)

<sup>36</sup> Art. 98 Water Board Act (Waterschapswet)

<sup>37</sup> Art. 1 Aarhus Convention (1998)

<sup>38</sup> ABRvS 5 maart 2008, 200702359/1.



#### **4. Implementation**

In this section the implementation of service level agreements are assessed. To assess the implementation phase the focus will be on engineering & monitoring, enforcement, and conflict prevention & resolution. To assess these building blocks assessment criteria are used from the integrated assessment method.

##### **4.1 Engineering and Monitoring**

The following assessment criterion is used for assessing engineering and monitoring:

*Are Service Level Agreements sufficient available (implicit or explicit) in order to redesign the existing infrastructure? Are design and consequences of different alternatives sufficient available? Is there sufficient monitoring of the system and are the data analysed?*

A Service Level Agreement describes the agreements that are made between the different contracting and performing companies. The formulation of the desired expectations and goals should be clearly described

A management judgment conducted by the Rijnland Water Board District in 2003 revealed that the current water defence in front of Noordwijk would not contain enough sand in the near future to satisfy the safety norm of 1/10.000. In the 'Development plan weak link Noordwijk' a problem analysis is conducted according to hydraulic preconditions (Hydraulic Preconditions Book 2006<sup>39</sup>). These hydraulic preconditions are wave heights and periods based on measurements. Based on this the required coastal reinforcement is calculated. Considering the spatial and economical functions of the coastal area of Noordwijk there are some restrictions. A large area of build-up area in the coastal zone is located in the core zone of the coastal defence thus only restricted building is possible in the future. Municipality policy also revealed that the spatial quality of the coastal reinforcement does not meet the required quality of a coastal town. Therefore other areas in Noordwijk are pointed out for future building and economical development.

As already described in the chapter Water System Knowledge there were first eight theoretical possible coastal developments developed in the Projectnota. Subsequently the most feasible four different alternatives were compared and a decision was made for the preferred alternative. This alternative was based on Environmental effects and costs, and a social costs-benefit analysis was conducted. Besides the technical argumentation for the right preferred alternative also spatial quality played a roll.

For the preferred alternative a more extensive research has been elaborated on the consequences of the plan. This focused on the effects four spatial themes:

- Coast and sea;
- Living environment;
- Green spaces;
- Maintenance and execution aspects.

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<sup>39</sup> Hydraulische Randvoorwaardenboek 2006

Daily video records monitor the movement of the sandbanks and coastal lines in front of Noordwijk since 1995. In 2012 the research 'Evaluation of the coastal enforcement in Noordwijk at sea'<sup>40</sup> was published wherein the influences of the enforcement on the sandbanks were investigated. However this research is not available on the Internet.

#### *Improvements and recommendations*

The Service Level Agreement of the Noordwijk project was extensive and very clear. In the first judgement it became clear that the Noordwijk is a weak link in the Dutch coast line that does not satisfies the hydraulic preconditions, which were specifically described. These same hydraulic preconditions together with other technical and spatial aspects formed a clear list of what the redesign should fulfil. The preferred alternative of the coastal reinforcement has been developed from a good 'from global to detailed' approach: First an investigation on which possibilities are all possible on the large scale and then an assessment on the four best alternatives. The dike in the dune system is relatively fixed and thus will satisfy the goal when the preconditions dimensions are constructed. It is positive that the effects of the coastal reinforcement on the coastal developments are monitored. However it is recommended to also monitor other aspect as for example the effects on flora and fauna development and beach and sand transports. Another useful tool that was missing was a Risk analysis, which would improve the project by giving a clear overview of risks and their probability and evaluation.

#### ***4.2 Enforcement***

The following assessment criterion is used for assessing enforcement:

*Are regulations and agreements enforceable by public and/or private parties, and are there appropriate remedies available?*

What concerns the enforcement of regulations and agreements the rule is that public and private parties can enforce public regulations and agreements. In contradiction, only private parties can enforce private regulations and agreements<sup>8</sup>. For the project in Noordwijk only public regulations and agreements apply since the outcome of the project is a result of cooperation between public parties with involvement of private parties.

The enforcement of most of these regulations and agreements (e.g. MER procedure and multiple-party agreement) are more or less implemented by the province of South Holland, which is the supervisor of the primary flood defences in Noordwijk. This means that the province is the supervisor of the project and therewith-related agreements<sup>2</sup>, and approver of the final plans<sup>41</sup>. The municipality of Noordwijk implements the enforcement concerning the regulations of the Spatial Planning Act on local scale. In their local plans areas are signed where no activities (e.g. demolishing or building) can be performed without permits. These areas must be protected and enforced to avoid that these activities are performed<sup>42</sup>.

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<sup>40</sup> Van der Grinten, R. M., Ruessink B.G., 2012, Evaluation of the coastal enforcement in Noordwijk at sea, The influence of the reinforcement on the sandbanks, University Utrecht, Department Physical Geography

<sup>41</sup> Art. 4.7 Water Act (Waterwet)

<sup>42</sup> Art. 3.3 Spatial Planning Act (Wro)

About the clearness of enforcement in the policy plans can be said that there are no obvious agreements are made about whom is going to enforce the regulations and agreements formulated in the reinforcement plans. The only document where these agreements are formulated is the process plan weak links<sup>2</sup>. In contradiction there is information available about which appropriate remedies can be used to enforce regulations or agreements. In the starting paper can be read that it is possible to have an appeal at the Dutch Council of State against the approval decision of the provincial authority. For parties (i.e. private) this can be an administrative instrument to enforce formulated regulations and agreements<sup>4</sup>.

#### *Improvements and Recommendations*

Regulations and agreements are enforceable by public and private parties. Also appropriate remedies are available. What concerns improvements it would be more obvious if directives are given for enforcement of regulations and agreements in the reinforcement plans.

#### **4.3 Conflict Prevention and Resolution**

The following assessment criterion is used for assessing conflict prevention and resolution:

*Are there sufficient conflict prevention and resolution mechanisms in place?*

During a project disagreements or conflict may arise. To prevent these conflicts from escalating and affecting the project process good conflict prevention and resolution mechanisms are necessary. According to a publication by the Compliance Advisor/Ombudsman of the World Bank Group, 'locally-based grievance resolution mechanism(s) provide a promising avenue by offering a reliable structure and set of approaches where local people and the company can find effective solutions together'<sup>43</sup>.

At the start of the Noordwijk project the 'Design enforcement plan weak link Noordwijk' was published and described the planning, procedures, project organization and information provision of the project. So this chapter was more meant for conflict prevention within the project organization. The chapter 'Temporary commissioning and damage recovery' was focused on the conflict prevention for possible concerned people and revealed some possible damages and handling. As for example it describe that it is possible for the concerned people to receive expert assistance wherefore a cost recovery can be done. Another important included chapter that prevent conflicts is 'Permits', because all stakeholders know by this whether it is legal what they are doing or not. Moreover over this see chapter 4.2.

It was obviously that some stakeholders would experience damage from the coastal reinforcement thus Rijnland District Water Board implemented a compensation regulation<sup>7</sup>. At present the compensation regulation from the Water Act is in force, but during the project this did not yet exist. At the time of the decision Rijnland District Water Board had an own regulation on the compensation for loss resulting from administrative acts. Rijnland consulted Grontmij to guide the concerned persons with the damage assessment and developing of a standard application form for the compensation.

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<sup>43</sup> "A Guide to Designing and Implementing Grievance Mechanisms for Development Projects". Commdev.org. Retrieved 2010-05-17.

In order to prevent overwhelming economical damage the possibility was given to the concerned persons to apply for an advance payment. The provisional damage assessment by Grontmij was taken as a starting point. An independent commission of experts handled the final application for the compensation. Every application from the concerned persons was heard separately and supplementary data was consulted when necessary. After this the commission presented a recommendation on the amount of the compensation to the Rijnland District Water Board and concerned persons. Both could react on this recommendation and the District Water Board eventually had to decide whether to pay or not to pay the recommended compensation. In case the concerned persons did not agree with the final decision administrative legal recourse was again possible. In the documents it is not found whether this found place or not.

#### *Improvements and recommendations*

The fulfilment of conflict prevention during the Noordwijk project has been very well done. A clear division of organisation structure, responsibilities and permits have provided a contribution to this (see also chapter 3.2). The compensation regulation was very well set up with the consultancy of Grontmij to guide the concerned persons. Moreover, the independent expert commission is also a fact on which the concerned persons can rely and will not give them the feeling that commission will judge in the benefit of the Water Board. As already recommended in chapter 4.1 a Risk analysis could also be useful for conflict prevention and adaptation.

## **5. Conclusions**

Observing the results of the assessment on the reinforcement project in Noordwijk there can be stated that of governance and management aspects have been implemented well. Some final remarks which can be given is that:

- A clear goal regarding to water safety was formulated, but also the possibilities and aims for spatial quality and economical development were clearly described.
- The extensive research on different environmental aspects of the project area was sufficient. Also the assessment of the different alternatives on these environmental aspects gave a clear overview. More research on other effects from climate change than sea level is recommended.
- There was sufficient knowledge of values and principles. In the policy documents more attention was given to values than principles. Therefore it is recommended to formulate principles in the policy documents.
- Many different stakeholders were involved in the project and the participation was extensive from the start until the end of the project.
- SLAs are based on trade-offs of costs and benefits of various measures, which have been researched by cost and benefit analyses. Distributional effects have not been incorporated since the central government finances the entire project.
- There was a clear division between the government, province, municipality and water boards.
- The regulations and agreements can be concluded to be legitimate and adaptive.
- The SLA for the project was clear and the monitoring of the effects after the project can be seen positively.
- Regulations and agreements are enforceable by public and private parties. Also legal remedies are available, but it would be more obvious if guidelines were given for enforcement in the policy documents.
- Conflict prevention and resolution has been executed sufficient during the project. A Risk analyse could improve and give more insight in conflict prevention.

## **6. Recommendations**

Despite that the reinforcement project in Noordwijk has been implemented well there are still some aspects, which can be improved. These improvements form the recommendations for other reinforcement projects along the Dutch Coast.

Recommendations are:

- To have more research on other effects of climate change instead only the effect of climate change on sea level.
- To formulate and state principles in the policy documents.
- To give guidelines for the enforcement of regulations and agreements in the policy documents.
- To implement a risk analysis since it can improve and can give more insight in conflict prevention.