Narrative perspectives on the development of coastal pilot projects

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Narrative perspectives on the development of coastal pilot projects

Lotte E. Bontje

Narrative perspectives on the development of coastal pilot projects

Proefschrift

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in het openbaar te verdedigen
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door

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Preface

People in trouble or those facing challenges often share their stories with others, who then, hopefully, express their sympathy. And, the others may come up with advice or relate what they or others did in similar situations, identifying solutions. The human vocal faculty enables us to share stories, allowing Gottshall (2012) to characterise us as 'storytelling animals'. Indeed, storytelling is an intrinsic component of our nature.

Collectively, humankind is experiencing trouble, or facing challenges. Climate change, further growth of the world's population, depletion of natural resources – these are but a few examples of the problems and challenges we face. And we share our stories about these problematic situations and their potential solutions.

Pilot projects are projects in which innovative approaches or technologies that can potentially address problems or challenges are applied. What kind of stories are shared about pilot projects? What can we learn from these stories about the realisation and effects of the pilot projects? And how can these stories be revealed and analysed?

"Narrative perspectives on the development of coastal pilot projects" is my dissertation in which I address these types of questions. I wish to express my gratefulness towards all interviewees who contributed to the research in wonderful interview conversations in the Netherlands and Sweden. It was a true pleasure to meet all of you.

I am also very thankful to the people providing me the opportunity to start (and finish!) the fascinating process of conducting a PhD research. The dedication, trust and feedback from my team of promotors, Jill and Wil, were crucial in this process. Jill, your enthusiasm is fantastic, it was great to collaborate with you! Also crucial was the fun with my office-mates Iman, Floortje, Sadie and Sibel, with the colleagues of the other 'fun-office' Abby, Marc and Sharlene, with my Rotterdam-buddy Xu (a pity that we did not cycle more often together!) and with all other colleagues including the visiting colleagues from abroad. Everdine, Marlies and Monique contributed to the fun, but I also would like to thank them for all the support provided. I also enjoyed the collaboration in and discussions about education with Bert, Els, Leon, Pieter and Tineke. And it was nice to welcome Bartel, Kenny and Yan in the section. Content wise, we didn't share a lot, but activities as quizzes and other informal gatherings are at least as important as discussions on research content.

It was great to discuss all kinds of building with nature aspects with the NatureCoast colleagues Alexander, Arjen, Corjan, Emily, Ewert, Iris, Isaac, Jantien, Marinka, Marjolein, Max, Lianne, Sebastian, Simeon and Vera, and with Delft-colleagues Stephanie, Dorien and (at the very end!) Heleen. For the Swedish component of my study, I want to thank AJ, Caroline and Hans in particular. I felt very welcome in Lund and Malmö and the overnight staying in 'the micro-brewery' was only one of the highlights.

The writing courses taught by Maaike and the discussions with international colleagues at conference and workshops were very helpful in my learning process. I enjoyed to communicate about things I learned and guiding excursions at the Sand Engine itself turned out to be one of my favourite activities. Carrie, thanks for coordinating most of those. And although Delft University of Technology is a great place to work, it was also nice to keep in touch with people from Wageningen University, for inspiring discussions during a guest lecture or in personal conversations.

Of course, there was the important support from family and friends, who could also distract me from thinking about research issues sufficiently. Thanks to my parents, Anny and Koos, to Tiemen Jan, to my volleyball friends and to many others (I hereby invite you for a drink, to make up for the fact that I was too lazy to write your names here).

"Narrative perspectives on the development of coastal pilot projects" lies before you. Hopefully, you will be inspired to reflect upon and share your stories about the roles of narratives, research and pilot projects.

Lotte

Contents

Summary		**vii**
Samenvatting		**xv**
1.	**Introduction – the need for a better understanding of (coastal) pilot projects**	**1**
1.1	Need for coastal policy change and expectations about pilot projects in coastal management	1
1.2	What do we understand about the phenomenon of pilot projects?	3
1.3	Deepening the understanding of pilot projects: development and effects within the actor network	6
1.4	The potential of narratives for studying the development of pilot projects and their effects	7
1.5	Research questions	9
1.6	Thesis outline and reading guide	10
2.	**A narrative model of the development of pilot projects**	**13**
2.1	Pilot projects in different disciplines	13
2.2	From pilot project level to policy level: views on policy processes	15
2.3	The concept of narratives in policy processes	21
2.4	Integration: A narrative model of pilot projects	31
2.5	Chapter outcome	33
3.	**Research strategy and methods**	**35**
3.1	Case selection	35
3.2	Collecting personal narratives and other data	36
3.3	Towards a narrative analysis	40
3.4	A deductive narrative method for eliciting biographies	43
3.5	An inductive method for eliciting actor-network narratives	45
3.6	Participatory observation and analysis of the field notes	48
3.7	Chapter outcomes	49
Prelude A. Case description Sand Engine pilot project		**51**
A.1	Context of the project	52
A.2	The pilot project	54
4.	**A deductive analysis: biographies of the Sand Engine**	**59**
4.1	Narrative analysis of the Sand Engine pilot project	59
4.2	Results: biographies of the Sand Engine pilot project	61
4.3	Validation of the biographies	66
4.4	Conclusions and reflections	67
5.	**An inductive analysis: narratives on the realisation of Sand Engine project and beyond**	**71**
5.1	An inductive narrative approach to the Sand Engine	71
5.2	The narratives, their roots and the degree of recognition	72
5.3	The development of the narratives and their competition	82

5.4 Participant observation: narratives as a lens on pilot project related events 86
5.5 Conclusions and reflection 90

Prelude B. Case description Ystad's sand nourishment project 95
B.1 Context of the project 96
B.2 The pilot project 100

6. Narratives on the realisation of Ystad's sand nourishment project and beyond 105
6.1 An inductive narrative approach on Ystad's nourishment project 105
6.2 The narratives, their roots and the degree of recognition 106
6.3 The dynamics in the narrative competition 116
6.4 Participant observations: narratives as a lens on coastal related events in Scania 121
6.5 Conclusion and reflection 124

7. Comparing cases and methods, discussing the model 127
7.1 Comparing cases 127
7.2 Comparing the methods 134
7.3 Discussing the narrative model 140

8. The developments of pilot projects – conclusions and reflection 147
8.1 Addressing the research questions 147
8.2 Insights for people involved in (coastal pilot) projects and policy 152
8.3 Narrative perspectives: living up to expectations? 154

References 159

Appendices 173
Appendix A. Organisations Sand Engine pilot project 174
Appendix B. Respondents Sand Engine pilot project 175
Appendix C. Documents Sand Engine pilot project 176
Appendix D. Conversational guide open interviews 182
Appendix E. Deductive narrative coding scheme 183
Appendix F. Analytical table deductive analysis 184
Appendix G. Validation survey deductive analysis 186
Appendix H. Initial inductive narrative coding Sand Engine pilot project 188
Appendix I. Interview protocol reflective interviews inductive analysis 191
Appendix J. Code list second round of interviews (Sand Engine) 194
Appendix K. Participant observation Sand Engine pilot project 196
Appendix L. Organisations Ystad's nourishment project 206
Appendix M. Respondents Ystad's nourishment project 207
Appendix N. Documents Ystad's nourishment project 208
Appendix O. Initial inductive narrative coding Ystad's nourishment project 212
Appendix P. Code list second round of interviews (Ystad's nourishment) 214
Appendix Q. Participant observation Ystad's nourishment project 216

About the author and overview of dissemination 220

Summary

Narrative perspectives on the development of pilot projects

Pilot projects are popular instruments for initiating and realising innovations in policy (Martin and Sanderson, 1999, Sanderson, 2002, Vreugdenhil et al., 2009), although their efficacy has been criticized (Shipman and Stojanovic, 2007, Vreugdenhil et al., 2009). Pilot projects may be viewed as social constructs developed in interaction with their actor-networks (Van Buuren and Loorbach, 2009, Ettelt et al., 2014, Van Buuren et al., under review, Vreugdenhil et al., 2009), making pilot projects as phenomenon both complex and challenging to understand. Vreugdenhil (2010) recommends further research on pilot project dynamics and their effects, particularly in environmental decision-making.

Research aim

This thesis aims t*o deepen the understanding of the development pilot projects and their effects within their actor-networks.*

Narratives in policy making

In accordance with the aim to study pilot projects within their actor-networks, this thesis takes an actor-perspective and employs the concept of narratives in three ways.

First, narratives play diverse roles in policy making as described by Van Hulst (2012), Throgmorton (1996), Sandercock (2003), Fischer (2003), Stone (2002), Van Dijk (2011) and Bulkens et al. (2014). Narratives are unique in a sense that they can be adapted every time they are told, they add moral and emotive-aesthetic ways of reasoning to decision-making and they can be persuasive because they are presented as a 'given truth' and the audience is "invited to believe the whole" (cf Kvernbekk, 2003). A literature study on narratives, pilot projects and policy change, therefore, forms the theoretical basis of this study. The findings are integrated into a 'narrative model of the development of pilot projects' (2.4) that conceptualises the development of pilot projects as a dynamic narrative competition within their actor-networks. Narratives are often collective creations (Wagenaar, 2011, Zilber, 2009) that render thoughts, beliefs and values ('discursive materials' cf Van Assche et al., 2014). So, narratives within the actor-network both construct and reflect the thoughts, beliefs and values regarding the pilot project within its actor-network. The 'narrative model of the development of pilot projects' functions as a lens through which to investigate the

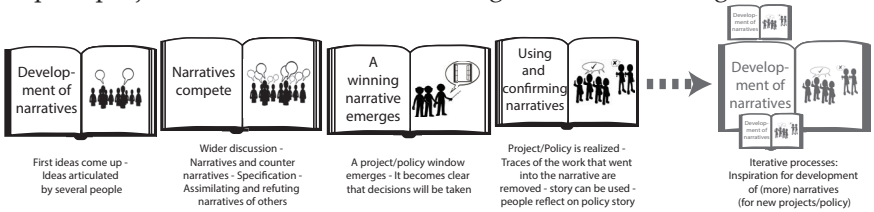


Figure S-1. A narrative model of the development of pilot projects (chapter 2).

empirical component of this thesis.

Narratives for making sense of experiences

Secondly, the concept of narrative is related to how actors make sense of experiences. Narrativising or story-creation is a uniquely human way of making sense of experiences (Bruner, 1991, Gee, 1985, Polkinghorne, 1988). This is a form of sense-making that "consists of attempts to integrate a new event into a plot, by which it becomes understandable in relation to the context of what has happened" (Czarniawska, 1998, p.5 cf Weick, 1995). The cognitive processes that organise experiences take place in individual minds. They need to be studied indirectly, for instance by utilising the narratives of people to investigate their interpretations of their experiences. Accordingly, interview conversations form the main data source for this study (chapter 3).

Narrative methods for analysing interviews

Thirdly, a continuum of narrative methods is available in social science (Landman, 2012, Riessman, 2008) for studying policy issues and decision-making processes (see the overview in 3.2). These methods fit well with the choice to focus on actor-based experiences as starting point for the research.

Field of application: pilot projects in coastal management

Coastal management: a policy sector facing challenges

Coastal management is a multifaceted policy field facing many challenges. On the one hand, coastal zones are influenced by climate change, leading to increased flooding, erosion and salt water intrusion into the surface and groundwater (Nicholls and Cazenave, 2010 based on Nicholls and Wong, 2007). On the other hand, coastal zones are often densely populated (Small and Nicholls, 2003) and under pressure from diverse spatial claims such as the demands for attractive living environment, space for nature and space for recreational activities, making coastal zones contested places (cf Boissevain and Selwyn, 2004). Pilot projects are frequently used as instruments in coastal management. Shipman and Stojanovic (2007) argue that the focus on pilot projects and demonstrations may fail in realising long-term objectives. The challenges that coastal policy faces and the frequency with which pilot projects are used makes it interesting and relevant to learn from actors involved in pilot projects within this policy field.

Two narrative methods, two coastal pilot projects

In this thesis, two narrative methods, a deductive method and an inductive method, are used to analyse interview conversations about the selected pilot project cases (presented in Preludes A and B).

A deductive narrative method for analysing interviews

The deductive method involves the analysis of interview transcripts according to a predetermined coding scheme, based on narrative characteristics, such as orientation, time-span, events and problem-solution structures. Application of this method on the Sand Engine pilot project (The Netherlands) reveals three biographies that contain multiple views on the realisation of this pilot project. These biographies are validated by a small survey (n=44) in the coastal research and policy community, in which people rated their

recognition of, and affinity with, the biographies.

An inductive narrative method for analysing interviews

The inductive method consists of an inductive analysis of the interview transcripts in which pilot project narratives emerged from the data by contrasting and structuring narrative-elements. These narratives were presented to a new set of interviewees who discussed and reflected upon the role and development of the narratives during the realisation and evolution of the pilot projects. This method was applied to the Sand Engine pilot project in the Netherlands and to Ystad's sand nourishment in Scania, Sweden (the method design is detailed in chapter 3).

Understanding the Sand Engine pilot project in the Netherlands

An artificial peninsula to enhance coastal safety, nature and recreation

The Sand Engine pilot project is a mega-nourishment realised on the South Holland coast and presented as an innovative solution heralding coastal policy change. The artificial, hook-shaped peninsula enhances coastal safety and forms a nature and recreation area. In 2011, it was constructed using 21.5 million m^3 of sand. It is designed, however, to erode gradually as natural forces spread the sand along the coast of South-Holland. The associated supply of sand to the beaches and dunes of South-Holland contributes to enhanced coastal safety. The pilot project is an example of Building with Nature, a design philosophy with strong roots in Dutch coastal management (Van Slobbe et al., 2013, Gesing, 2016, Waterman, 2008), because it uses the dynamic 'forces of nature' in the design and aims to fulfil multiple objectives.

Multiple views on the realisation of the Sand Engine

Applying the deductive method to this case (chapter 4) delivers three different biographies of the Sand Engine, reflecting multiple actor views on the realisation of the project and deepening insights on how the realisation contributes to the success experiences of many actors:

- Most of the actors that experience the Sand Engine as 'an unknown present coming from on-high' reflect on the process with satisfaction; for them, the unknown present provides opportunities for the region.
- Most of the initiators consider the Sand Engine as 'an iconic departure'. This biography has many variations, teaching us that the Sand Engine project comprises so many ingredients that there is something in it for everybody. Yet, it retains binding key-elements, such as coastal safety, which is undisputed in the Netherlands.
- Whereas the pilot project initiators, people close to the realisation process, are inclined to relate their experiences with enthusiasm and contribute to the 'iconic nature' of the project, the third biography that considers the Sand Engine pilot project as 'an incremental stage in the development of coastal management' enjoyed more support among the visitors to the coastal conference where the validation survey was conducted. This more nuanced biography fits the perspective of sandy strategies in coastal management as established technological paradigm (Kuusi and Meyer, 2002) in which the Sand Engine can be considered as a realised target, not using innovative

techniques, but inspiring further developments within the same technological paradigm.

Resonance of narrative-elements within the actor-network

The multi-faceted nature of the Sand Engine allowed actors to select and couple diverse narrative-elements into their own biography of the pilot project. The narrative-elements that emerged in many personal narratives reflect the resonance of positive narrative-elements in the coastal community (in line with Van der Stoep, 2014, Benford and Snow, 2000).

An unbalanced narrative competition

Applying the inductive narrative method (3.5) to the Sand Engine case (chapter 5) delivers four narratives that together reflect the narrative competition around the realisation of the pilot project. There are three positive narratives that act to strengthen one another: 'A new hero in conquering the sea', 'An innovation for NL Inc.' and 'A benefactor for everyone'. The variations of the narrative that emphasise the risks, 'the potential dangerous unknown', was actively managed and lost influence after realisation when serious incidents didn't occur. The positive narratives were presented on multiple stages, acting as 'performances of success' (cf Van Assche et al, 2012).

After the realisation of the pilot project, a group of academics and artists continue to actively develop two additional narratives: 'the Sand Engine for knowledge development' and 'the Sand Engine as a cultural phenomenon'. During the observational part of the case studies, these and other groups were identified as performing many success stories about the pilot project.

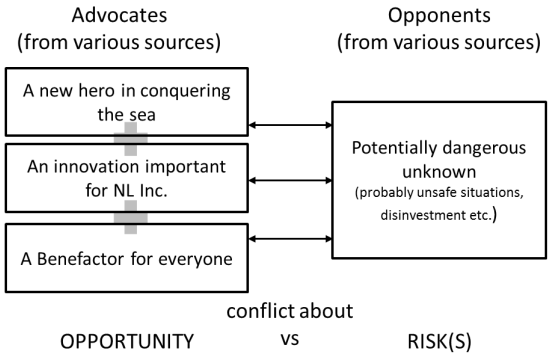


Figure S-2. The positive narratives outcompeted the 'Potentially dangerous unknown' in the narrative competition during the development of the pilot project (chapter 5).

In addition to such performances of success (cf Van Assche et al., 2012), there are also processes of performativity that explain the experienced success of the Sand Engine within the coastal community and broader Dutch society. Performativity of success can occur when "things become accepted as true and real as a result of prior discourse" (p.569 cf Butler, 1997, MacKenzie et al., 2007). In this case study, it means that the experienced success of the Sand Engine is strengthened by the underlying discourses - for instance the idea of the Netherlands as successful coastal engineering frontrunner - in the Dutch coastal community that make the community 'receptive' for, and 'enthusiastic' in, experiencing success and spreading success stories.

The Sand Engine concept developed into an accepted and important exemplar (cf Molle, 2008) with the realised Sand Engine project as icon that is "routinely showcased to officials and foreign visitors". In the meantime, all kinds of institutions have been

established that "will carry the message forward and develop it". So, in the Dutch context, the positive narratives could make a grand gesture, enhancing the impact of the pilot project, also at the policy-level.

Understanding Ystad's beach nourishment project in Sweden

A sand nourishment project to counter erosion

Ystad is a municipality in Scania, Southern-Sweden. Compared to the other parts of the 13,000 km long coastal line, the sandy part of the Scanian coast is most vulnerable to coastal erosion. Coastal protection in Sweden is considered as a component of spatial planning, and is the responsibility of the municipalities. Of all municipalities in Scania, the municipality of Ystad is the most experienced with erosion problems and with realising interventions to protect the coast. This municipality was the first to initiate a substantial beach nourishment to protect the sandy beaches and the coastal infrastructure. It was the first time that sand was extracted from the Swedish seafloor for coastal protection. The design of the nourishment program involves four rounds of nourishments in which in total a volume of $3{,}4 \times 10^5$ m^3 of sand would be distributed to the beaches.

A first round of exploratory interviews was conducted by ir. Zilin Wang in 2014. Because these interviews were semi-structured rather than open, their transcripts were not amenable to the application of the deductive method (as discussed in 3.3.2). Analysing the interview transcripts with the inductive method delivered four narratives that together portray two narrative competitions (chapter 6). The first pair of conflicting narratives represents an institutional conflict about the size and urgency of the erosion problems in Scania and about who needs to take (more) responsibility for the problem. The other pair of narratives portrays a conflict about the sand nourishment method, whether it is flexible and environmental friendly or whether it can harm the (marine) environment. The latter conflict played upon a fundamental value in Swedish society and policy, namely the 'precautionary principle' regarding the natural environment.

The competitions occurred between different administrative

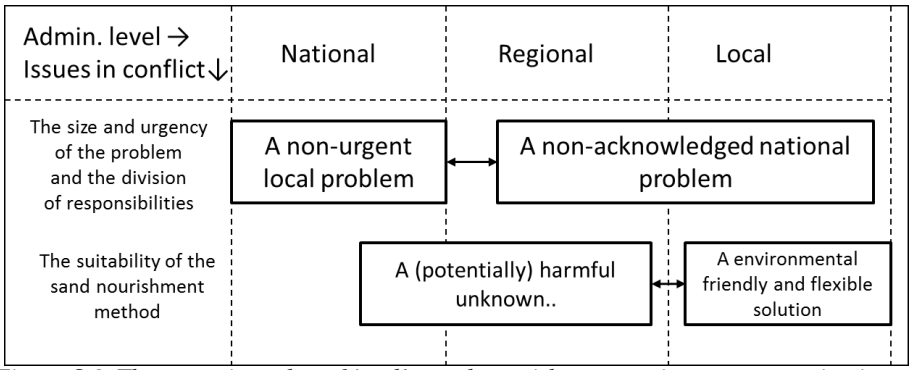


Figure S-3. The narratives about Ystad's sand nourishment project portray an institutional conflict and a conflict about the method (chapter 6).

levels, with the national level reluctant to take more responsibility and the local level requesting this. The regional governmental organisations, in particular the Country Administrative Board, were seriously concerned about the potential environmental dangers of sand extraction. Actors close to the municipality of Ystad were very active in trying to get both the problem and the method acknowledged.
After the realisation of Ystad's first two rounds of the beach nourishment project, the project functioned as exemplar for its supporters, who used it in 'performances of success'. The discussions about the importance of coastal protection, the responsibility issue and the suitability of the method, however, continue. In the case of Ystad, the winning narrative emerged simultaneously with a judgement in a long judicial process, providing a small policy window in which the municipality could realise the project. However, this doesn't mean that a winning narrative is endorsed within the whole actor-network.

A balanced narrative competition and deadlocks in Scania

The structure of the narrative competition, with the distribution of supporters and opponents in line with the administrative levels, contributed to an institutional impasse. The discussion about the suitability of the sand nourishment technique involves a knowledge-deadlock, because the opponents of the sand nourishments don't want to realise projects with unknown effects, while the advocates of the sand nourishments emphasise that new projects are necessary to increase the knowledge base. Because of the present deadlock, the next project involving sand nourishment is expected to run into a similar narrative competition. A comparable discussion – at project level – will be initiated, potentially leading only to a project window for a new nourishment project rather than an alteration in policy regarding sand nourishments and coastal protection.

Contributions of the narrative methods to the general understanding of pilot projects

The set of biographies distinguished with the deductive method present multiple actor-views on the realisation of a pilot project. The set of narratives distinguished with the inductive method can be seen as informal arguments (cf Kvernbekk, 2003) of actors involved in the narrative competition (chapter 5, 6 and 7.1). Using the two methods the start of narrative development (primarily from the deductive method), the narrative competition (primarily from the inductive method), the emergence of the 'winning narrative' (from both methods) and the 'use and confirmation' (from the inductive method) were elucidated.

Insights in the development of the narrative competitions in the actor-networks of pilot projects

The empirical studies indicate some strategies that can potentially contribute to the emergence of a winning narrative:
- Organised initiators can make use of positive narratives that strengthen each other by identifying, creating, aligning, performing and spreading positive narratives in different parts of the policy,

scientific and commercial communities.

Strategies that potentially contribute to a winning narrative

- The potential for resonance of the positive narratives within the actor-network increases when the narratives are embedded in the cultural values of the society.
- The ensuing collaboration can be eulogised for aligning, performing and spreading the narratives.
- Efforts to acknowledge and not ignore the negative narratives, and at the same time emphasise the positive narratives can be helpful.

Composition and receptivity of actor-networks

As explained above, the success experiences and the extent of influence of these experiences, depend very much on the extent to which success stories are performed and performativity takes place (cf Van Assche et al., 2012). This is in turn influenced by the composition of, and receptivity within, the actor-networks.

Pilot projects storify actor-based learning

The biographies and narratives in this thesis summarise different, yet coherent, ways in which the people involved have experienced the realisation of the pilot projects. This thesis reveals that pilot projects function not only as instruments for learning about the biophysical system, but also as instruments where actor-based learning is storified and success is claimed and institutionally anchored.

Samenvatting

Narratieve perspectieven op de ontwikkeling van pilotprojecten

Pilotprojecten zijn populaire instrumenten om vernieuwingen in beleid te initiëren en realiseren (Martin en Sanderson, 1999, Sanderson, 2002, Vreugdenhil et al., 2009), maar de mate waarin ze daadwerkelijk bijdragen aan nieuw beleid staat echter regelmatig ter discussie (Shipman en Stojanovic, 2007, Vreugdenhil et al., 2009). Pilotprojecten worden ontwikkeld in interactie met hun actor-netwerk (Van Buuren en Loorbach, 2009, Ettelt et al., 2014, Van Buuren et al., ter revisie, Vreugdenhil et al., 2009). Dit zorgt ervoor dat het fenomeen pilotproject complex is. Vreugdenhil (2010) adviseert dan ook om deze actordynamiek verder te onderzoeken, om zo de complexiteit en effecten van pilotprojecten verder te doorgronden.

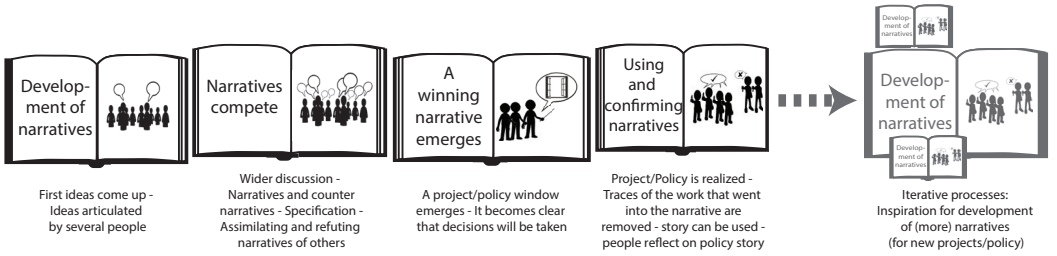
Doel van het onderzoek

In deze dissertatie wil *ik het inzicht in de ontwikkeling van pilotprojecten en hun effecten in hun actor-netwerken verbeteren.*

In lijn met de ambitie om de pilotprojecten in hun actornetwerken te bestuderen, gebruik ik in deze dissertatie een actorbenadering met een narratief perspectief. Hierin wordt het concept 'verhalen' op drie manieren toegepast.

Verhalen in beleidsprocessen

De eerste manier komt voort uit de diverse functies die verhalen hebben in beleidsvorming, zoals onder andere naar voren komt in onderzoek van Van Hulst (2012), Throgmorton (1996), Sandercock (2003), Fischer (2003), Stone (2002), Van Dijk (2011) en Bulkens et al. (2014). Verhalen zijn uniek, onder andere omdat zij kunnen worden aangepast telkens wanneer ze verteld worden, omdat zij een alternatieve manier van argumentatie (gebaseerd op moraal, gevoel en esthetiek) toevoegen aan besluitvorming, en hun overtuigingskracht. Deze overtuigingskracht wordt onder meer ingegeven door hun presentatie als een 'gegeven waarheid' die toehoorders "uitnodigt om het geheel te geloven" (cf Kvernbekk, 2003). Literatuuronderzoek over verhalen, pilotprojecten en beleidsprocessen vormt de theoretische basis van deze dissertatie. De theoretische bevindingen zijn geïntegreerd tot een 'narratief model van de ontwikkeling van pilotprojecten', dat de ontwikkeling van pilotprojecten conceptualiseert als een dynamische, narratieve competitie in hun actor-netwerken (hoofdstuk 2). Verhalen worden vaak collectief gevormd (Wagenaar, 2011, Zilber, 2009) en vertolken bijvoorbeeld ideeën en gedachten ('discursieve materialen' cf Van Assche et al., 2014). De verhalen die worden gevormd in het actor-netwerk rondom een pilotproject reflecteren dan ook de gedachten en overtuigingen die binnen het actor-netwerk leven en de waarden die aan het project wordt toegekend. Het 'narratief model van de ontwikkeling van pilotprojecten' functioneert als lens voor het empirische gedeelte van deze dissertatie.



Figuur S-1. Een narratief model van de ontwikkeling van pilotprojecten (hoofdstuk 2).

Verhalen voor het betekenis geven aan ervaringen

De tweede manier waarop verhalen in deze dissertatie terugkomen is gerelateerd aan hoe actoren betekenis geven aan hun ervaringen. 'Narrativiseren' of verhalen creëren is een unieke manier waarop mensen betekenis kunnen geven aan hun ervaringen (Bruner, 1991, Gee, 1985, Polkinghorne, 1988). Zulke cognitieve processen bestaan "uit pogingen om nieuwe gebeurtenissen in een plot te integreren, zodat deze begrijpelijk worden in de context van wat eerder is gebeurd" (Czarniawska, 1998, p.5 cf Weick, 1995). Omdat deze cognitieve processen plaatsvinden in de hoofden van mensen, moeten we de ervaringen van actoren op een indirecte manier bestuderen. Dit kan door te luisteren naar verhalen die actoren vertellen over hun ervaringen. In deze dissertatie worden daarom interviewgesprekken gebruikt als primaire informatiebron (hoofdstuk 3).

Narratieve methoden om interviews te analyseren

De derde manier waarop verhalen in deze dissertatie gebruikt worden, houdt verband met de analyse van deze interviewgesprekken. In de sociale wetenschappen is hiervoor een continuüm aan methoden beschikbaar (Landman, 2012, zie ook het overzicht in 3.2, Riessman, 2008). De narratieve methoden sluiten aan bij de keuze om ervaringen van actoren centraal te stellen.

Toepassingsveld: pilotprojecten in kustmanagement

Kust-management: een beleidsveld met uitdagingen

Kustmanagement is een veelzijdig beleidsveld dat diverse uitdagingen kent. Aan de ene kant staan kustgebieden onder invloed van klimaatverandering. Dit leidt tot meer overstromingen, meer erosie en verzilting (Nicholls en Cazenave, 2010 gebaseerd op Nicholls en Wong, 2007). Aan de andere kant zijn kustgebieden vaak dichtbevolkt (Small en Nicholls, 2003) en staan ze onder druk van verschillende ruimteclaims (zoals eisen aan een woon- en leef omgeving, ruimte voor natuur en ruimte voor recreatie). Dit maakt kustgebieden vaak 'betwiste gebieden' (cf Boissevain en Selwyn, 2004).

Ook in kustmanagement worden pilotprojecten regelmatig toegepast. De wenselijkheid van deze trend wordt bediscussieerd, bijvoorbeeld door Shipman en Stojanovic (2007) die redeneren dat een te grote rol voor pilotprojecten kan leiden tot problemen met het realiseren van de lange termijn doelen.

De combinatie van alle uitdagingen voor het beleidsveld, de frequente toepassing én bekritisering van pilotprojecten, maakt het

leren over pilotprojecten juist in kustmanagement erg relevant.

Twee narratieve methoden, twee pilotprojecten in kustmanagement

In deze dissertatie worden twee narratieve methoden (hoofdstuk 3) toegepast om onder meer interviewgesprekken binnen twee casussen (preludes A en B) te analyseren. De twee analysemethoden betreffen één meer deductieve methode en één meer inductieve methode.

Een deductieve narratieve methode om interviews te analyseren

Bij toepassing van de deductieve methode worden interviewtranscripten geanalyseerd met behulp van een van te voren vastgesteld coderingsschema, gebaseerd op narratieve eigenschappen, zoals: oriëntatie, tijdspanne, gebeurtenissen en probleem-oplossingsstructuren. In de Zandmotorcasus (Nederland) zijn hiermee drie biografieën te onderscheiden die verschillende actorpercepties op de realisatie van het project lieten zien. Deze biografieën zijn gevalideerd met behulp van een kleine enquête in de kustonderzoeks- en kustmanagementgemeenschap (n=44), waarin respondenten de mate van herkenning van en affiniteit met de biografieën aangaven.

Een inductieve narratieve methode om interviews te analyseren

De inductieve methode bestaat uit een inductieve analyse van de interviewtranscripten waarbij pilotproject-verhalen voortkomen uit het contrasteren en structureren van narratieve elementen in de transcripten. Deze pilotproject-verhalen zijn gepresenteerd aan een nieuwe groep van geïnterviewde actoren die reflecteerden a) op de mate waarop ze de verhalen herkenden, b) op de rol van de geïdentificeerde verhalen en c) op de manier waarop de verhalen zich ontwikkelden na de realisatie van het pilotproject. Deze inductieve methode is toegepast op zowel de Zandmotorcasus(Nederland) als op het Ystad's zandsuppletieproject in Scania, Zweden.

Inzichten in het Zandmotor pilotproject

Een artificieel schiereiland voor kustveiligheid, natuur en recreatie

Het Zandmotor pilotproject omvat een mega-zandsuppletie die is opgespoten aan de Zuid-Hollandse kust. Het is gepresenteerd als innovatieve manier van kustverdediging en als een 'heraut' van nieuw kustbeleid. Het kunstmatige, haakvormige schiereiland is aangelegd om zowel de kustveiligheid te vergroten als om ruimte voor natuur en recreatie te creëren. Het schiereiland bestond bij aanleg in 2011 uit 21.5 miljoen m^3 zand. Golven en wind laten het schiereiland langzaam eroderen en verspreiden het zand langs de Zuid-Hollandse kust, die hiermee op een relatief natuurlijke wijze zand aangeleverd krijgt dat de stranden en duinen versterkt. Doordat de natuurlijke dynamiek gebruikt wordt om meerdere doelen te realiseren, wordt het project gezien als een voorbeeldproject voor Bouwen met de Natuur, een ontwerpfilosofie die grotendeels haar oorsprong heeft in het Nederlandse kustmanagement (Van Slobbe et al., 2013, Gesing, 2016, Waterman, 2008). (De achtergrond van het Zandmotor project is beschreven in Prelude A).

De toepassing van de deductieve methode (3.4) op de Zandmotorcasus (hoofdstuk 4) bracht drie verschillende biografieën aan het licht die verschillende actorpercepties op de realisatie van het project inzichtelijk maken en bijdragen aan het begrijpen van de

Meerdere percepties op de ontwikkeling van de Zandmotor

succeservaringen van menig betrokkene:
- De meeste actoren die de Zandmotor als 'een onbekend cadeau van hogerhand' beschouwden, keken tevreden terug op de realisatie. Voor hen bracht het onbekende cadeau mogelijkheden voor de regio.
- De meeste initiatiefnemers beschouwen de Zandmotor als 'een iconische start' (van nieuw kustbeleid). De vele varianten van deze biografie laten zien dat het Zandmotor project zoveel ingrediënten bevat dat er voor iedereen iets te halen valt: iedereen kan hiermee een eigen iconisch verhaal samenstellen. Die verhalen overlappen voldoende, want er zijn genoeg gezamenlijke ingrediënten: het belang van kustveiligheid, bijvoorbeeld, is onbetwist in Nederland en komt dus in elk variant terug.
- Waar de initiatiefnemers en andere actoren die nauw bij de realisatie van het project betrokken waren geneigd zijn om enthousiast over hun ervaringen te vertellen en daarmee bijdragen aan de 'iconische aard' van het project, is er ook een meer genuanceerde biografie dat de Zandmotor als 'een stapje in het zich altijd ontwikkelende kustbeleid' beschouwt. Deze biografie werd in de validatie-enquête op de kustconferentie breder ondersteund dan de Zandmotor als 'iconische start'. De genuanceerdere biografie sluit aan bij de theorieën over "gevestigde technologische paradigma's" (Kuusi and Meyer, 2002). Vanuit deze theoretische benadering kan de Zandmotor beschouwd worden als een "gerealiseerd doel" binnen een al bestaand technologisch paradigma. Het gebruikt geen innovatieve technieken (die zijn immers al eerder toegepast), maar inspireert wel verdere ontwikkelingen binnen het technologisch paradigma.

Resonantie van verhaalelementen binnen het actor-netwerk

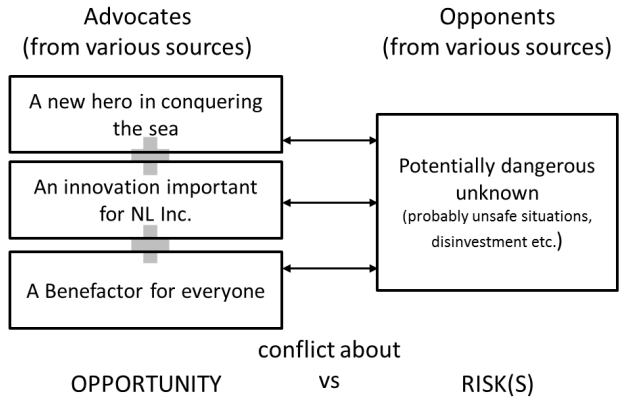
Het multifunctionele karakter van de Zandmotor maakte het mogelijk voor actoren om diverse verhaalelementen te selecteren en deze te verweven tot een 'eigen' biografie (ontstaansgeschiedenis) van de Zandmotor. Verschillende positieve verhaalelementen zijn teruggevonden in diverse interviewtranscripten. Dit laat de resonantie van positieve verhaalelementen binnen de kustgemeenschap zien (in lijn met Van der Stoep, 2014, Benford en Snow, 2000).

Een onevenwichtige narratieve competitie

De toepassing van de inductieve narratieve methode (3.5) op de Zandmotor casus (hoofdstuk 5) leverde vier verhalen die samen een narratieve competitie vormen. Er werden drie positieve verhalen geïdentificeerd, welke elkaar versterken: 'Een nieuw type held in de strijd tegen het water', 'Een belangrijke innovatie voor de BV Nederland' en 'Ruimte scheppen voor iedereen'. Er waren ook verschillende varianten op een verhaal dat de risico's van het pilotproject benadrukte: 'De (potentieel) gevaarlijke onbekende'. Dit verhaal is actief gemanaged door het projectteam en verloor invloed toen na de realisatie van de Zandmotor serieuze incidenten uitbleven.

De positieve verhalen zijn gepresenteerd op meerdere podia. Deze presentaties functioneerden als 'voordrachten van succes'

('performances of success' cf Van Assche et al, 2012). Na de realisatie werken een groep van wetenschappers en een kunstenaarscollectief respectievelijk aan twee additionele verhalen, respectievelijk 'De Zandmotor voor kennisontwikkeling' en 'De Zandmotor als cultureel fenomeen'. Tijdens de observaties van Zandmotor-gerelateerde bijeenkomsten werden succesverhalen over de Zandmotor in presentaties en discussies waargenomen.



Figuur S-2. Tijdens de ontwikkeling van de Zandmotor hebben de positieve verhalen de 'Potentieel gevaarlijke onbekende' weggeconcurreerd in de narratieve competitie (hoofdstuk 5).

Aanvullend op deze 'voordrachten van succes', vond ook 'performativiteit' ('performativity' cf Van Assche et al., 2012) plaats. 'Performativiteit' is gaande wanneer "dingen geaccepteerd worden als gevolg van al bestaande discoursen als waar en echt" (p.569 cf Butler, 1997, MacKenzie et al., 2007) in een gemeenschap. De combinatie van 'voordrachten van succes' en 'performativiteit' verklaart het ervaren succes van het Zandmotor project binnen de Nederlandse kustgemeenschap en breder in de Nederlandse maatschappij. 'Performativiteit' van succes betekent dat de succeservaringen van in dit geval het Zandmotor project versterkt worden door de onderliggende discourses binnen de Nederlandse kustgemeenschap. Deze onderliggende discoursen - met daarin onder andere het idee van Nederland als waterbouwland bij uitstek - maken de gemeenschap relatief ontvankelijk voor succeservaringen en enthousiast om succesverhalen te verspreiden.

Het Zandmotor concept heeft zich zo tot een geaccepteerd en belangrijk model ontwikkeld (cf Molle, 2008), met de gerealiseerde Zandmotor als paradepaartje dat "regelmatig wordt geshowd aan functionarissen en buitenlandse gasten". In de tussentijd zijn er allerlei instituties tot stand gebracht die "de boodschap uitdragen en deze verder ontwikkelen". Het is dus geen toeval dat de positieve verhalen zo'n vlucht hebben kunnen nemen in de Nederlandse context. Dit heeft de invloed van het pilotproject naar een hoger niveau (het beleidsniveau) gebracht.

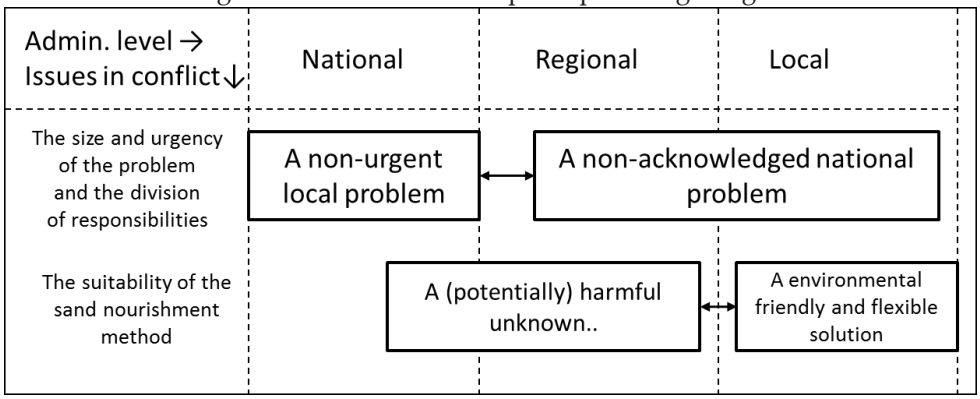
Inzichten in het Ystad's zandsuppletie project

Een zandsuppletie om erosie tegen te gaan

Ystad is een gemeente in Scania, Zuid-Zweden. Vergeleken met de andere delen van de 13.000 km lange Zweedse kustlijn is de zandige kust van Scania het meest kwetsbaar voor kusterosie. Kustbescherming wordt in Zweden als onderdeel van de ruimtelijke planning gezien, waarvoor de gemeenten verantwoordelijk zijn.

Van alle gemeenten in Scania heeft de gemeente Ystad de meeste ervaring met zowel kusterosie als met het realiseren van interventies om de kust te beschermen. Zij is ook de eerste gemeente die een substantiële zandsuppletie initieerde om de gemeenschappelijke stranden en achterliggende infrastructuur te beschermen. Uitvoering van dit project betekende dat er voor het eerst zand gewonnen zou worden van de Zweedse zeebodem ten behoeve van kustbescherming. Het ontwerp van het programma bevat vier suppletieronden waarin in totaal 340.000 m^3 zand gedistribueerd wordt naar de stranden. (De achtergrond van het suppletieproject is beschreven in Prelude B).

Een eerste ronde van exploratieve interviews werd uitgevoerd door ir. Zilin Wang. Omdat het semigestructureerde en geen open interviews waren, waren ze niet geschikt om te analyseren met de deductieve methode (3.3.2). Een inductieve analyse van de transcripten leverde vier verhalen op die samen twee conflicten portretteren (hoofdstuk 6). Het eerste paar conflicterende verhalen representeert een institutioneel conflict over de schaal en de urgentie van de erosieproblemen en over wie hiervoor (meer) verantwoordelijkheid zou moeten nemen. Het andere paar verhalen geeft een conflict over zandsuppletie als methode weer. Is zand suppleren nu een flexibele en natuurvriendelijke methode of schaadt het de (mariene) natuur? Dit conflict draait om één van de fundamentele waarden in de Zweedse samenleving en politiek zien: het 'voorzorgprincipe' wat betreft de natuurlijke omgeving - geen dingen doen waarvan de impact op de omgeving onbekend is.



Figuur S-3. De verhalen over Ystad's zandsuppletieproject portretteren een institutioneel conflict en een conflict over de suppletiemethode (hoofdstuk 6).

De beide conflicten vinden plaats tussen de verschillende administratieve niveaus, waarbij de nationale overheid onwillig is om meer verantwoordelijkheid te nemen, terwijl de lokale actoren daar dringend om vragen. De mensen met de meeste zorgen over het potentiële gevaar van de suppletiemethoden werken op het regionale niveau, voornamelijk voor de 'Country Administrative Board' van Scania. Actoren die dicht bij de gemeente Ystad staan hebben verschillende activiteiten ondernomen om het erosieprobleem en de suppletiemethode erkend te krijgen.

Nu de uitvoering van eerste twee ronden van Ystad's strandsuppleties zonder problemen is verlopen, functioneert het project als model (voorbeeld) voor haar supporters die dit kunnen gebruiken in hun 'voordrachten van succes'. De discussies over het belang van kustbescherming, de bijbehorende verantwoordelijkheid en de geschiktheid van zandsuppletie gaan echter nog steeds door. In deze casus heeft 'de flexibele en natuurvriendelijke oplossing' gewonnen na een lang juridisch proces (van vergunningverlening) waarna er slechts een kleine 'window' was waarin de gemeente haar project kon realiseren. Eén uitgevoerd project betekent echter niet dat 'het winnende verhaal' gesteund wordt in het hele actor-netwerk.

Een evenwichtige narratieve competitie en impasses in Scania

De structuur van de narratieve competitie, met de spreiding van de supporters en tegenstanders in lijn met de administratieve niveaus, draagt bij aan een impasse in het institutionele conflict. Ook de discussie over de geschiktheid van suppletietechnieken bevindt zich in een impasse. Tegenstanders van de methode willen geen nieuwe projecten realiseren als onduidelijk is wat de effecten zijn, terwijl de voorstanders benadrukken dat juist nieuwe projecten de benodigde kennisbasis kunnen vergroten. Vanwege de huidige impasses in de Zweedse erosie en suppletie discussie zal de narratieve competitie rondom een volgend suppletieproject waarschijnlijk een zelfde structuur hebben en op hetzelfde projectniveau gevoerd worden, wellicht leidend tot een nieuw project 'window' voor de realisatie van een nieuw suppletieproject, maar niet tot beleidsveranderingen op het gebied van zandsuppleties en kustverdediging.

Bijdragen van de methoden aan het inzicht in de ontwikkeling van pilotprojecten

Inzicht in de ontwikkeling van de narratieve competities in de actor-netwerken van pilotprojecten

De biografieën onderscheiden met de deductieve methode laten meerdere percepties van betrokkenen op de realisatie van een pilot project zien. De set van verhalen onderscheiden met de inductieve methode kunnen worden gezien als informele argumenten (cf Kvernbekk, 2003) van de betrokkenen in de narratieve competitie. De twee methoden samen brengen de start van de verhalenontwikkeling (met name de resultaten van deductieve methode), de narratieve competitie (met name de resultaten de inductieve methode), de ontwikkeling van een winnend verhaal (ook met name de resultaten van inductieve methode) en het gebruik en de bevestiging van de verhalen (resultaten van beide methoden) in beeld.

Strategieën die mogelijk bijdragen aan een winnend verhaal

De empirische studies laten verschillende strategieën zien die kunnen bijdragen bij de ontwikkeling van een winnend verhaal:

- Goed georganiseerde initiatiefnemers kunnen gebruik maken van positieve verhalen die elkaar versterken. Zij dienen dan die positieve verhalen te signaleren, creëren, presenteren en verspreiden in verschillende delen van het actornetwerk (in het beleidsveld, de wetenschap en onder commerciële partijen).
- De kans op het resoneren van de positieve verhalen in het actor-netwerk (en verder) is groter als de verhalen aansluiten op

onderliggende, culturele en maatschappelijke waarden.
- De samenwerkingen die tijdens de ontwikkeling van het project tussen de verschillende partijen ontstaan, kunnen worden benut door de positieve verhalen samen te signaleren, te creëren, te presenteren en te verspreiden.
- Inspanningen om ontvankelijk te zijn voor de negatieve verhalen - door deze niet te negeren - en tegelijkertijd de positieve verhalen uit te dragen, kunnen werken. Daar is echter doorzettingsvermogen voor nodig.

Samenstelling en ontvankelijkheid van actor-netwerken

Zoals hierboven uitgelegd, hangen de succeservaringen van een pilotproject en de reikwijdte van de succesverhalen sterk af van de mate waarin succesverhalen worden uitgedragen en of performativiteit plaatsvindt (cf Van Assche et al., 2012). Dit laatste is op haar beurt weer sterk afhankelijk van de samenstelling en ontvankelijkheid van de actornetwerken (zoals de betrokkenen bij een pilotproject).

Pilotprojecten leggen denk- en leerpocessen vast in verhalen

De biografieën en verhalen in dit onderzoek maken inzichtelijk op welke verschillende, maar coherente manieren actoren de ontwikkeling van pilotprojecten ervaren. Deze dissertatie laat zien dat pilotprojecten niet alleen een middel zijn om de fysieke (kust)omgeving te bestuderen, maar ook een middel om het denk- en leerproces van betrokkenen in verhalen vast te leggen en om mogelijk succes te claimen en institutioneel te verankeren.

1.
Introduction – the need for a better understanding of (coastal) pilot projects

The problems and challenges mentioned in the preface – climate change, further growth of the world's population, and depletion of natural resources – make us aware that innovative solutions and policy change will be necessary in many policy sectors and at many places in the world to address them. Realising innovative solutions and policy change, however, is often a grand challenge in itself, not least because at national and supranational level, decision-making processes take place in a governance context that has become increasing intricate and complex (cf Sabatier, 2007).

Pilot projects are popular as a means of exploring and perhaps realising innovative solutions. Although pilot projects themselves need to deal with decision-making processes in complex governance contexts, they are relatively demarcated entities, making them concrete, tangible and thereby, at first sight, an attractive, relatively manageable tool to work on innovation in policy. Vreugdenhil (et al., 2009; 2010; et al., 2010) examines and analyses the nature of pilot projects, emphasising their ambiguity. In addition, the long-term effects of pilot projects are often criticised (Shipman and Stojanovic, 2007, Tobey and Volk, 2002). So, while pilot projects are considered a useful tool to facilitate the innovation needed to address world challenges, the pilot projects and their impacts are not undisputed and are insufficiently understood. The phenomenon of pilot projects is therefore central to this thesis.

This introductory chapter identifies the need for a better understanding of coastal pilot projects in particular (1.1). It also presents the state of understanding of pilot projects (1.2), explains what we wish to understand better, formulates the research objective (1.3) and motivates the approach to the research (1.4). The chapter culminates with the research questions (1.5) and a reading guide to the thesis (1.6).

1.1 Need for coastal policy change and expectations about pilot projects in coastal management

Many coastal zones in the world are under pressure. On the one hand, they are influenced by climate change, which leads to

increased flooding, erosion and salt water intrusion into surface and groundwater (Nicholls and Cazenave, 2010 based on Nicholls and Wong, 2007). On the other hand, coastal zones are often densely populated (Small and Nicholls, 2003, Lane, 2006) and are subjected to conflicting demands, because of rival spatial claims for an attractive living environment, space for nature and space for recreational activities, for instance. These claims make coastal zones contested spaces, as discussed by Tobey and Volk (2002), Boissevain and Selwyn (2004) and Lane (2006). An illustration of this type of spatial pressure is the recurring political debate in the Netherlands about building regulations in the coastal zone*. People enjoy the coast, so there is a demand for housing in the dune area. However, the dune area is ecologically important and also functions as a flood defence barrier. Housing can have an impact on these functions.

Coastal zones as contested spaces

The complexity of the demands in the coastal zone is expected to increase in the future, as the impacts of climate change increase and the world population grows further. Consequently, many countries with coastal zones feel the need to adapt their coastal policy. How can they protect their citizens against flooding while taking other interests into account?

Challenges for coastal management

These questions and challenges within coastal management need to be addressed in complex governance settings, as exemplified in the case studies of Lane (2006, about Solomon Islands), Caffyn and Jobbins (2003, about Morocco and Tunisia) and Prati et al. (2016, about Italy). Although coastal management sometimes focuses on a single issue, such as the control of erosion (Ehler, 2003), more often multiple objectives and uses need to be managed, necessitating coordination and cooperation between government agencies and other organisations (Tobey and Volk, 2002, Lane, 2006, Ehler, 2003). With the growing understanding of these multiple needs, the concept of 'integrated coastal (zone) management' (ICM/ICZM) has been recognised globally - in particular since the 1992 United Nations Conference on Environment and Development in Rio de Janeiro. Here ICM was established as the most important concept for sustainable coastal development (Tobey and Volk, 2002).

Integrated coastal management (ICM)

As described in the seminal work of Olsen et al. (1998), ICM has a cyclic nature and embodies a learning-based approach to policy development and resource management. The explicit acknowledgement of learning underpins the adaptive management approach central to ICM (Olsen and Christie, 2000) in which progress towards effective and sustainable coastal management and development is viewed as incremental, involving analysis and learning from experience over several decades. Learning from pilot projects coheres with this view. Stojanovic et al. (2004) consider adaptability to include the deliberate design of 'lesson drawing' activities within the coastal management process with pilot projects forming the most obvious example of such activities. In this view,

ICM: learning based approach

* See for example: Schreuder (2016), "Schultz draait na verzet tegen kustbebouwing" [in English: Minister Schultz changes her mind after resistance against developing coastal housing] in NRC Handelsblad, 22nd of January 2016.

pilot projects are particularly relevant where information can be gained about physical changes to the coast before the piloted scheme is implemented more widely. Taljaard et al. (2011) concur that pilot projects fall within the ICM policy implementation phase, but view the 'lesson drawing' activities as covering more than only the physical aspects. Within an established and operational ICM programme, pilot projects are used as instruments in building the science and information base leading to adaptation of the ICM approach. This means that they can form an integral element of the 5th phase of an ICM programme as identified by Cicin-Sain and Knecht (1998) namely the Implement, Operate and Evaluate phase. Indeed, pilot projects form a unique way of coupling across the dual adaptive cycles identified by Taljaard et al. (2013) to enable learning from innovations in both the resource management (first cycle) and actor components (second cycle) of an ICM implementation programme.

'Match' with pilot projects

So, pilot projects serve an instrument for learning, facilitating innovation and inducing change and are embedded in the practice of integrated coastal management. Their popularity in coastal management is indicated by the emphasis that the European Commission put on 'pilots' and 'demonstrations' (Shipman and Stojanovic, 2007). However, Shipman and Stojanovic also warn that such a project-based approach may fail to realise long-term objectives. The challenges, the complex governance setting and the position of pilot projects, makes coastal management a thought-provoking policy field in which it is worthwhile to improve the understanding of pilot projects and their effects.

Pilot projects criticised

1.2 What do we understand about the phenomenon of pilot projects?

Definition of pilot projects

Vreugdenhil (2010) defines pilot projects as "projects in which innovative approaches or technologies are applied in a small-scale field setting to gain broad insight in the functioning of the innovation in praxis. Knowledge may be diffused into policy-making and management". Most other research on pilot projects are evaluations of pilot projects or groups of pilot projects (for instance Moss and Fichter, 2003) or discusses aspects of evaluation (Sanderson, 2002, Martin and Sanderson, 1999, Stojanovic et al., 2004). This thesis is not dedicated to the evaluation of specific pilot projects nor to evaluating pilot projects in general, but (in succession to Vreugdehil, 2010) to deepening the understanding of the phenomenon of pilot projects.

Multiple purposes

There is an enormous variety in types and uses of pilot projects. Whereas Huitema et al. (2009) identified two broad categories namely the 'research pilot' and the 'management pilot', Vreugdenhil et al. (2010) added the 'political-entrepreneurial pilot' as a third major type. In addition, Vreugdenhil categorised the three major types of pilot projects further into nine different uses (Table 1-1). A single pilot project can serve more than one use. Ettelt et al. (2014), studying pilot projects in British social and

Table 1-1. Pilot project uses according Vreugdenhil et al. (2010, p.11).

Type of pilot	Pilot project use	Description
Research pilot project	1. Exploration	Innovation testing and refining, getting experience
	2. Evaluation	Early policy evaluation
Management pilot project	3. Communication	Triggering dialogue, setting up non-existing cooperation
	4. Problem mitigation	Resolve practical problems for which tools are lacking
	5. Policy implementation	Policy enforcement, creating favourable conditions for implementation
	6. Insurance	Allows for personal failure, small impact, prevent large policy flaws, dealing with uncertainties
Political-Entrepreneurial pilot project	7. Incentive	Creating favourable conditions for society to innovate
	8. Political game	Hidden intentions, e.g. delaying policy decisions, shifting attention, commercial interests in pilot itself.
	9. Advocacy tool	Convincing, demonstrating, accumulating evidence, lobby for its use after the pilot

healthcare policy, indicate that multiple purposes can be served in pilot projects, both simultaneously and sequentially. In addition, van der Heijden (2015) categorised possible objectives or outcomes as: (a) drawing meaningful lessons for policy design, (b) starting meaningful collaboration, and (c) realising direct-policy outcomes. The latter one coheres with what Ettelt et al. term "piloting for early implementation" and what Vreugdenhil et al. rank among the Management Pilot project (5 in Table 1-1).This and other categorisations show that the innovative aspect is not always the most important aspect. Sometimes pilot projects are initiated to 'get things done'.

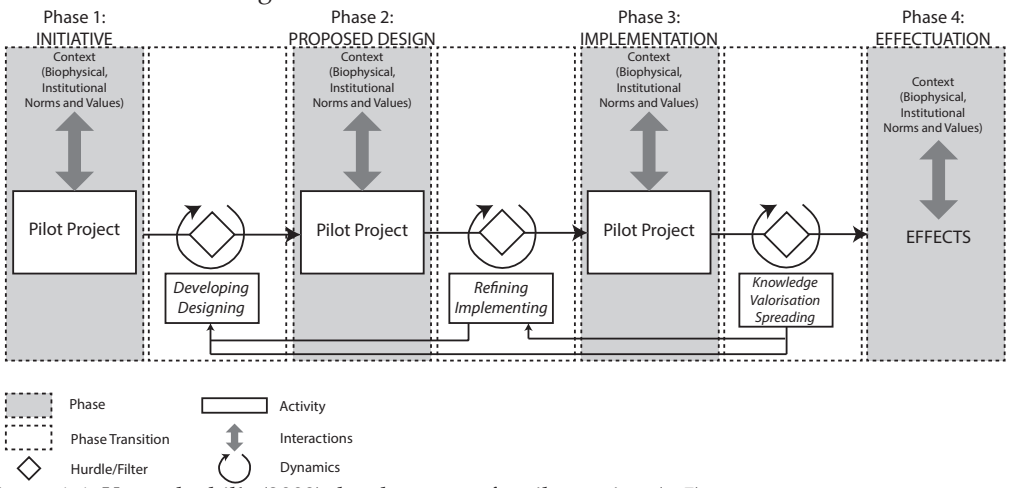


Figure 1-1. Vreugdenhil's (2009) development of a pilot project (p.5).

Development of pilot projects

Vreugdenhil et al. (2009) consider the development of pilot projects as processes in which the pilot projects themselves and their context can change. They developed a conceptual model (Figure 1-1) to describe this process.

The first step in this model begins when the initiative is taken to start a pilot project (phase 1). Initiators and potential collaborators form an actor-network around this initiative.

Within this network, the idea is developed further; objectives are discussed and set and the first designs are made (phase 2). Initiators also need to position the pilot in the policy and institutional context, and convince people, undertaking activities to show that the idea could realise its objective(s) (e.g. by modelling). Van Buuren and Loorbach (2009) describe this as a 'continuous swing' of the actors, from inwards (the pilot project team) back outwards, to their own base, to ensure that the idea can count on support in the outside world. The (changing) multiple purposes of a pilot project are formed in social interactions that take place within the actor-network (Ettelt et al., 2014). In these social interactions, goal displacement can take place, a mechanism that contributes to the policy paradox as described by Van Buuren et al. (under review). Goal displacement happens when the actors involved in the pilot project view the pilot project as a goal in itself. They then focus on making the pilot project itself successful and overlook connecting the pilot with its wider environment. A concrete outcome of the content and actor-related processes in this second phase is the proposed design of the project, containing both process and content elements.

Dynamics in the actor network

Moving towards implementation, the goals, designs and the actor network can still change. Actors from the region, more experts and organisations involved in implementation may join the actor network. When all decisions on budget or permits, for instance, turn out to be positive, the actual intervention in the biophysical environment can be realised (phase 3).

Effects of pilot projects

This leads to several effects (phase 4) that Vreugdenhil (et al., 2009, 2010) categorise in three types:

1) the systems' response (both the biophysical system and the actor-network);
2) the knowledge development (knowledge creation and learning) and;
3) processes of diffusion (of the artefacts themselves, the hard knowledge or soft knowledge).

More dynamics in the actor-network

Vreugdenhil (2010, p.41) remarks that whereas the biophysical system will respond to the actual intervention, the actor-network is already responding to processes that precede the realisation of the pilot project. Vreugdenhil describes the (potential) responses within the actor-network as follows:

"Due to the initiation and development of the pilot, the actor-network is activated (e.g. actors start cooperating), triggered by expectations (van Lente, 1993), or altered, whereby new forms of cooperation emerge. Ongoing development of the pilot (e.g. the implementation) might also attract new actors and make others decide to leave the network. The network

also creates its own dynamics whereby actors respond to earlier changes in the actor-network. Actors learn from and about each other and the system. As a result, problem perceptions, interests, resource structures and relationships might change." (p. 41/42).

Sanderson (2002) highlights the potential differences between the actor-network around a pilot project and the network around a standard project. First, there may be a greater commitment and pioneering spirit among the actors involved in a pilot project. Secondly, there may be a strong political commitment by parties who are interested in 'making the pilot work'. These aspects make pilot projects unique, but this uniqueness has as a consequence that a successful pilot project does not necessarily lead to successful standard projects. For instance a pilot project can receive generous resourcing that is not necessarily available to follow-up projects.

Unique aspects in actor-network of pilot projects

The insights on pilot projects as presented above reveal that many processes are active in the actor-network of pilot projects. Knowledge development (e.g. Janssen et al., 2015) and diffusion processes take place in and across actor-networks both during the development and the effectuation phases.

Many processes in the actor-network

1.3 Deepening the understanding of pilot projects: development and effects within the actor network

The previous section has hinted at the importance of understanding the dynamics within the actor-network for understanding the development of pilot projects.

The importance of actors and the actor-network in decision-making processes is broadly acknowledged. For instance, Klijn and Koppenjan (2000) explain "that policy is made in complex interaction processes between a large number of actors which takes place within networks of interdependent actors." Understanding the different actors, their perceptions and their cooperation – or lack of cooperation – is necessary to understand policy processes. Analytical reflections on the actors that play a role in these processes therefore are beneficial for both policy analysts and practitioners (Hermans and Thissen, 2009).

Importance of actor-network broadly acknowledged

The complexity of pilot projects is due in part to their development in interaction with their actor-networks. A focus on actors and the actor-network is, therefore, necessary in understanding coastal pilot projects. This coheres with Vreugdenhil's recommendation (2010) to study the project dynamics in depth Accordingly, we adopt a focus on actors within their actor-network, seeking to deepen insights in the phenomenon of pilot projects so as to contribute to innovative and future-proof coastal management. Therefore, the general objective of this research is:

Research objective

To deepen the understanding of the development of (coastal) pilot projects and their effects within their actor-networks.

This objective encompasses two different levels. The development

of the pilot projects themselves takes place at the 'project level'. However, as explained earlier, pilot projects are expected to contribute to knowledge development and several aspects of pilot projects (the artefacts themselves, hard and soft knowledge) can be diffused (cf Vreugdenhil, 2010). So, the expectation about pilot projects is that their effects are not limited to the project-level, but that they also exert influence at a supra-project level – referred to as the 'policy level' in this thesis.

Project and policy level

The objective also involves the concept of 'actor-networks'. Within decision-making-theory, De Bruijn and Ten Heuvelhof (2008) define an actor-network as "a number of actors with different goals and interests and different resources, who depend on each other for the realisation of their goals". The decision-making in actor-networks is often an irregular process without a clear sequence of activities, involving decision-making rounds rather than clearly defined phases and taking place across several arenas (De Bruijn and Ten Heuvelhof, 2008). In an arena, issues are discussed by a subset of actors. The composition of the active actor-network, the actors that are participating in the decision-making at a certain moment, varies, because actors "join and withdraw and behave strategically". The different arenas and the 'joining and withdrawing of actors' contribute to the irregularity of decision-making processes.

Definition and characteristics of an actor-network

Pilot projects are phenomena that are strongly embedded in a (real-life) context. Case study research is, therefore, an appropriate method of empirical inquiry for investigating pilot projects (cf Yin, 2003). The coastal pilot projects that serve as cases in this thesis are the Sand Engine, a mega-nourishment project in the Netherlands, and Ystad's sand nourishment program in Scania, Sweden. The selection of these cases is discussed in chapter 3.

Case study approach

In line with the aim to study pilot projects within their actor-networks, the experiences of actors will function as the starting point for the research with the concept of narratives providing a lens to study these actor-experiences.

Actor experiences as starting point

1.4 The potential of narratives for studying the development of pilot projects and their effects

Narratives are carriers of meaning (Hajer, 1993) with a temporal, spatial and emotional order (Czarniawska, 1998). During policy processes, narratives are produced (Fischer, 2003, cf Czarniawska), consciously and unconsciously (Van Assche et al., 2014) by individuals (Polkinghorne, 1988) and within groups (Wagenaar, 2011). The prevalence of narratives and their many different purposes in policy processes (Van Assche et al., 2014) offer opportunities for studying these processes and thus for studying the development of pilot projects, in particular.

In line with the observation that "organisations do not innovate or implement change, individuals do" (McLaughlin, 1987, p.174), we aim to approach pilot projects and their actor-networks by focussing on the experiences of the people involved in the

development of pilot projects.

Narrative understanding of experiences

People often use their narrative understanding to organise their experiences into a structured whole (Bruner, 1991, Gee, 1985, Polkinghorne, 1988, Czarniawska, 1998). During this cognitive processes of sense-making, narratives in the memory of an individual can contribute to the interpretation of the situation, because these narratives provide frames linking objects and actors (Van Assche et al., 2014), and situations and events (Lo Cascio, 1999) in an understandable manner.

Although influenced by earlier experiences, the processes by which people make sense of their experiences take place at the individual level, making it difficult to study these sense-making processes in a direct-way. However, as explained by Polkinghorne (1988), "the individual stories and histories that emerge in the creation of human narratives are available for direct observation" (p.1). The individual stories that actors narrate about the development of pilot projects, therefore, have the potential to reveal how these actors involved experienced the development of a pilot project. Hence, the analytical entry point to the case studies within this thesis will be to learn from the experiences of the people involved, by listening to their personal narratives bout the development of pilot projects (see chapter 3).

Narratives as group products

Narratives, however, are not limited to individuals. They are also produced within social groups; the thoughts, beliefs, affects and passions they express and construct are usually not those of an individual, but are situated at the interface of the individual and their wider environment (Wagenaar, 2011). As we saw before, people involved in the development of a pilot project are not solitary individuals, but act together in a network of actors. The actor-network around coastal pilot projects can be described as a policy community. Indeed, this is a 'social' group in which thoughts and beliefs and even affects and passions are expressed and narrated. These narratives are carriers of shared understandings within the community.

Narratives in the coastal actor-network

Produced in social groups, narratives are thus cultural artefacts. In policy processes, however, they are often not only expressions; they can also act to frame policy issues. When this happens, narratives are also political artefacts (Bontje and Slinger, 2017) or political devices (Stone, 2002). This more normative and persuasive aspects of narratives, makes them a useful instrument for investigating the dynamics within the actor-networks around the development of a pilot project. Narratives for example are often used in problem definition (Stone, 2002, Hajer, 1993), providing great potential for understanding the (successful or unsuccessful) initiation of an idea for a pilot project. Planning and design processes that may follow the initiation can be seen as storytelling activities as well (Ivory, 2013). In addition, the success and failure of initiatives is constituted within the actor-networks and is often articulated in

the form of success and failure narratives (cf Van Assche et al., 2012, Beunen et al., 2013). So, it is expected that a narrative perspective can contribute to understanding the problem definition, planning and design phases, and the success and failure within pilot project processes (which together form important parts of pilot project development).

A narrative approach holds potential for deepening the understanding of the development of pilot projects and their effects in the actor-network in two different ways:
- From a methodological point of view: personal narratives of the people involved in pilot projects can be used as entry point for analysing how these actors have experienced the development of the projects.
- Narratives in the coastal communities represent shared understandings and can reveal how the pilot projects are embedded in the actor-network and how the embedding changes over time.

Expectations about narratives

We hypothesise, therefore, that analysing narratives within the coastal policy communities will contribute to the understanding of the development of pilot projects (at project level) and their effects in the actor-network (at both project and policy level). In our case studies, therefore, we will identify, analyse and interpret the 'pilot project narratives' within the actor-networks based primarily on the personal narratives of the actors involved.

1.5 Research questions

The general objective of this research is to deepen the understanding of the development of (coastal) pilot projects and their effects in their actor networks. The choice to adopt a narrative perspective leads to the following research questions addressed in this thesis.

First, the theoretical research questions:

RQ1: What is the current understanding of narratives in policy processes?

RQ2: How can the concept of narratives be used to study the development of coastal pilot projects and their effects within their actor-networks?

Next, a methodological question:

RQ3: Which research strategy and methods are appropriate for studying the development of coastal pilot projects and their effects within their actor-networks from a narrative perspective and how can we apply these methods in empirical case studies?

Finally, an empirically based research question:

RQ4: What do we learn about the development of coastal pilot projects and their effects within their actor-networks using a narrative perspective?

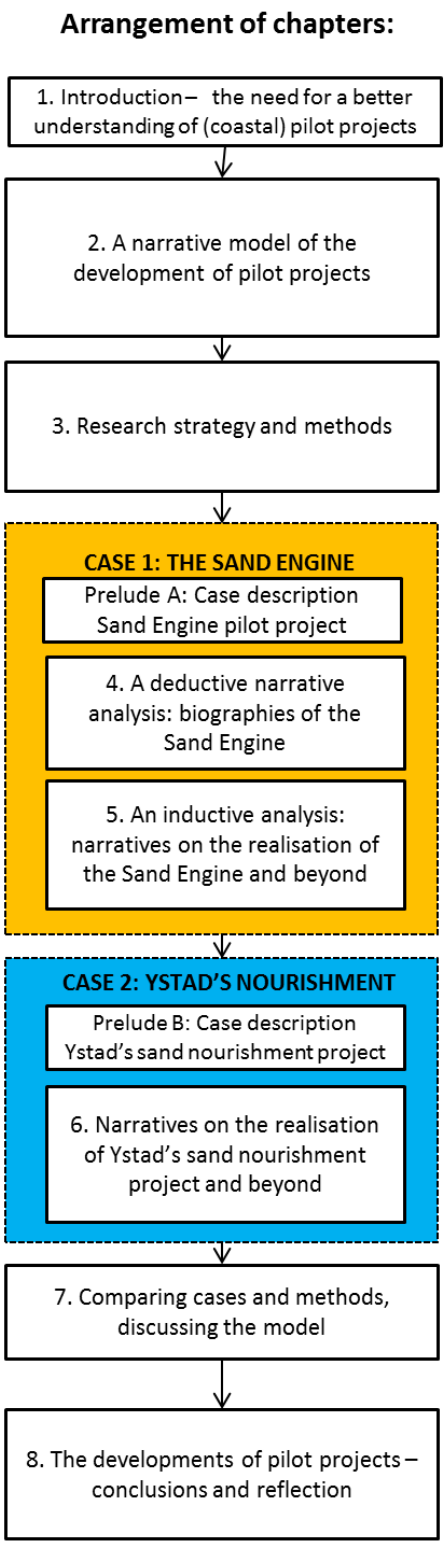


Figure 1-2. Outline of this thesis.

1.6 Thesis outline and reading guide

First, it is necessary to establish the current state of understanding of narratives in policy processes, and, how this knowledge can be linked to pilot projects and policy change. The second chapter, therefore, commences with a literature review on narratives and policy change, resulting in 'a narrative model of the development of pilot projects'.

Chapter 3 describes the research strategy and the methods adopted in the thesis, one of which uses a pre-determined lens for analysing interview transcripts - in this thesis referred to as 'the deductive narrative method'. The other method applies an inductive approach to analyse the interview transcripts - 'the inductive narrative method'.

Chapters 4 and 5 present the empirical results of the Sand Engine pilot project, using the deductive and inductive methods, respectively. Results of a second case study in Scania, southern Sweden, are presented in chapter 6.
'Case Study Prelude A' and 'Caste Study Prelude B' precede chapters 4 and 6 and introduce the contexts of the case studies: the Sand Engine in the Netherlands and Ystad's sand nourishment project in Scania, respectively.

After the case study chapters, new issues arise. What can we learn from a case comparison? What are the similarities and differences between the different methods? And, what about the 'narrative model of the development pilot projects'? What does the narrative perspective contribute? These issues are discussed in chapter 7.

In chapter 8, we return to the research questions, summarising the contribution of the thesis to the understanding of the development of pilot projects and their effects within their actor-networks and we reflect upon the

value of the narrative perspective.

Table 1-2 can be consulted by readers for guidance in deciding which chapters best address their interest. To accommodate different reading styles, several chapters repeat the elements essential for understanding. Chapters 4, 5 and 6, for instance, summarise aspects of the methods that are described in detail in chapter 3. Chapter 7 summarises the case study outcomes for readers who did not read all the detail in the case study chapters.

Table 1-2 Reading guide for selective readers

Interested in…	**Recommended chapters and sections**
A conceptualisation of the relation between pilot projects, policy change processes and narratives	Ch 2 (conceptual lens/narrative model) Ch 7.3 and Ch 8.3.3 (discussion and reflection)
Literature overview 'the concept of narratives in policy processes'	2.3
Narrative methods for case study research	Ch 3 (design of the methods) Ch 7.2 and Ch 8.3.1-8.3.2 (discussion and reflection)
Sand Engine pilot (NL)	Prelude A, Ch 4, Ch 5, Ch 7.1 and Box 8-1 in Ch 8.1
Ystad's sand nourishment project (Scania, Sweden)	Prelude B, Ch 6, Ch 7.1 and Box 8-2 in Ch 8.1
Answers on the research questions	Ch 8.1
Insights for people involved in (coastal pilot) projects and policy	Ch 8.2
A quick scan of the whole thesis	Summary

2.
A narrative model of the development of pilot projects

This thesis investigates pilot projects. A project can be seen as a carefully planned initiative to realise a particular goal. Preceding the realisation of a project, processes of agenda setting and decision-making have taken place. Pilot projects are expected to contribute to developments and knowledge at the policy level (1.3).

The chapter commences with a conceptualisation of pilot projects in other fields (2.1) followed by a discussion of six classical views of policy processes (2.2). This helps to position pilot projects within the context of policy making and actor-networks.

The thesis deals also with narratives. Section 2.3, therefore, explores the role(s) of narratives in policy processes.

After an overview of existing theory on policy processes and the role of narratives in policy processes, a conceptual model is developed. The conceptual model draws the main findings together and explicates the beliefs and expectations about the development of pilot projects. The resulting 'narrative model of the development of pilot projects' (2.4) functions as a conceptual lens in studying the development of pilot projects in their actor-networks (2.5).

2.1 Pilot projects in different disciplines

Whereas Vreugdenhil and others (1.2) contributed extensively to the present understanding of the phenomenon of pilot projects in the field of environmental management, pilot projects are also studied within other disciplines.

Transition theory - also attention to the role of actors

In transition theory, pilot projects are seen as a means to create niches, partially and temporally protected environments in which innovations can be tested and developed. One of the main questions after realisation is then whether the tested innovation will affect the dominant set of rules (the regime). Raven et al. (2011) introduce the concept of translation to transition theory. Translation explains how the objectives of one actor can be transferred to other

actors. This concept has its origin in actor network theory (Raven et al., 2011, rf Callon 1986). By bringing the concept of translation and transition theory together, Raven et al. (2011) emphasise the role of the actors in innovation and transition. A similar emphasis on actors is held by Huitema and Meijerink (2010), who review "the role that (groups of) individuals play in the processes of preparing, investigating, and implementing policy change".

Pilot projects as Leitbilder?

The work of Kuusi and Meyer (2002) on technological generalisations – the further developments and applications of innovative techniques – relates also to the transition theory. They claim that 'Leitbilder' (In English: 'guiding images') serve a guiding function for emerging technological paradigms. Given the high expectations of some pilot projects before they are realised, they may be viewed as Leitbilder. During the emergence of a new paradigm, Leitbilder can compete. When a technological paradigm is established, however, there is "a shared generalisation language, capable of producing important generalisations" (Kuusi and Meyer, 2002, p.629). An established paradigm consists of a cluster of realised and promising targets and techniques. The promising targets and techniques help the technological paradigm to develop further. In such a conceptualisation, a pilot project (idea) can be considered as a promising target and after implementation as a realised target. Realised projects can inspire further thinking regarding follow-up techniques, and follow-up projects (Kuusi and Meyer, 2002).

Pilot project as promising target?

Important exemplars

This view on the role of pilot projects coincides with the exemplar-concept of Molle (2008). According to him, "policy reforms or interventions which ostensibly embody a dimension of 'success' and qualify as 'success stories'" (p.138) can serve as a 'policy model' or an 'icon'. In this thesis, we will use the term 'exemplar' for this idea. Such important exemplars are "routinely showcased to officials and foreign visitors" (p.138) and all kinds of institutions are established that "will carry the message forward and develop it" (p.144).

Institutional theory

Institutions can be defined as "prescriptions that humans use to organise all forms of repetitive and structured interactions" (Ostrom, 2005, p.3). Pilot projects often seek to affect institutions. The lens of institutional work within institutional theory is an analytical focus on the relationship from action to institutions, analysing the processes of "creating, maintaining or disrupting institutions" (Beunen and Patterson, 2017) by actors and actions. From this perspective, pilot projects can be viewed as (combinations of) actions of actors aiming for institutional change*.

Dissemination and scaling up

Whether a pilot project substantively affects institutions, depends on whether (elements of) the pilot project are diffused and applied more broadly later. Vreugdenhil et al. (2012) distinguish two different levels of diffusion. When dissemination takes place, elements of a pilot project are translated at the same level (the

* In Bontje et al. (under review), we explore the potential contribution of the lens of institutional work in understanding one of our case studies. However, this lens is not adopted within this thesis.

project level): to new pilot projects or management projects, with a comparable complexity and a comparable actor-network. Another level of diffusion takes place when elements of a pilot project are scaled up, with processes that take place in other actor-networks and that involve more (new) uncertainty. Within scaling up, Vreugdenhil et al. (2012) distinguish between expansion, in which at operational level, elements of the initial pilot project are expanded "in the scale dimensions time, space or problem scope", and institutionalisation, in which elements of the pilot affects institutions, such as policies and practices which are initiated or adapted based on lessons from the project.

2.2 From pilot project level to policy level: views on policy processes

Policy making consists of, among other processes, agenda-setting and decision-making. Various theories are developed to grasp the non-rationality and non-linearity of these policy processes (Cohen et al., 1972, Kingdon, 2003, Sabatier, 1988, Baumgartner and Jones, 1991, Teisman, 2000, Lindblom, 1959). These theories aim to generalise and generate models which involve beliefs and expectations "about social and political relationships " (John, 2003, p.482). These type of models – political models, as classified by Vreugdenhil et al. (2010) – consider actor-networks as the "heart of the policy development" (Vreugdenhil et al., 2010 cf Bovens et al, 2001).

This section considers six of these 'classical policy models': The Garbage Can model (2.2.1), the Multiple Stream model (2.2.2), the Advocacy Coalition framework (2.2.3), the Discourse model (2.2.4), the Punctuated-Equilibrium model (2.2.5) and the Rounds model (2.2.6). Following this exploration, we will discuss how these insights contribute to understanding the dynamics in actor-networks around pilot projects (2.2.7).

2.2.1 The Garbage Can model

Organised anarchies

Cohen et al. (1972) emphasised the irrational aspects of decision-making by introducing the concept organised anarchies: "organisations that are characterised by problematic preferences, unclear technology [own processes are not understood by its members] and fluid participation" (p. 1). Within these organised anarchies, decision-making is not a straight forward process moving from pointing out problems to evaluating alternative solutions.

On the contrary, choice opportunities in organisations stimulate participants with their resources to become involved (Cohen et al., 1972). They bring their preferred problems or solutions with them. In this way, a choice opportunity leads towards a Garbage Can in which participants deposit their problems and solutions. The content of the Garbage Can changes over time and the decisions that come out are difficult to predict (Enserink et al., 2010).

2.2.2 Kingdon's Multiple Stream model

In his book 'Agenda's, Alternatives and Public Policy' (1984, 2003) Kingdon expands the Garbage Can Model of Cohen et al. (1972). For his model of agenda setting and policy change, Kingdon considered the federal government of the United States as an organised anarchy, but – because he discovered structures and patterns in the policy processes – he emphasises organised. In Kingdon's model, the element of randomness – which is strong in the Garbage Can model – is not the sole explanation for policy change; there is "an interaction between randomness and the more recognisable processes of problems, policies and politics" (John, 2003, p.488). In his empirical research, Kingdon observed three 'families of processes': three different streams.

The first of the three streams is the problem stream which describes the process of how problems capture the attention of people (Kingdon, 2003). Before problems are recognised, problem-indicators often need a little push, e.g. by a focusing event such as a crisis. The policy stream is seen as a stirred primeval soup full of policy ideas which sometimes become visible on top of the soup and then fade away. These ideas compete for attention within a policy network (Zahariadis, 2007, p.75). The political stream is "composed of such things as public mood, pressure group campaign, election results [..]"(Kingdon, 2003, p.145) and other political factors.

Actors can be active in more than one stream. The three streams, however, develop independently. When at a critical moment in time the three streams are coupled or joined together, choices (for change) are made (Zahariadis, 2007). This critical moment is called 'the policy window' and it is an opportunity for policy advocates "to push their pet solutions, or to push attention to their special problems" (Kingdon, 2003, p.165), i.e. bringing in their preferred problems and solutions (cf Cohen et al., 1972).

Policy windows

In this framework, policy change can happen when a policy window is open, in other words, when problems, policy ideas and politics come together. This mostly occurs when problem-perceptions change, e.g. through events or through changes in the political context.

2.2.3 The Advocacy Coalition Framework

The Advocacy Coalition Framework (ACF) focuses on policy change processes over a timespan of more than 10 years. Sabatier (1988) assumes that actors in a policy field can be grouped into "a number of advocacy coalitions composed of people from various organisations who share a set of normative and causal beliefs and who often act in concert" (p.133). The advocacy coalitions seek to influence the institutional context in order to achieve their objectives. The ACF aims to explain policy change though the interaction between competing advocacy coalitions (Fischer, 2003 cf Sabatier and Jenkins-Smith, 1993).

Competing advocacy coalitions

The core of a coalition's belief system is viewed as resistant

to change. For radical policy change - involving alterations to the core policy system – an external shock to the system may be necessary (Meijerink, 2005 cf Sabatier and Jenkins-Smith, 1999).

Incremental policy change, on the other hand, can be stimulated by learning processes within and across coalitions (Meijerink, 2005). Policy brokers are actors that can contribute to incremental policy change as well, when they work on finding reasonable compromises between the advocacy coalitions (Sabatier and Jenkins-Smith, 1993).

2.2.4 The Discourse model

Enserink et al. (2013) consider the Discourse model as a separate model that views policymaking as an interactive learning process in which arguments and meaning are exchanged. This exchange takes place within a context of advocacy coalitions or policy communities with different belief systems, which relates this model to the Advocacy Coalition Framework above. Hajer (1993) defines discourses as "ensembles of ideas, concepts and categories through which meaning is given to phenomena" (p.45) and groups of actors sharing discourses are 'discourse coalitions'.

Meaning-giving

So, the Discourse model focuses on (groups of) people giving meaning to phenomena and emphasises the importance of this meaning-giving for policy making. Processes of problem definition exemplify this importance. "Whether or not a situation is perceived as a political problem depends on the narrative in which it is discussed" (Hajer, 1993, p.44).

Storylines in discourse analysis

In the discussions about specific issues, elements of discourses are combined into coherent narratives or storylines (which here are viewed as more specific and less complex to understand than the discourses). These narratives carry the view of reality of actors who want to impose their view on others (Hajer, 1993), forming a political struggle that can be seen as an argumentative game between actor coalitions (Späth, 2012). A discourse coalition can be seen as becoming dominant when 1) their discourse becomes the foremost way in which a community or society conceptualises reality (discourse structuration) and 2) the discourse ideas becomes noticeable in institutional arrangements and practices (discourse institutionalisation) (Hajer, 1993).

On the one hand, discourses provide devices (such as narratives) with which problems (and potential solutions) are constructed and on the other hand discourses form the context in which phenomena, such as a particular pilot project, are understood.

Related to the Discourse model are a series of methods for analysing written and oral texts. This 'discourse analysis discipline' offers tools for analysing policy processes. Narrative methods (as we apply in this thesis) can be considered as tools within the discourse analysis' toolbox.

2.2.5 Punctuated-Equilibrium model

Baumgartner and Jones's Punctuated-Equilibrium Model encompasses concepts of stability and policy change (True et al., 2007). Policy making is often viewed as an incremental process, taking place in parallel subsystems – drawing upon their own communities of experts. This is the stable phase, the equilibrium. Sometimes, such a 'policy monopoly' comes under pressure and this can lead towards a breakdown in the "the parallel processing of issues". The policy will then be processed in serial within macro-political institutions, meaning that it is politically discussed, at a higher level than the parallel subsystems. Such a shift generally causes a change of issue definition (e.g. because other actors enter) and an increase in media-attention (True et al., 2007). This represents the interruption of the equilibrium and major policy changes can take place. During these processes in the macro-political system, political manipulation occurs. In addition, policy images – the beliefs and values concerning a particular policy (Baumgartner and Jones, 1991, p.1044) are competing and often the current policy image is criticised and re-adjusted. After major changes, a policy issue may disappear from the macro-agenda and the new policy will proceed in parallel within (the changed) policy community.

Policy monopoly

Policy images

In contrast to what happens during major policy change, the actors maintain a stable policy image during an incremental policy change phase (Weible, 2008).

Boushey (2012) applied the Punctuated Equilibrium Theory to explain the diffusion of policy innovations. He argues that a focus on the relation between changing policy images and diffusion of innovations will enhance the understanding of the process of policy change.

2.2.6 The Rounds model

In a simple rational policy model, problems and solutions are often linked to a single actor that targets a specific problem and coordinates the policy processes. Teisman (2000) argues that such a uni-centric view is not realistic. There are many actors involved in policy-making who are interacting based on their own perceptions of relevant problems and possible solutions. These interaction situations, which are based on Scharpfs (1997) interactive approach, lead towards different rounds in policy making in which different actors define the problems and solutions. Crucial decisions in a round determine, to a large extent, the conditions for the next round (Van Bueren et al., 2003). In the next round, new actors can join and the rules of the game sometimes are changed. In this model, there is no single moment of policy setting (such as for example the window of Kingdon suggests), the policies result from a series of decisions taken in different rounds by the interacting actors.

Interaction situations

2.2.7 Conceptualisation of policy processes in this research

These models are frequently used as lenses to study policy

Table 2-1. Summary of classical 'political' models that are not based on rational, top-down, single actor assumptions: their definition of policy change, their explanatory purpose, the main drivers of policy change that they incorporate and whether they focus on the processes at policy or at project-level.

Model and its first publication	Its (implicit) definition of policy change	Purpose of the model	Main drivers of policy change	Project and/or policy level
Garbage Can model Cohen et al., 1972.	(Outcomes of) Organisational choices.	Explaining the unpredictability of decision-making.	The content of the Garbage Can during a choice opportunity.	Both. Choice opportunities present at project and policy level.
Multiple Stream model Kingdon, 1984.	Decisions for changes that are made when a policy window is actualised.	Explaining how "people in and around government attend, at any given time, are attend to some subjects and not to others" and explain the generation of alternatives from which they choose.	Coupling of problem, policy and political stream lead to policy windows that can be actualised.	Intended for public policy, but the metaphor of 'policy window' may be can also work for projects ('project window').
Actor Coalition framework Sabatier, 1988.	Policy output and policy impact after decisions made in the policy subsystem.	Explaining/dealing with policy problems that involve substantial goal conflicts, important technical disputes and multiple actors from several levels of government (Sabatier and Weible, 2007) over a longer time period.	External changes (shocks) to the system (radical change). Policy brokers and learning within and across coalitions (incremental change).	Intended for long-term policy processes. Individual (pilot) projects don't seem to fit easily.
Discourse model Among others: Hajer, 1993/1995	When exchange of arguments lead to dominance and institutionalisation of other discourses/ storylines.	Emphasising the importance of meaning-making in policy processes.	Actors trying to reach shared meanings or impose their interpretation.	Discourses are relatively abstract, but studying storylines seem to be useful both for project and policy level.
Punctuated-Equilibrium model Baumgartner and Jones, 1993.	Incremental changes in the policy subsystem, or radical decisions in macro-political system.	Explaining both stability and radical policy change.	Competing and changing policy images (for radical change).	Intended for policy-processes.
Rounds model Teisman, 2000.	Policy (change) results from interaction between actors.	Explaining the complex decision-making processes by focusing on interactions between different actors and the decisions.	Strategic interaction among several actors.	B Both policy and projects results from series of decisions.

processes and policy change. They overlap partly, but they also "offer complementary insights into the development of a policy process" (Meijerink, 2005, p.1061). Table 2-1 summarises the implicit definitions of policy change in each of the models, their explanatory purpose and the main drivers of policy change that they incorporate.

Project and policy level

This research focuses both at the (pilot) project level and at the policy level. So, the conceptual model needs to be able to deal with these levels. The classical theories vary in their approach to multi-level policy processes. The Garbage Can model is relevant for studying individual choice opportunities regarding the realisation of a pilot project, but seems to lack a long term perspective. The Advocacy Coalition Framework concentrates on longer term change. Similarly, the patterns of stability and change within the Punctuated-Equilibrium model have a long term focus. Kingdon's stream model seems to be flexible regarding time-scale and level; it is possible to explore policy windows for smaller scale decisions (realisation of a pilot project, decisions about follow-ups) and windows for larger scale decisions (realisation of new policy or policy change).

'How things came together'

There is an empirical argument for the interest in Kingdon's model. While exploring the Dutch case study (The Sand Engine) at the start of the research, the author encountered several people allied to the project who talked enthusiastically about 'how things came together' in the realisation of this project, providing an empirical indication that coupling of streams may have happened and that a 'project window' was actualised. The author was triggered to learn more about the dynamics of the pilot project and policy windows. The concepts 'project window' and 'policy window' therefore underlie the conceptual model developed in this chapter.

Competition

The Rounds model includes the concept of arenas which may prove useful for reconstructing the development of pilot projects. Together with the ACF, the Rounds model emphasises the competitive element in policy processes.

Artefacts that express beliefs and values

The concept of 'policy image', from the work of Baumgartner and Jones, is, indirectly, also of interest for the conceptual model. According to Boushey (2012), studying changing policy images is promising for investigating the diffusion of innovation (2.2.5). Policy images are expressions of beliefs and values in the actor-network (see 2.2.5 and 2.3.). As the next section (2.3) shows, policy images are similar to narratives in this sense.

So, we will accommodate several aspects from the classical theories in our conceptual model and we will not limit the conceptual model at the outset by choosing for one of these theories in particular. The different theories offer different views and explanations for policy processes which vary in their nature. The different theories can be helpful for understanding the different case studies.

2.3 The concept of narratives in policy processes

Prior to deciding how 'stories' or 'narratives'* can be incorporated in the research, a literature study was conducted to explore the concept in policy processes. What is a narrative (2.3.1)? How are narratives used in policy making (2.3.2)? What can narratives contribute to policy processes (2.3.3) and what determines their persuasiveness (2.3.4 and 2.3.5)? After the exploration, the use of narratives in this research is discussed further (2.3.6).

2.3.1 What is a narrative?

Since the development of the vocal faculty, people tell each other stories (Cobley, 2013). They present events and squeeze aspects of the world into narrative form. Aristotle considered a narrative as a course of action that has a beginning (in which the protagonist usually faces a challenge or puzzle), a middle (with the developments of events) and an end (e.g. puzzle solved) (Wagenaar, 2011). There are many different narratives, and several classifications are made. The classification used in the literary discipline involves tragedies, comedies and romances for instance. There are different carriers of narratives, the oral voice, written or pressed texts or films. These can be also located online, e.g. at websites, blogs, video-channels or fora.

Sequences of events and their interpretation

Sandercock (2003) emphasises that a narrative includes:
1) a sequence of events (chronicle) and;
2) the interpretation of the meaning of these events.

Besides these two aspects Sandercock provides a more extensive list of the components of a narrative. This list is presented in the left

* In this thesis the concepts 'story' and 'narrative' are considered as the same.

Table 2-2. Components of stories, according to Sandercock (2003), Riessman (2008), based on the approach of Labov.

Narratives, **according to Sandercock (2003) have:**	**A 'fully formed narrative',** **according to Riessman (2008) has:**
- a temporal or sequential framework (chronicle); - element of explanation or coherence, rather than catalogue of one thing after another. Griffin (2013, cf Lawler, 2002) uses the term 'emplotment' for the process through which narratives are produced: how many elements come together to make up one story; - potential for generalisability; - recognisable, generic conventions that relate to an expected framework, a plot structure and protagonists (hero's); - a moral tension, or, as Griffin (2013, cf Lawler, 2002) formulated: there must be a 'point', a 'so-what?' factor, which often takes the form of a moral message.	- an abstract: summary and/or "point" of the story; - an orientation: to time place, characters, situation; - a complicating action: the event sequence, or plot, usually with a crisis or turning point; - an evaluation: where the narrator steps back from the action to comment on meaning and communicate emotions, the 'soul' of the narrative; - a resolution: outcome of the plot; - and a coda: ending of the story and bringing action back to present.

column of Table 2-2. In the right column an overview is provided of the six elements which are present if a narrator tells a "fully formed" narrative (Riessman, 2008, p.84).

The two lists have similarities and differences. The list of Riessman is based on the more than 40 years old approach of William Labov, which "remains a touchstone for narrative inquiry" (Riessman, 2008, p.81). In her book about different forms of narrative inquiry, Riessman connects Labov's (and Waletzky's) work to a type of narrative analysis known as structural analysis. Complementary to the list of Sandercock, the list of Riessman involves some narrative elements that are added by the narrator: While telling a story the narrator probably adds elements, briefly described in Table 2-2, such as an abstract, evaluation and a coda.

Cultural artefacts

A narrative is more than its components. Narratives are cultural artefacts, used by humans to represent the world (Stone, 2002) and convey meanings (Yanow, 2000). They are products of the social groups within which they emerge; the thoughts, beliefs, values, affects and passions they express and construct are usually not those of an individual, but are situated at the interface of the individual and their wider environment (Wagenaar, 2011). Above all, narratives are very human, as stated by Gottschall (2012), referring to the human propensity for storytelling.

Creating identification

Narratives are a form of communication, used by humans to seek identification with each other (cf Burke, 1969). Identification can be achieved though sharing 'substance' (the general nature of something), as narratives and other texts can do. Stillar (1998) elaborates on the work of Burke when he states that text is "not only 'woven' together' itself, but also weaves us together" (p.6). In this way, narratives can contribute to the creation of identification.

2.3.2 Narratives in policy making

Narrative production

Within decision-making about public policies (and related politics), most stories do not 'suddenly' appear. They are constructed or produced. In discussion with Czarniaswska, Fischer (2003) distinguishes two important types of 'narrative production' within public policy-making. The first type comprises the narratives and counter-narratives competing within policy negotiation. The second type comprises the (written) policy narrative, a "result of intense narrative-making, which actually tries to remove the traces of the work that went into it."

Spatial planning is a form of public policy. Spatial planning projects change the everyday environment of people. With this in mind, it is not surprising that scholars in this field pay (increasing) attention to narratives and storytelling within spatial planning. Throgmorton, a professor in urban and regional planning, can be seen as a prime mover in the study of storytelling in planning. Throgmorton (1996) states that a planning process is: "A flow of utterances, replies and counter replies that seek to persuade diverse audiences" and "This flow, together with the setting in which it

occurs…might be thought of as a story. So it is to stories and to storytelling that we should turn if we want to conceive a form of planning that is appropriate for the fragmented and multi-cultural world in which we live and work" (Throgmorton, 1996, p.45-46). In this fragment, Throgmorton not only focuses on storytelling as a model of how planning happens but also as a model for how planning should happen. This distinction is made explicit by Van Hulst (2012): within a descriptive perspective, storytelling can be seen as a model of planning and within a normative perspective it is a model for planning. According to Sandercock (2003), the impact of narratives in spatial planning is significant and therefore "we need to be attentive to how power shapes which stories get told, get heard and carry weight" (p.12).

In general narratives can have several functions, such as remembering, justifying, engaging, entertaining, misleading and mobilising (Riessman, 2008). Narratives within spatial planning and other policy-making are often associated with the objective of persuading an audience about an idea or opinion. As Throgmorton formulated, storytelling is "trying to persuade specific audiences in specific contexts to accept proposed explanations, embrace inspiring visions, undertake recommended actions and so on" (Throgmorton, 1996, p.39). But there are more (detailed) functions of narratives within policy making, for which an overview derived from literature is provided below. The ordering reflects specific functions first and broader or more abstract functions later.

1) First, narratives can be used to criticise the opinion of others (Sandercock, 2003, p. 21);
2) Secondly, narratives can be used to explain (physical or social) phenomena or a situation (Molle, 2008, p. 136) or, in the words of Kaplan (1986), to explain 'complex happenings', to explain the reasons for certain events. This is also one of the functions of framing;
3) Related to this is the idea that "policy problems are created in the mind of citizens by other citizens, leaders, organisations and government agencies, as an essential part of political manoeuvring" (Stone, 1988, p.122). Narratives can be used for "conveying the nature, character, and origins of policy problems." (Fischer, 2003). So this third function is related to problem definition (or problem framing). Political actors use 'causal stories' in the struggle about whose idea is selected to guide policy (Stone, 1989, p.283). This function of stories is strongly related to the first two, while defining a problem, it is not unusual to criticise others and explain a situation;
4) As a fourth function, narratives can be used to reduce conflicts. Sharing personal experiences and/or histories of identity can help in reconciliation (Sandercock, 2003 cf Forester 2000);
5) As a fifth function, narratives can be helpful in democratising the planning process. According Sandercock (2003, p.14), as many people as possible should be allowed to tell their narrative about their community or neighbourhood in community participation

processes. Although this specific use of storytelling is not mentioned by Healey (2006) it aligns with her plea for collaborative planning. Narratives can then function as "means of encapsulating local knowledge and the views of those who live in, and use, the landscape" (Bulkens et al., 2014);

6) The sixth function is mentioned by several scholars (e.g. Throgmorton, 1996, p.39, Sandercock, 2003 p.18); narratives can call for action, or, as Sandercock stated can be "a catalyst for change" by helping to shape of imagine new alternatives;

7) This is strongly related to the seventh function; narratives can function as a vision or ideal image (Molle, 2008, p.132, Throgmorton, 1996, p.39) or, as used in narrative policy analysis, can function as a complex advice about the future (Kaplan, 1986). Related are the important exemplars which are 'success stories' legitimising specific blueprints for solving similar problems (Molle, 2008, p.138, see 1.2.2);

8) The eighth function of narratives is to 'bind' (Throgmorton, 1996, p.44) or unify seemingly disjointed perspectives (Van Dijk, 2001, p. 141);

9) Finally, the most abstract function of narratives and storytelling is that they can shape a community, character and culture (Throgmorton, 1996, p.51 cf White, 1984, 1985) or can helping building culture (Sandercock, 2003). Shaping a community with common culture within planning can be desirable, but can also have negative aspects like (the feeling of) exclusion of people who are not affiliated to this community.

Framing

Framing a policy issue can be seen as an explicit function of narratives. Considering the list above, we define framing as a combination of explaining (2), defining a problem (3), sometimes criticising (1), and calling for action (6). People sharing very strong frames can even be seen as a 'community' (9).

Stones' storylines

Stone (2002) focusses on the processes in which policy problems are defined. Two broad story lines are prevalent in these processes. The first story line comprises variations on 'the story of decline' and the second involves variations on 'the story of control' (Table 2-3). Stories of decline foster anxiety and desperation while there is at least a choice, offering hope in the 'stories of control'. The narratives are frequently interwoven, a story of decline sets the miserable stage, explaining how this dreadful situation came into being, while a story of control then functions as an optimistic outlook. Stories can be used as 'strategic tools' (Stone, 2002) for framing. Stories that are used to explain how situations came into being remind one of (subjective) historical accounts. By using literary and rhetorical devices, they lead "the audience ineluctably to a course of action" (Stone, 2002, P.145). However, stories are more than frames and arguments, because they also add new ways of reasoning to policy processes.

2.3.3 Adding new ways of reasoning in policy processes

Narratives involve reasoning, just as arguments do. According

Table 2-3. The variations within Stone's stories of decline and control (2002, pp138-145).

Story lines	General Development/Plot
1. Stories of decline	Things are all right in the beginning, but then the situation deteriorated and is intolerable right now.
	A prediction of crisis (and how to avoid this)
Variation: stymied progress	Things were dreadful in the beginning, but the situation got better, thanks to 'a hero'. Now, something is hampering the hero, so the situation is deteriorating again.
Variation: change is only an illusion	It look likes things get better (or worse), but the opposite takes place.
2. Stories of (helplessness and) control	The situation is bad and apparently out of control. But there is a way how we can control the things again.
Variation: Conspiracy twist	Control has been in the hands of a small group and they misuse that power for their own sake.
Variation: Blame the victim	The control is located at the very few that suffer the problem. And so the solution is located there.

to Gottschall (2012), human beings are natural storytellers, and an argument embodied in stories, therefore, may be understood better (as argued by Fisher, 1987). This section, therefore, examines reasoning within narratives and the relationship between narratives and arguments.

Throgmorton (1996, p.48) establishes that narratives can draw attention to the non-commensurability of valuable things, the priority of perceptions and the ethical values of emotions. These aspects can increase the 'compellingness' of a narrative and can be helpful in persuading an audience. At the same time, Throgmorton is aware of the notion of Healey (2006) that these aspects might not be valued positively in the more traditional, rational way of policy making. Healey explains this by referring to the three types of reasoning as distinguished by the German philosopher Habermas' in his 'Theory of communicative action' (1984);

Three types of reasoning

1) instrumental-technical reasoning (based on scientific knowledge and rationality);
2) moral reasoning (based on values and ethics);
3) emotive-aesthetic reasoning (based on emotive experience).

Traditionally, the first type of reasoning is used in policy-making. In the deliberative governance ideal in line with the Habermasian tradition, for example, one of the aims is to "improve collective decision-making and problem-solving through more rational argumentation" (Metze, 2009). Choosing for moral and emotive-aesthetic reasoning in policy making is a risk, because it might be seen as influences from "the irrational outside world" (Healey, 2006).

Whereas traditional arguments in policy-making follow instrumental-technical reasoning, narratives use all three types of

reasoning. In doing so, the use of narratives blurs the distinction between formal policy-making reasoning and 'daily life' reasoning.

Policy-making with people

This fits with the idea of a communicative turn in planning as described by Healey (2003b) and others. Advocates of the communicative turn appeal to a change of focus from 'rational thinking' by bureaucrats to more normative ways of policy making with people (examples of theory on communicative planning processes are: Forester, 1999, Healey, 2003a,b, Allmender and Tewdwr-Jones, 2010).

In the discussion about the relation between arguments and narratives, it is also useful to examine their structures. In planning and public policy research, analysis of formal arguments is often conducted by applying the Toulmin model (Gasper and George, 1998) or the Toulmin-Dunn model (Dunn, 1990). With these models, arguments can be deconstructed and mapped systematically (Kumar, 2004), by identifying (1) the claim, (2) the grounds for the claim, (3) supplements for the grounds (warrants), (4) the backing for this claim and (5) the possible qualifier to modulate the strength of belief in the conclusion (Gasper and George, 1998). Gasper and George, however, argue that Toulmin established this model to explain the nature of argumentation, not as a universal model for analysing real arguments. According to them, the study of argumentation in policy analysis should be more than argument mapping only, attention should be paid, for example, to the role of narratives (Gasper and George, 1998 cf Kaplan, 1986; Roe, 1994; Throgmorton, 1996).

Beyond argument mapping

The linguist Lo Cascio (2002) compared formal argumentation and narration using structural analysis (standpoints and justification vs events and situations) and highlights the parallels and differences between these two modalities. An important difference is that narration refers to its components (events and situations) as given truth, while argumentation "requires that the truth or status of at least one of the components or the relationship between them can be questioned" (Lo Cascio, 2002). Kvernbekk (2003) elaborated on this. Both arguments and narratives contain conclusions, but since the narratives "consists of a causal chain of events leading up to the conclusion" (Kvernbekk, 2003, p.10) or even more than that: they are "an ensemble of interrelationships of many different kinds as a single whole" (Mink, 2001, p.218), the conclusion in a narrative does not need a warrant, whereas an argument does. The audience of a narrative, therefore, is invited to believe the 'whole' (Kvernbekk, 2003) and is in this way not invited to question the components or relations between the components (as can be done with arguments).

Narratives as "given truth"

Another reason why narration refers to its components as given truth is because narratives are often emplotted with hindsight (Kvernbekk, 2013). Kvernbekk (2003) concludes that narratives do not look like arguments in that they do not use the formal way of reasoning, but that they can be seen as informal arguments.

So, stories contain different ways of reasoning and can appeal to emotions. They can be seen as political tool for what Moisander et al. (2016) described as 'emotion work'. Emotion work is "the management of emotions to construct realities and make things happen" (p.968). In this way, using stories in policy making can be helpful for policy entrepreneurs. Using stories also fits the ambitions of the scholars that plead for a communicative turn. However, the use of stories may also run into resistance in a policy environment in which strict instrumental-technical reasoning is the standard. As they do not have the same structure and ways of reasoning as formal arguments, narratives are considered in this thesis as informal arguments.

Emotion work

2.3.4 Persuasive aspects of narratives and narrator

Assuming that storytelling in policy-making is used for persuading, engaging and mobilising rather than for entertaining, it is interesting to examine the persuasiveness of stories more deeply. Their emotional aspects of narratives offer both an opportunity and an area of concern.

According to Throgmorton (1996 cf Fisher 1989), people recognise a 'good' narrative because of its:

- narrative probability/internal structural coherence: the extent to which it 'hangs together', how it deals with issues and counter arguments appearing in competing stories;
- characterological coherence: the reliability of its characters and narrators;
- narrative fidelity: the truthfulness and reliability. The fidelity can be assessed by applying 'logic of good reasons', elements that provide warrants for accepting or adhering to the advice addressed to an audience.

According Walters Fisher's theory of narrative rationality (1987, referred to by Throgmorton (1996) and Fischer (2003)) humans naturally recognise the coherence and fidelity of narratives, because they are storytellers by nature.

Ivory (2013) focuses on narratives for spatial plans. Such narratives are future-oriented. To be compelling and persuasive narratives for spatial plans must:

- be consistent, testable, lead to a moral position and provide grounds for action;
- flow logically, one proposed event must lead to another and the narrative should move from problem to resolution;
- be meaningful. And, in order to be so, must "draw on recognisable and acceptable social discourses about what is meaningful, moral and relevant".

Referring to Van Hulst (2012), Ivory explains that logic and meaningfulness are connected. The narrative must link problems and solutions together in a way that makes sense to the discourses about what is meaningful, moral and relevant. Ivory draws further on Schön (1993) in stating that linguistic metaphors are central in

Linking problems and solutions

realising this link. Typically, states Ivory, planning narratives often involve some notion of the failures of the past (Ivory, 2013 cf. Stone, 2002).

Wagenaar (2011) argues that the powerful, tacit work of narratives comes from a combination of being 1) open-ended ("A good story deals in possibilities, not in certainties"), 2) subjective, based on recognisable characters, 3) value-laden and 4) action-oriented.

Persuasiveness of the narrator

Throgmorton suggests that if all of the above mentioned characteristics are present in all 'competing' narratives, the persuasiveness with which the narrators tell their stories, can make the difference (1996, p. 49). This sounds plausible. The success of a narrative does not lie only with its internal structure. It also depends on the qualities and characteristics of the storyteller and how he or she uses these qualities.

Throgmorton (1996) argues that as 'the author' of the narrative, planners have to follow a few basic principles. They have to "emplot the flow of action", "build conflict, crisis, and resolution", "shape interesting and believable characters whom readers care about", "adopt an appropriate point of view" and "use the imagery and rhythm of the language to express a preferred attitude toward the situation and its characters".

For an effective rhetorical style, a storyteller must be aware of his audience and of opposing views, and must have feeling with how the audience gives meaning to the stories (Throgmorton, 1996, p.39). Storytellers can prepare by exploring the audience and opposing views, but the feeling with how audience gives meaning to the stories (2.3.5) can be seen as a 'rhetorical' skill that is required for persuasive storytelling.

Although literature on this aspect is scarce, it is likely that the position of the storyteller within the actor-network is important for his or her persuasiveness. Assuming that the network(ing) qualities that Kingdon (2003) ascribed to policy entrepreneurs in general are also important for storytelling entrepreneurs, the following characteristics influence the persuasiveness of the narrator:

- The person has some claim to a hearing. The claim has one of three sources: expertise, an ability to speak for others or an authoritative decision-making position;
- The person is known for his political connections or negotiating skill;
- The person is persistent; has a willingness to invest large and sometimes remarkable amounts of resources (Kingdon, 2003, pp. 121-122).

Repetition required

Narratives "need to be fought for, defended, and sustained" (Stone, 1989, p.293), which, indeed, requires perseverance on the part of the narrator(s). So, another quality of the storyteller is his or her perseverance, because one of the factors in determining the compelling nature of a narrative is whether it is frequently and continuously told. As Stone (1989) explained about her concept of

'causal stories' (the stories that are used to define policy problems): "There is always someone to tell a competing story, and getting a causal story believed is not an easy task" (p.293). Stone's 'causal stories' are frequently used for problem-framing.

Narratives that proclaim success after a project or policy is realised are another type of narratives. Referring to discourse theory and Luhmann's theory on social systems, Van Assche et al. (2012) discuss success experiences in governance and the dissemination of narratives of successes. One of the conclusions of Van Assche et al. (2012) is similar to the conclusion of Stone: to be successful, narratives needed to be repeated constantly. The storytellers need to continuously proclaim success, promote the underlying criteria, identify the potential allies, and include their story within formal policy or scientific discourses (p.569, based on Rap, 2006).

2.3.5 Receptiveness of the audience and performativity

In addition to a persuasive narrative and storytelling, there also needs to be an audience that is receptive to the messages of the narrators.

Van Assche et al. (2012) explain that "since Foucault, it has become a commonplace assertion that success and failure are defined within discourses" (p.567), and that they are often articulated in the form of success or failure stories. Success or failure, or acceptance or rejection, of a story is constituted in social interaction between the narrator and the people that form the audience. In our case studies this means that success and failure is defined in the social interaction between pilot project initiators and the actor-network.

Performativity

In order to understand how the narratives are received by the people in the actor-network and which effects potentially take place, the concept of performativity (Van Assche et al., 2012, Beunen et al., 2013) can be used. From a discourse perspective, an audience or community can be considered as a discursive environment, in which shared understandings are present. Van Assche et al. (2012) argue that "the configuration of the discursive environment represents the potential for a success ascription to be spread" (p.568). In some discursive environments "things become accepted as true and real as a result of prior discourse" (Van Assche et al., 2012, p.569 cf Butler, 1997, MacKenzie et al., 2007). This phenomenon is known as performativity. As delineated by Miller (2011), the concept of performativity in discourse was first described by Austin (1975). In addition to descriptions, which 'simply' (attempt to) depict a situation, Austin identified a class of utterances that not only depict a situation but also bring it into being. A famous, practical, example are the texts spoken during a wedding ceremony ('Yes, I do'). The concept of performativity is used in social sciences (e.g. Butler, 1993, 1999) and in economy (e.g. MacKenzie et al., 2007).

In this research, the question can be asked: do narratives simply attempt to depict a situation (the development of a pilot project) *or* do they also have effects in reality (influencing the

development of pilot projects)? In accord with Burke (1969) and Stillar (1998) (2.3.1), this question can be answered positively. Narratives, as texts, are not only "woven together" themselves, they can also "weave us together". Van Assche et al. (2012) argue that performativity indeed can take place for ascriptions of success and failure. Existing discourses in the community (discursive environment) can influence the success of a project or policy. This can be seen as a self-fulling prophecy of the discourse.

Capitalise upon discourses

Performativity can happen without intention of people, as a consequence of existing concepts silently embedded in the discursive environment. So, a narrator can (intended or unintended) capitalise upon latent discourses in the audience and so make his/her performance more persuasive.

Resonance

Van der Stoep (2014), reasoning further on the work of Benford and Snow (2000), explains that "when stories resonate among listeners, the latter are more inclined to participate in storytelling" (p.44). Resonance can be for example caused by cultural narratives that are part of one's cultural heritage and function to relate experiences in the present (Snow and Benford, 1988). Van der Stoep and Benford and Snow discusses these processes from a framing theory point of view, whereas Van Assche et al. employ discourse theory, but there is a clear overlap between 'resonance induced by cultural heritage' and 'performativity caused by existing discourses in the community'. What Van der Stoep and Benford and Snow make clear is that the community can not only function as (a receptive) audience, they can also engage in the storytelling itself. The work of Van Assche et al. (2012) on performativity and the work on Van der Stoep (2014) on resonance of stories can help us in this thesis to interpret the effects of the pilot projects narratives.

2.3.6 Narratives in this research

In this thesis, we want to reveal the narratives about the development of coastal pilot projects, as we expect that they contribute to understanding of the pilot project processes. Because the pilot projects are developed within actor-networks, we focus on the narratives about the projects that have emerged and developed in these networks (cf Wagenaar, 2011).
The outcomes of our literature study on narratives will be used in several phases of the research:

- First, together with the insights on policy processes (2.2), the insights on the role(s) of narratives in policy making are used to conceptualise the development of pilot projects within a narrative perspective (see 2.4).

Such a focus on narratives has by nature a strong connection to the Discourse model , in which narratives are viewed as carriers of views of reality of actors in discussions about specific issues (2.2.4). In addition,

- the characteristics of narratives as discussed section 2.3.2 are used to distil these narratives from the personal experiences of actors

(see 3.4.1 and 3.5.1);
- Stone's storylines can help in characterising these distilled narratives (see case chapters 5 and 6);
- the concepts related to narratives (competing narratives, repetition, resonance, performativity) will be used for interpreting the narrative dynamics and the impact of the narratives (see the case study chapters 4, 5,6 and chapter 7).

2.4 Integration: A narrative model of pilot projects

The insights from the literature study on policy processes and narratives are now drawn together in a conceptual model that explicates the assumptions of how narratives, policy change processes and pilot project development are related. We draw specifically upon the literature findings of section 2.1-2.3, in particular upon the ideas of Kingdon (2002) and Stone (1989, 2002) regarding agenda-setting in policy processes, and Czarniawska and

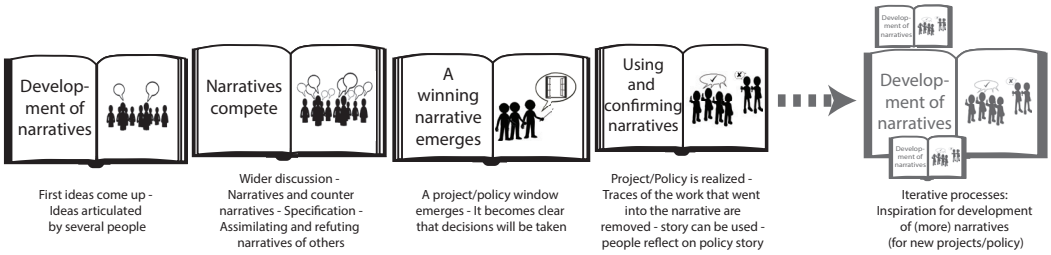


Figure 2-1. A narrative model of the development of pilot projects. The arrow followed by the new development of narratives visualises the iterative and cyclic aspects of narratives within policy processes. Narratives can inspire new project ideas, although not every pool of narratives or narrative competition will lead to a winning story and a realised project.

Fischer's conception of the competition of stories (Fischer, 2003), to develop a narrative model of pilot project development within a policy community (Figure 2-1).

Although we design this model to conceptualise the development of individual pilot projects, we expect that it can also be used as a conceptualisation of the development of a new policy. In this thesis, however, we focus specifically on the development of pilot projects.

Floading ideas

At the beginning, ideas for a new project or policy float around awaiting a good opportunity to be connected to a problem definition crafted by (political) actors. These (political) actors are deliberately crafting problem definitions for agenda setting (cf Kingdon, 2003, Stone, 1989, Stone, 2002) and for policy ideas it is crucial that they enter the political agenda. Many ideas will never make it onto this agenda. We label this part of the process as 'development of narratives'.

Narratives compete

When an idea has entered the agenda, the discussion within the actor-network broadens: several actors and stakeholders bring in their arguments, which are often articulated as stories. These stories can be closely related to the 'causal stories' of Stone that

used in framing the (policy) problems. This 'narrative competition' (in line with Fischer, 2003, Stone, 1989, Hajer, 1993, Hajer, 1995) is also the stage in which the initiators work on a more detailed story, assimilating the stories of others and refuting the counter stories of others. They have to convince other actors that the idea is a good idea. A compelling story that resonates in the actor-network can be helpful in this process (Benford and Snow, 2000, Van der Stoep, 2014). However, opponents of the idea can also work on a compelling story.

A winning narrative

In the third part, a 'winning narrative' emerges. 'Winning' refers to the moment at which decisions on the project (or policy) will be taken. These decisions can favour the ideas of the initiators, but also favour opposing groups, depending on the outcome of the narrative competition. Figure 2-1 depicts the narrative model as a process, in which a project or policy is realised. It is not guaranteed that the 'winning narrative' is accepted by all parties and forever. The narrative is at this moment, however, strong and present enough among the decision-makers for a decision to be taken.

A final policy narrative?

During the 'use and confirmation' of the policy narratives, the decisions are implemented and the policy story/ies are written down in a polished version. The traces of the work that went in to this are removed (Fischer, 2003). People can reflect on the narratives that have formed. These narratives can be strengthened, or criticised. The narratives can also be used in the follow-up activities (e.g. regarding the diffusion of a pilot project, Vreugdenhil, 2009) of the actors involved or can function as input for new policy or projects. Boushey (2012) (2.2.4) argued for studying the relation between changing policy images and the diffusion of innovation. We accommodate Bushey's recommendation, by studying the development of narratives (rather than policy images) over time. It is expected that processes of performances and performativity of success (or failure) from Van Assche et al. (2012, see 2.3.5) can take place. It is also possible that, with the help of its narratives, a realised pilot can grow to an 'exemplar' for which new institutions are created (Molle, 2008) and which inspires further technological development (Kuusi and Meyer, 2002, see 2.1).

No sharp boundaries

Although the model consists of different stages, their division and the accompanying boundaries are not necessarily the same as in Vreugdenhil's pilot project model (1.2) or in the Rounds model (2.2.6). The phases in the Round model, in particular, are demarcated by a set of decisions that determines the conditions for the next round. Vreugdenhil's model (2010) reflects the project evolution phases than stages in the actor-network dynamics. We do not expect the stages in the narrative competition to coincide strictly with pilot project phases. Actors may use or follow narratives from earlier stages in the pilot project decision-making. Others may already be working on new or adapted narratives, anticipating upcoming developments in the process, while still in the realisation phase for instance. Therefore, the boundaries between stages in our

narrative model are not strictly delimited in time. In practice, or in hindsight, some events may be indicative of a transition to a new stage. The signing of an ambition agreement for a pilot project, for instance, is an indication that a 'winning' narrative is emerging.

In this model, we use the functional definition of an actor-network of De Bruijn and Ten Heuvelhof (2008) in a looser manner: it is the group of actors that have an interest of a stake by a pilot project, who depend on each other for the realisation of their goals. In this conceptualisation, subset of actors is not only discussing and deciding about the project in arenas, these arenas are also the places where stories are told and shared.

Actor-networks and arenas

By using individual actor narratives (chapter 3), we distinguish the (shared) narratives in the coastal policy community that portray the discussions around the pilot project(s). We study the development of these narratives. Narratives are not limited by the boundaries of a project. As a consequence, narratives about a coastal pilot project will, in some fashion, also portray a part of the (more general) discussion at the policy level. Therefore, we assume that analysing the narratives not only deepens our understanding about the development of the pilot project itself, but also indicate its effect(s) at the policy level – the effect(s) of the pilot project within the broader policy (change) processes. The extent to which the narratives on the pilot project reach the policy level, will – we expect – vary between different pilot projects.

Project and policy level

2.5 Chapter outcome

In this chapter, we explored existing literature on pilot projects, policy processes and narratives, and constructed a 'narrative model of the development of pilot' as conceptual lens for the research, hereby addressing the theoretical research questions RQ1 and RQ2 ("What is the current understanding of narratives in policy processes?" "How can the concept of narratives be used to study the development of coastal pilot projects and their effects within their actor-networks?").

It is hypothesised that analysing the narratives in actor-networks around pilot projects not only deepens our understanding about a pilot project itself, but also about its effects on the policy level – in the field of coastal management. In this way, the narratives can contribute to improving our understanding of the development of (coastal) pilot projects and their effect(s) within the actor-networks.

The next chapter describes the research strategy and the (narrative) methods that are applied to distinguish and analyse the pilot project narratives.

3.
Research strategy and methods

In chapter 2 we formulated 'a narrative model of the development of pilot projects' by integrating theories about pilot projects and policy processes with literature findings about narratives. This conceptual model expresses how we consider narratives to function in policy processes and their potential roles in the development of pilot projects. Now, we design the case study research further, by developing specific narrative methods for analysing the experiences of the actors involved in pilot projects.

First, we discuss the selection of the case studies (3.1). Then, we explore why narrative analysis is an interesting tool for studying actor experiences and which data are needed for such a narrative approach (3.2.) Section 3.3 provides examples of narrative methods in policy research, inspiring the design of our methods for a narrative analysis of the data. The details of the deductive narrative method and the inductive narrative method are described in 3.4 and in 3.5, respectively. Participatory observation, as explained in 3.6, forms a component complementary to the inductive method.

3.1 Case selection

In order to learn from actor narratives and to deepen the understanding about the development of coastal pilot projects, we have chosen to adopt a case study method (1.3) and have selected two pilot projects as case studies.

Information-oriented selection of first case

The selection of the Sand Engine is an 'information-oriented-selection'. The purpose of an information-oriented-selection is maximising "the utility of information from small samples and single cases. Cases are selected on the basis of expectations about their information content" (Flyvberg, 2001). The a priori selection of the Sand Engine as case study was made by the universities and knowledge institutes working on the STW NatureCoast program, who were convinced that this trend-breaking pilot project could deliver many insights about nature-driven mega-nourishments.

Within the STW NatureCoast programme, the Sand Engine is studied from many different scientific perspectives. The consequence (or: opportunity) for the doctoral student working on the governance research topic was clear. It was my task to design and conduct a study in which we could learn from the decision-making processes around this project, in which the accessibility of the material is very high, as is the willingness of the people involved to contribute.

The Sand Engine a unique case in Dutch coastal policy that be studied as a single case study (cf Yin, 2003), because it represents the first mega-nourishment and is presented as a pilot project. As a single case, the Sand Engine contains much information and many potential lessons. These lessons can perhaps be discussed and expanded using a second case study that is also considered unique, but to some degree comparable with the Sand Engine. Owing to the need for comparability, several criteria are taken into account in selecting the second case:

Selection criteria second case

- the issue: It must involve a coastal management project considering a sandy (soft) solution for coastal erosion issues;
- the scale: It must be a project that crosses the boundaries of established practices and solutions in its specific environmental and social context;
- sense of innovation: (Several) actors must have the idea that they are working on 'something new'/innovative;
- topicality: In order to study the follow-up activities and discussion (after a pilot project is realised), 'live-storytelling' needs to be observable. Therefore, the project must have been realised recently;
- the country: Because of the unique position of coastal management in the Netherlands, a case in another country is required;
- the accessibility: The pragmatic argument of accessibility (Denzin and Lincoln, 1994) is applicable to this case selection too: the actors and material need to be accessible to the researcher.

A case that fulfils all these criteria is Ystad's sand nourishment project in Scania, southern Sweden. It is therefore selected as the second case. The cases and their governance contexts are introduced in Prelude A and Prelude B.

3.2 Collecting personal narratives and other data

As argued in the introduction, and coherent with the claim that "organisations do not innovate or implement change, individuals do" (McLaughlin, 1987, p.174), we aim to study the development of the pilot projects by focussing on the experiences of the people involved in the development of pilot projects.

This section clarifies how to study the experiences of these people. Section 3.2.1 explains why narrative analysis is an interesting tool for studying experiences and 3.2.2 details which data is needed for such a narrative approach.

3.2.1 Studying actor experiences

Narrative understanding of experiences

Bruner (1991) distinguishes two types of reality construction; logical scientific reality construction and narrative understanding. The first one explains "the world of nature in terms of causes, probabilities and space-time manifolds and so on" (Bruner, 1991, p.4), the second organises experiences into meaningful episodes, organising "events and human actions into a whole, thereby attributing significance to individual actions and events according to their effect on the whole" (Polkinghorne, 1988, p.18). The latter is what Gee (1985) terms the human ability to 'narrativise experiences'. It is a form of sense-making that "consists of attempts to integrate a new event into a plot, by which it becomes understandable in relation to the context of what has happened" (Czarniawska, 1998, p.5 cf Weick, 1995).

Although these kinds of processes take place in individual minds, they are not restricted to one mind, because people share thoughts and experiences with each other. So the realm of meaning of individual people has its own cognitive processes that organise experiences, but the working of these processes is influenced by the experiences of others and interactions with others.

A logical, but complicating factor regarding experiences is that everyone – also a researcher – has direct access only to his or her own 'realm of meaning' (Polkinghorne, 1988). Sense making and experiences, therefore, need to be studied in an indirect way. Of interest is how the experiences are expressed and communicated by people. Storytelling is a very human way of communicating and narratives are able to carry meanings among people. So, we can utilise the narratives that people tell in studying the messages that they give about their experiences.

Utilising narratives to study experiences

To stick as closely as possible to actor experiences, we chose to start with open interview conversations with key-actors in which we asked them to relate their personal experiences. These personal narratives function as an analytic entry point for policy relevant experiences, which we use to study narrative competition (see chapter 2.3 and 2.4) within the decision-making processes.

Open interview converstations

It is important to keep in mind that the perception processes are prone to error "introduced by reliance on prior knowledge and expectations, which may be faulty or not fit in the current situation" (Taber, 1998, p.32). In addition, the interviewees are relating events that already happened, meaning that "retrospection, or hindsight, is crucially involved in the configuration of the story" (Kvernbekk, 2013, p.639). The personal narratives used as analytic entry points, therefore, do not [necessarily] reflect the "world 'out there', but are constructed, creatively authored, rhetorical, replete with assumptions and interpretive" (Riessman, 1993, p.5) and are inevitably also a self-representation of the narrator, who is aware of the audience (Riessman, 1993 cf Goffman, 1959). These 'truthiness-aspects' are inextricably interwoven with studying representations (the narratives) of experiences.

Narrative understanding is a mode of knowing other

than logical scientific reality construction. As Polkinghorne (1988) explains, narratives "exhibit an explanation instead of demonstrating it" (p.21). For some researchers, these aspects are exactly the reason to hesitate in taking narratives and narrative understanding into account. But, narrative understanding and narratives are important in human behaviour, also in policy settings, as explained in chapter 2.2. This research, therefore, does not avoid narratives, but combines experiences and narratives in analysing cases of pilot projects and the possible effects in their actor-networks.

An alternative way of knowing and understanding

3.2.2 Data collection

Each individual has their own narrative understanding and each actor can tell their personal narrative about the development of a pilot project. Because of our interest in actor experiences, a first round of interview conversations with actors in the projects functions as our main source, our analytic entry point. Interviewees are selected based on their involvement in the pilot project processes so that the majority of the organisations in the actor-network are covered (see the overviews of the formal actor fields in the two case studies in Prelude A and Prelude B). A snowballing technique (Noy, 2008) is used to identify (accessible) individuals from the involved organisations.

Selection of interviewees

However, for a particular policy sector, such as coastal management, narratives are not traceable via a single narration or document, but are located in different sources containing narrative elements in different forms (Dicke, 2000). For our case studies, therefore, many policy documents, informative material, research articles, news articles, informal meetings and presentations are used to interpret and position the actor experiences within their context. After distinguishing the narratives, a validation survey (within the deductive approach, see 3.4) was conducted and a new round of interviews in which actors could reflect on the distinguished narratives (within the inductive approach, see 3.5) was organised. These steps will be explained later in this chapter, but an overview of all data used in these different steps is provided in Table 3-1.

Overview of data collection

The first round of interviews with actors in Ystad's nourishment case was conducted by ir. Zilin Wang, who completed a master's thesis on uncertainties in Building with Nature solutions (Wang, 2015). Wang conducted explorative and semi-structured interviews in which actors were also encouraged to relate their experiences. These interviews were analysed first with Wang's uncertainty matrix (not part of this dissertation, see Wang, 2015) and second with the inductive narrative method developed in this thesis. Ten out of eleven exploratory interviews from Wang could be transcribed. Although the level of the English of the Swedish interviewees and researchers was satisfactory and Swedish texts are quite readable for Dutch readers with a Swedish dictionary, language was a complicating factor in this case study. The risk of misinterpretation in the Sand Engine case – which was completely

Table 3-1. Overview of the data collected, an extensive list of the interviewees, documents and observed meetings can be found in the appendices.

	Data Sand Engine case	**Data Ystad's beach nourishment case**
First round of interviews	13 open interviews with 15 interviewees transcribed and analysed. Respondents in appendix B, conversational guide open interviews appendix D.	10 explorative semi-structured interviews with 14 interviewees transcribed and analysed. Respondents in appendix M
Second round of interviews (inductive approach)	5 reflective interviews and 2 open interviews with 3 interviewees. Respondents in appendix B, interview protocol appendix I.	11 reflective interviews with 13 interviewees and 1 open interview. 4 interviewees overlapped with the interviewees of the first round. Respondents in appendix M, interview protocol appendix I.
Survey (deductive approach)	Among 44 conference participants, see 3.4.4. Details in appendix G	-
Written information (background, cross-checks, no analysis)	63x document from governmental organisations (such as vision, information, plan, report commissioned by government organisation) 9x political document (motion, decisions) 11x communications of other parties/newspaper article Details in appendix C	31x document from governmental organisations 1x political document (motion) 34x communications of other parties/newspaper articles Details in appendix N
Video files (background, cross-checks, no analysis)	17x Details in appendix C	1x Details in appendix N
Observational activities	Participatory observation in 33 small and large meetings of coastal community. Analytical table in appendix K.	Participatory observation in 6 small and large meetings of coastal community. Analytical table in appendix Q.

investigated in Dutch – was smaller. However, the researchers could always check with the Swedish partners whether they had understood correctly. Furthermore, the interviewees were asked to check whether the interview transcripts represented the interview conversation correctly.

The essence of interpretative research is to achieve

"submergence" in material and actor-environment

'submergence' in the material and the actor environment. For the Sand Engine case, this was easier than for the Swedish case. As a doctoral student in Delft, working on a multi-disciplinary research program in which many people from coastal policy and research are involved, it is easier to get to know the Dutch coastal community than the coastal community in Southern Sweden*. To get to know the Swedish coastal community, the Annual Coastal meeting 2014 was visited. But the explorative interviews later that year were done by Wang. Therefore, we decided to organise more 'reflective interviews' in Sweden than in the Netherlands (Table 3-1).

3.3 Towards a narrative analysis

In 3.2.1, we related the concept of narrative to the phenomenon of experience, understanding that narrativising or story-creation is an uniquely human way of making sense of experiences, which is not necessary connected to narrative research methodologies (Clandinin and Rosiek, 2007). This section explains why we adopt narrative methods to analyse our data and introduces several forms of narrative research (3.3.1), helping us designing the methods for narrative analysis of the data in our research (3.3.2).

3.3.1 Introduction to narrative methods

The phenomenon of experience is represented in diverse sources of linguistic data which can be studied using different methods; from more quantitative content analysis (e.g. Krippendorff, 2004, Stemler, 2001) to several interpretative text analysis techniques such as frame or framing analysis (see e.g. the overviews of Van Hulst and Yanow, 2014, Cornelissen and Werner, 2014), discourse analysis (see e.g. the overview of Hajer and Versteeg, 2005), semiotics, hermeneutics or conversation analysis (Riessman, 1993). However, as explained by Clandinin and Rosiek (2007) and Connolly and Clandinin (2006), because narrative understanding is a way by which people's "experience of the world is interpreted and made personally meaningful" (Connolly and Clandinin, 2006, p.375), studying narrated experiences by using narrative methods, is a relatively straightforward way of studying them.

But what do these narrative methods encompass? They are used within so many disciplines that we could be swamped by the volume and diversity of narrative research. Polkinghorne (1995) distinguishes two broad types of narrative methods: the paradigmatic type that collects stories (storied accounts) as data and uses an analytic process to identify instances, categories and/or typologies, and the narrative type that "collects descriptions of events, happenings and actions" and uses an analytic process to configure stories. Whereas in the paradigmatic type, the analysis is based on logical-scientific (or a paradigmatic) way of reasoning,

* The Dutch background of the researcher makes "submergence" easier, but also has its drawbacks, because one can easily take things for granted and for example forgot to report and discuss these things. This is why studying a second case abroad is so important (see criteria case selection in 3.1).

the analysis of the second type is based on narrative reasoning (Polkinghorne, 1995 cf Bruner 1985).

Four categories of narrative methods

For policy analysis, Van Eeten (2007, p.251/252) does not limit himself to Polkinghorne's dichotomy, but describes a broad variety of narrative approaches, although by no mean an exhaustive list of four categories, based on the origin of applied methods and the object of study. His four categories can be found in the left

Table 3-2. Overview of interpretative policy research that uses narratives as research objects or/ and narrative methods.

Categories of Van Eeten (2007)	Examples of policy studies
1. In **narrative analysis of policy**, 'methods are applied to the world of policy, often showing narrative and symbolic structures that operate in policy processes'	• Stone (2002) emphasised the symbolic representation in defining policy problems, in which stories are used to explain 'how the world works'. • Throgmorton (1996) used a storytelling-perspective to explain the regional electricity planning around Chicago. • Sköldberg (1994) uncovered tragedy, romantic comedy and satire as underlying narrative modes in eight changing organisations. • Shanahan et al. (2011) connected policy narratives with the Advocacy Coalition Framework of Sabatier and Jenkins-Smith (1993, see also 2.2.3). • Van der Stoep (2014) used framing analysis to study the role of stories in "how civic initiatives strive for connection to governmental spatial planning agendas". • Baake and Kaempf (2011) argued that sources for decision-making on river flood management (the Rhine) are not only technical sources, but also narratives.
2. In **analysis of policy narratives**, 'methods – often from social sciences – are used to reconstruct the stories that actors tell about a policy issue'	• Van Hulst (2012) illustrated different stories told in a city-planning case in a Dutch municipality. He also stated the difference between Storytelling as a 'model of planning' and a 'model for planning' (see also 2.3.2). • Bulkens et al. (2014) used storytelling "to allow individuals affected by a spatial planning project to voice their concerns and their respective positions", showing "the contested nature of participatory planning in the Netherlands." • Warner and van Buuren (2011) studied three narratives of success and failure in a Dutch river project; elements "of the official policy narrative are used, broadened, questioned or reinterpreted by local actors to defend their point of view". • McBeth et al. (2005) quantified competing interest group narratives that cause political conflict in the Greater Yellow Stone Area (US). • Feldman (2004) made use of "individual's stories in understanding how abstract plans for change in organisations are translated in the way people accomplish their day-to-day work" and show their interpretative methodology.

	• Raaphorst et al. (2016) mapped the network of semiotic chains. One of his case studies is a design competition for multifunctional flood defences in the wake of hurricane Sandy in New York, revealing the underlying semiotic narratives.
3. In **policy analysis of narratives**, 'methods from literary theory and social science are used to analyse the relations among conflicting policy narratives in order to develop policy advice on how to proceed'	• Roe (1989) compared and analysed dominant stories in the '80-'82 Medfly Controversy (California). Later, he published his policy analytic method to distinguish policy narratives and to develop meta-narratives that can help a policy deadlock (1994). • Van Eeten (1999) applied e.g. the folktale framework of Propp to reconstruct the arguments in a Dutch dike improvement controversy. He also used Q-methodology to distil underlying narratives in the Dutch National Transport Plan and the Expansion of Amsterdam Airport (2007). • The concepts of policy narratives and meta-narratives are also applied by Bridgman and Barry (2002) who analysed number portability in New Zealand.
4. In studying **the narrative of policy analysis**, 'narrative analysis is used to excavate the narrative foundation of policy analysis itself'	• According to Kaplan (1986), narrative writing is one of the desirable forms of policy analysis.

column of Table 3-2. The right column provides examples of policy studies in these categories.
The table shows that there is not one 'narrative method', but that there is a diverse group of methods. This group of methods has been developed and employed since the so-called 'narrative turn' in humanities and social science, when social scientists concluded that natural science methods were too limited for understanding social life (Riessman, 1993, Czarniawska, 2004).

The list of examples of narrative research in policy analysis in Table 3-2 also confirms Landman's (2012) observation that there are many analytical features of narratives that can become part of a researchers' strategy. This causes "a continuum of approaches in narrative analysis" (Riessman 2008). The narrative model on the development of pilot projects (chapter 2) postulates that narrative structures play a role in pilot project processes, which concurs with Van Eeten's first category (Table 3-2). But we also want to distil the narratives that play a role in the narrative competition within the coastal actor-network and analyse their developments. This ambition fits with Van Eeten's second category 'analysis from policy narrative'.

What do we need?

Accordingly, we require a research design that allows us:
- to distinguish the narratives that played a role in the narrative competitions preceding the realisation of (coastal) projects and;
- to analyse the dynamics of this narrative competition also after realisation.

3.3.2 Deductive and inductive analysis of the personal narratives

Aggregation is often needed in conducting a narrative analysis in a policy sector (Van Eeten, 2007). In this thesis, we employ two

Two methods for analysing the personal narratives

strategies to aggregate personal narratives derived from the interviews to narratives that potentially played a role in the narrative competition.

First, a deductive narrative analysis is developed and employed, involving an analysis in which an a priori coding framework derived from theory is applied. This coding framework is based on narrative characteristics, as explained in 3.4. Coding with such a predetermined coding framework is a relative uncomplicated starting point for exploring the narrative foundations in the first case study (because the researcher is guided by the predefined narrative characteristics).

In general, a deductive method prescribes the analysis and therefore fits well with an interview technique that does not proscribe the conversation. For the Sand Engine case, open interviews are conducted (3.2.2) yielding material appropriate for a deductive analysis. In contrast, the initial interview data on Ystad's sand nourishment project are semi-structured interviews. Although the interviewees were given space to relate their own experiences, the interviewees did not 'start their narrative were in their experiences the development of the pilot project had started'. This makes it inappropriate to apply the deductive method, which compares the situational orientation and time-span of the personal narratives, to the second case.

In addition to this mismatch between the initial data and the deductive method, there is also another motivation to develop an additional method. The deductive method provides retrospective insights only, but we want also to understand the development after their realisation and their further effects within the actor-networks.

So, secondly, an inductive method is designed and employed (see 3.5). Inductive analysis means that the patterns, themes, and categories of analysis come from the empirical material; they emerge out of the data rather than being decided prior to data collection and analysis (Patton, 1987). The resulting narratives are then discussed within reflective interviews, contributing to a dynamic view rather than only a retrospective view on the development of the pilot project.

It is not self-evident that aggregated personal narratives represent the main narratives within the actor-networks. In both methods, a validation step is therefore incorporated (3.4.4 and 3.5.2).

3.4 A deductive narrative method for eliciting biographies*

In the first method, we use the personal narratives of the actors to develop a retrospective understanding of the policy process to explain 'how the policy situation came into being'. In social science, descriptive stories are used frequently and can form historical

* This method description is an adapted version of the section 2.2 Method Design in Bontje, L.E. & Slinger, J.H., 2017. A narrative method for learning from innovative coastal pilot projects - Biographies of the Sand Engine. Ocean & Coastal Management. 142, pp 186-197.

explanations that "seek to identify the causes of outcomes in particular cases" (Mahoney et al., 2009). Utilising the personal narratives of actors for such a reconstruction, however, is novel. This section starts with how the personal narratives are aggregated (3.4.1) and explains the validation and interpretation steps (3.4.2).

3.4.1 Aggregation of the personal narratives

For this first analysis, an a-priory coding framework is used for extracting the chronicle and emplotment of these personal narratives. With the components of narratives in mind (Table 2-2 in 2.3.1), the coding framework involved:

(i) the sequences of events, the time and spatial orientation;
(ii) and the problem-solving qualities ascribed to the pilot project.

A method developed by the sociologist Schütze (Schütze 1983, Jovchelovitch and Bauer 2000, Kleres 2011) and frequently used in biographical research, is adapted for such an analysis as depicted in Figure 3-1.

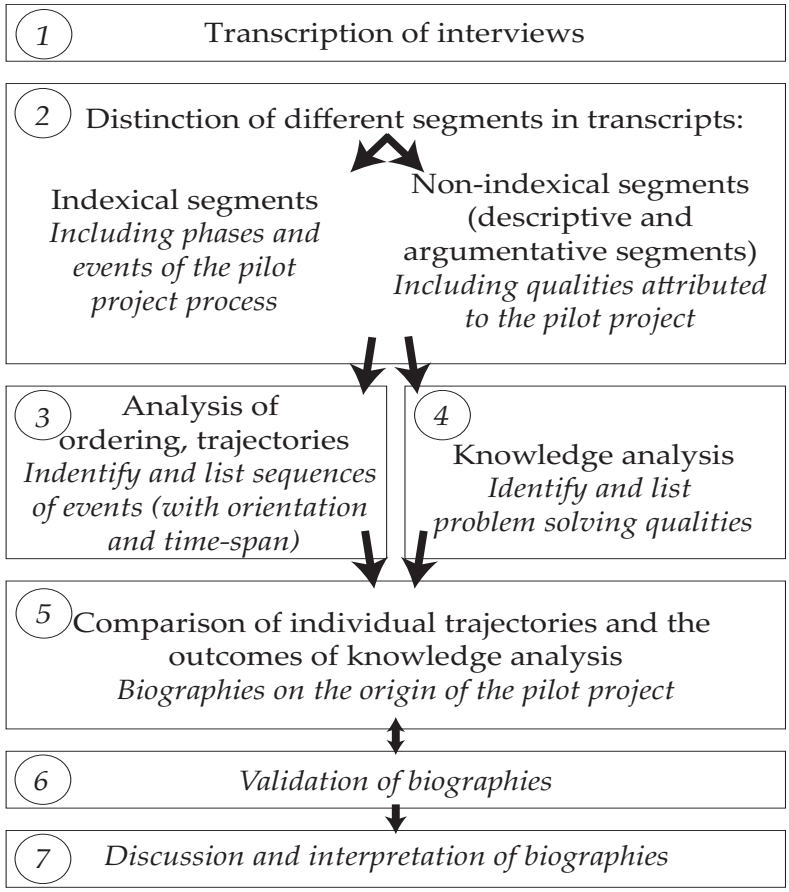


Figure 3-1. Overview of the biographical narrative method to study innovative pilot projects (Adapted from Schütze 1983, Jovchelovitch and Bauer 2000, Kleres 2011). Italics indicate the adaptions of Schütze's method for the analysis of innovative pilot projects.

Detailed and high-quality transcriptions of the interview material are made (Step 1, Figure 3-1). Then, the narrative structure of the interview text is dissected into discrete narrative segments, coded as 'indexical' or 'non-indexical' segments. Indexical segments have a concrete reference to "who did what, when, where and why" (Jovchelovitch and Bauer, 2000, cf Schütze 1983). They describe phases or events (Kleres, 2011). Non-indexical segments go beyond events, yielding descriptions and argumentation. Descriptions "refer to how events are experienced, to the values and opinions attached to them, and to the usual and the ordinary", while argumentation refers to legitimisations and reflection (Jovchelovitch and Bauer, 2000) and has an evaluative or theoretical-explanatory character (Kleres, 2011).

Coding in line with Schütze

Both types of non-indexical segments are then (sub)coded (Step 2, Figure 3-1). Third, the coded indexical components of the text are used to distinguish the ordering of events for each individual (Step 3, Figure 3-1). These sequences of events, or trajectories as Schütze labelled them, form the routes from conception to the design and realisation of the pilot project as outlined by the interviewees. During the fourth step, the non-indexical segments are investigated: the 'problem-solving qualities', which the interviewees attributed to the project, are found in these segments. The outcomes of both analyses (Step 3 and 4) are then compared. The similarities in sequences of events and the problem-solving-qualities are used to assemble the biographical narratives on the origin of the pilot project (Step 5, Figure 3-1).

3.4.2 Validation and analysing the biographies: survey and interpretation

For assessing whether the biographies deriving from the personal narratives match the retrospective views of the broader coastal community (Step 6), several validation forms are conceivable. In the Sand Engine case study, a validation survey among participants of a coastal meeting is undertaken to see whether the participants recognised the biographies and whether they felt affinity with the biographies (3.2 and Appendix G). After the validation, the retrospective biographies are interpreted and discussed to distil learning about the realisation of an innovative pilot project (Step 7).

Validation exercise biographies

3.5 An inductive method for eliciting actor-network narratives

Inductive analysis means that the patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than deciding on themes prior to data collection and analysis (Patton, 1987). In this section, an inductive method for aggregating the personal narratives to actor-network narratives (3.5.1) is described. In addition, the steps for validation and further analysis are presented (3.5.2 and 3.5.3).

3.5.1 Aggregation of the personal narratives

The first interview round in the Sand Engine case study comprised open interviews. The actors were free to relate their experiences regarding the realisation of the project. The exploratory interviews in the Ystad case study were semi-structured, but there was space for interviewees to freely relate their experiences. The inductive analysis is a technique to retain openness and themes and categories as close as possible to the experiences of the stakeholders can be derived. The researcher's interpretive lens is that of narratives. This implies that the text in the transcripts is viewed as containing potential story-elements (decoding). For the encoding of these potential story-elements, we use Initial Coding (Saldaña, 2009), which means that

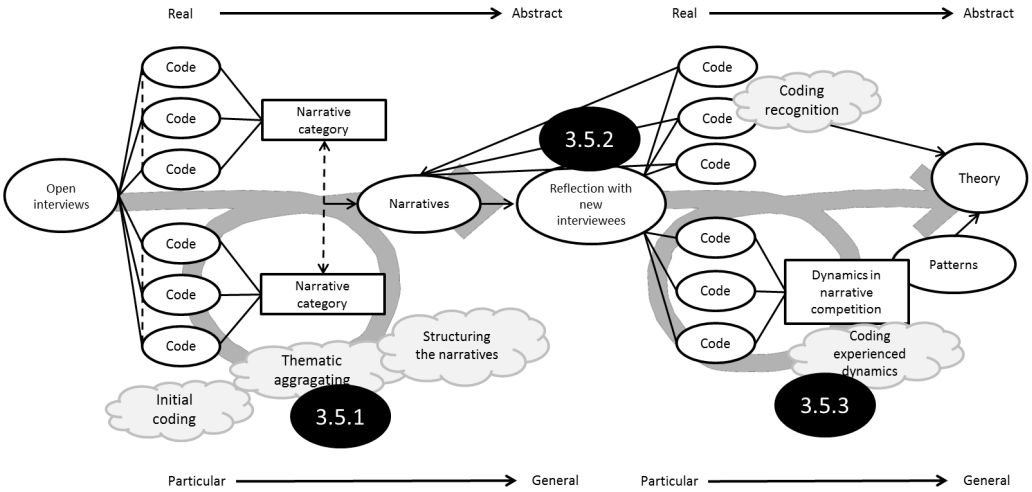


Figure 3-2. An overview of the inductive methods for interviewing and analysing as explained in 3.5.1 to 3.5.3. First, open interviews are conducted and analysed using initial coding, thematic aggregation and structuring of the findings in the form of narratives. These narratives are used as interview stimuli in the reflection interviews. The reflection interviews are analysed on aspects of recognition and dynamics in the narrative competition as experienced by the interviewees. Figure adapted from Saldaña (2009).

the story-elements get a label with a "first impression phrase" (see the left side of Figure 3-2).

From initial coding to narrative categories

Finding the narrative patterns, requires a "recursive movement from the data to an emerging thematic plot" (Polkinghorne, 1995, p.16). The narrative patterns are examples of what Patton (1987) terms analyst-constructed typologies. The codes and their quotations are analysed for variations, contrasts and similarities, leading to several narrative categories (Figure 3-2, see Appendices H and O for a visualisation of the narrative categories). To construct narratives from the narrative categories, the story-elements in these different categories are structured around an 'Orientation, Complication, Resolution' outline. Orientation, complication and resolution are three (out of six) story phases as

mentioned by Riessman (2008)*.

The outlined narratives are then written out as a short textual story. These are the compelling narrative candidates. The word 'candidate' is used here, because we hypothesise that these stories fulfilled a role in the decision-making. Presenting the analyst-constructed typologies to stakeholders provides a means of establishing whether these typologies are representative and useful (Patton, 1987). This is done in the second interview round.

Narrative candidates

We can also identify which interview transcript contributed most to it a narrative candidate by counting how many initial quotations that form the narrative candidate are rooted in each transcript. We can also analyse which interviewee(s) contributed most to each of the narratives. This quantitative exercise serves to support the qualitative interpretation of the narrative dynamics as the samples are not large enough to have statistical significance.

Roots of the narrative candidates

3.5.2 Validation and analysing the narratives: Second round of interviews

The narrative candidates were assessed by stakeholders during a second interview round. Cards are made with key-words of the story following the 'Orientation, Complication and Resolution' structure on one side, and the title and symbolising icon on the other sides. The written stories and the cards are used as interview stimuli. During the interview series, a new group of interviewees is asked to reflect on the stories. Do they recognise them? Would they like to add stories? What kind of feelings do they have towards them? And are the stories playing a role in discussions now? Using these kinds of questions we assess the recognition, interaction, impact and present role of the stories.

Qualitative validation of narratives

To avoid an apparent preference on the part of the interviewer for certain stories, we developed a protocol for the start of the interview (see Appendix I). This protocol guides the interviewer in the introduction phase and the presentation of the stories. Most importantly, it facilitates that the interviewees decide the order of the narrative presentations by picking the cards themselves. After all narratives are presented, interviewees reflected upon them in a semi-structured interview. The protocol involves a list of questions, but at the same time, the interviewer provides enough space for the interviewee to add to and criticise the stories. The interview protocols for both cases were first tested in a role-play setting with supervisor or peer acting as the interviewee.

3.5.3 Analysing recognition of the actor-network narratives and reflection on the narrative competition

The transcripts of the second round of interviews are coded to determine the recognition of the narratives by the interviewees,

* The other three elements that, according to Riessman (2008), are necessary to form a full story (abstract, evaluation and coda) are elements that are added by a narrator (Table 2-2 in 2.3.1). These additions of individual narrators are not relevant for pilot project narratives.

the interviewees' personal attachments to these narratives and to determine to which actors the interviewees attribute the narratives (see code lists in Appendices J and P).

The level of recognition by the interviewees is ranked by the researcher with codes within the scale 'R1' (A reaction of non-recognition) till 'R5' (A very enthusiastic reaction of recognition). The interviewees' personal attachment was coded with the label PA and the codes for the narratives. With a semi-open coding strategy the quotations in which the interviewees attributed the narratives to actors are labelled for each of the narratives.

Recognition, attachment and attribution within the actor-network

For all three types of coding – recognition, attachment and attribution – a co-occurrence analysis with the codes for the different narratives is executed. These codes are used to produce several overviews, such as which narrative scored which recognition scores, to which narratives interviewees feel personally attached and to which actors the narratives are attributed by the interviewees. Circle-spoke-diagrams are produced to visualise the attributions deriving from the last analysis.

Next, we code how interviewees view the narrative competition (labels 'competition', 'change' and 'action'). This information is organised so that an overview of the perceptions of the narrative competition could be written.

3.6 Participatory observation and analysis of the field notes

Pilot project related events

This research also involves participant observation activities, in which different events related to the pilot projects are visited and observed. These events take place after the realisation of the pilot projects, so the observations are used to learn about the development of the pilot project in the 'use and confirmation' stage of the narrative model.

The types of events that are observed vary between presentations and discussions among researchers, excursions for visitors from other countries, working sessions and conferences. Such events provide 'stages' for people to articulate their ideas about the pilot projects and related issues. In the logbook, the content and impressions of the events are jotted down. Sometimes, the researcher was provided with a stage, for presenting research or giving an informative excursion at the project site. These narrations, however, are not incorporated in the analysis. The observations culminate with the two-day conference on 5-years of the Sand Engine in September 2016.

The time period of the observational series (2013-2016 and 2014-2015 for the Sand Engine and Ystad, respectively) form a component of the PhD trajectory, when other research activities were also undertaken. This makes the research activities at least partly 'sequential'. 'Sequencing' is a phenomenon already described by Becker (1958), referring to research situations in which other data is analysed while the observational activities are going on,

potentially influencing the observations of the researcher. In this research it means that the researcher has already distinguished the narratives when the last events are observed, which could lead to bias. By collecting as many notes and by postponing the decision on the analysis strategy for the log book to after the completion of the observation, the potential bias is minimised.

Minimising impact of 'sequencing'

All events in the logbook are assessed on characteristics such as the type of event, the stage and the audience and on whether the narratives from the inductive analysis could be traced. The results are synthesised in a large analytical table.

3.7 Chapter outcomes

In this chapter the case study strategy, including the designs of two narrative methods to analyse actor experiences, is described. This addresses the third research question RQ3: 'Which research strategy and methods are appropriate for studying the development of coastal pilot projects and their effects within their actor-networks from a narrative perspective and how can we apply these methods in empirical case studies?'.

These methods are applied to two cases to investigate the development of innovative coastal projects. The methods are discussed and evaluated at several places in this thesis (following the case chapters, in the case comparison in 7.2 and in the final chapter 8).

Prelude A
Case description Sand Engine pilot project

Figure A-1. The Sand Engine peninsula in 2015. Picture from Joop van Houdt, RWS.

A.1 Context of the project

A.1.1 The Dutch coast

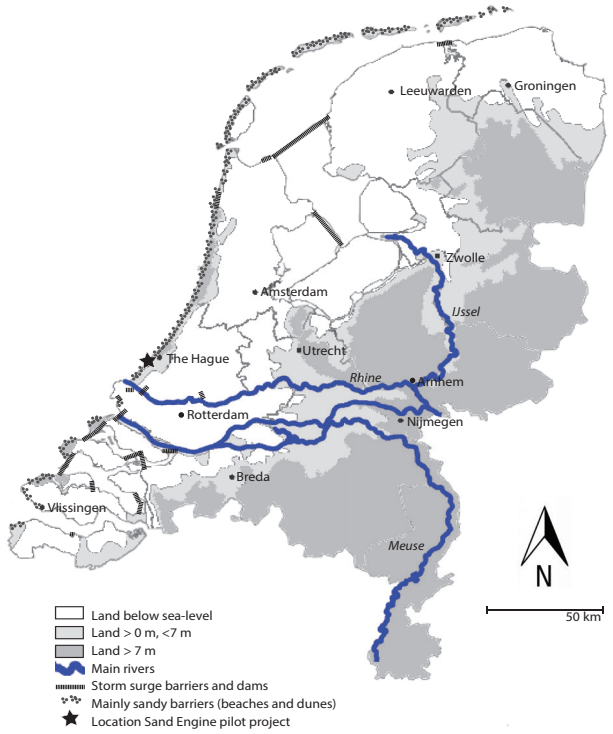


Figure A-2. Map of the Netherlands, showing the parts below and around sea level, its main rivers, the main hard coastal defence infrastructures (storm surge barriers and dams), the sandy coastal defence structures and the location of the Sand Engine pilot project. Map adapted from Van der Maarel (2010), based on Van der Bolt et al. (2010).

The Netherlands forms part of the north-western European delta and large areas are situated below sea level (Figure A-2). This geographical position, together with the geomorphological evolution of the country's landscapes, and the occupation history of the landscape, means that there is an intense relationship with water (e.g. Van Koningsveld et al., 2008). The Dutch have suffered serious flooding problems from storm surges in the past, when strong winds from the west to northwest (Jelgersma, 1992, as cited in De Kraker, 2006) occur in combination with high (spring) tide. Examples of such storm surges include the flooding of the former Zuiderzee area in 1916 and in the provinces of Zeeland and South Holland in 1953. The combination of a storm surge and peak discharge of the rivers forms an additional threat, because the discharge of river water is then hindered by the high level of the sea.

With its high population density, economic importance and vulnerability, protection of the coastal area receives a great deal of (coastal) policy attention (Mulder et al., 2011).

Most of the Dutch coastline - 254 km of the 353 km (Waterman et al., 1998) - consists of sandy beaches and dune ridges. The rest is protected by hard constructions. Both form part of the 'primary flood defences'* (Water Act, Ministry of Transport, Public Works and Water Management 2010). However, in the absence of interventions, roughly half of the sandy coastline would be subject to structural erosion processes (Mulder et al., 2011), making sand nourishment necessary to maintain the integrity of the beaches and dunes as a flood defence barrier. The Dutch coast can be divided into three segments, the southern Delta Coast (estuaries, inlets

* Primary flood defences (In Dutch: Primaire waterkeringen) are defence structures protecting the land against flooding caused by 'water from outside'; from the North Sea, the Wadden Sea, the large rivers and the IJsselmeer and Markermeer.

peninsulas), the Holland Coast (as almost continuous curved coastal line) and the Wadden sea (mudflats and islands) (Mulder et al., 2011). Sand nourishment occurs along all three types of coastal segments.

Flood safety standards were established in the middle of the 20th century. In the Coastal Defence Bill of 1990*, the government adopted a 'dynamic preservation' principle (Mulder et al. (2011), Van Koningsveld et al. (2008)). With this policy, the location of the 1990-position was established as a reference point for maintaining the coastline in the future. Sand nourishment was institutionalised as a favoured coastal management strategy with an annual program in which the necessary volumes and locations are determined by calculation rules and procedures (Hermans et al., 2013).

A.1.2 The actors in the Dutch coastal policy system

The Minister of Infrastructure and Environment and the corresponding ministry are responsible for the formulation and strategic management of coastal policy. The Minister of Infrastructure and Environment is also responsible for the granting of permits for sand extraction from the North Sea. Rijkswaterstaat (RWS) is the public body charged with the execution of this coastal policy. This means that RWS is responsible for the operational management of the hard infrastructures and the sandy coastline as specified in the coastal policy that are part of the primary flood defence structure.

The coastal provinces and the water boards form part of the actor-network around coastal issues. The provinces carry responsibility for harmonising coastal management in the regions and coordinating meetings in which at least RWS, the province, water boards, relevant local authorities and nature area managers collaborate in order to manage the coastal zone and maintain safety from flooding. The water boards are also involved in maintaining (regional) flood defence infrastructure and in measuring and reporting safety levels. The water boards and RWS also have the task of (not) granting permits for construction affecting dunes and dikes.

At the local level, the stakeholders in coastal management include the municipalities, citizens living behind the defence structure, nature development organisations, beach entrepreneurs, drinking water companies and so on. Municipalities are responsible for the public spaces under their jurisdiction and undertake activities, such as maintenance and ensuring public safety. Most of the beaches are public areas too. In implementing sand nourishments, RWS communicates with provinces, water boards and municipalities (Rijkswaterstaat, n.d.-a). Cooperation and fine tuning between all these organisations is also needed for coastal management projects, such as pilot projects.

In Dutch coastal management, there is a trend towards multi-functionality, where functions in addition to coastal safety are considered (Voorendt, 2017). This trend is reflected in the Weak Link projects, which are collaborations between the Ministry of Water and Infrastructure and the coastal provinces that started around the year 2000 (Ministry of Transport, Public Works and Water Management, 2000, 2002). Points along the Dutch coast which could be considered weak in safety terms, were strengthened, and additional spatial functions were realised. For instance a parking garage was constructed in the strengthened dunes in Katwijk. The trend towards multi-functionality requires more collaboration between the organisations involved, because when objectives are added to a project, extra actors, with their

* 'Eerste kustnota', Ministry of Transport, Public Works and Water Management, drafted in 1990. See for an example of annual calculations and evaluation, Rijkswaterstaat (2013).

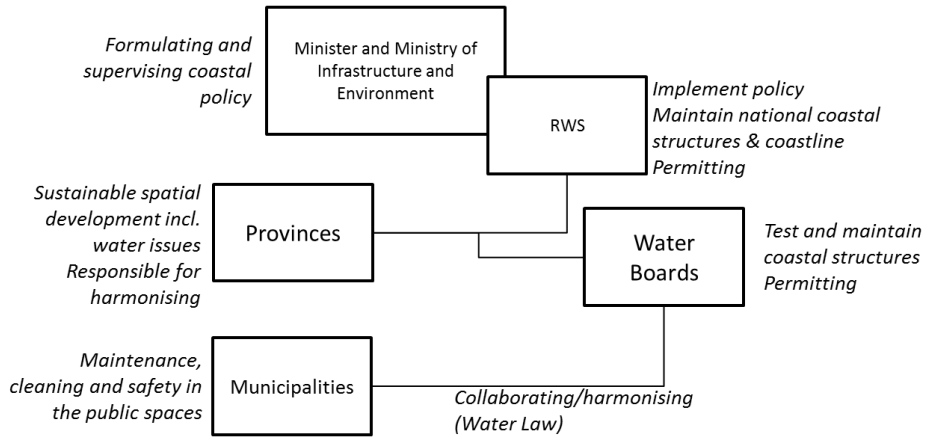


Figure A-3. Schematic overview of actors and responsibilities in Dutch coastal management.

working preferences, need to be integrated in the process (Bressers, 2009). This need is reflected in the project description of the Sand Engine pilot in A2.

A.1.3 Challenges for coastal policy

Because of The Netherlands' geographical position and the accompanying threat of flooding from storm surges, peak rain events, and peak discharges from the rivers, the Dutch government realised that climate change and associated sea level rise could have serious impacts on the country. In 2007, the government commissioned an advisory committee to study the consequences of climate change, because "The predicted sea level rise and greater fluctuations in river discharge compel us to look far into the future, to widen our scope and to anticipate developments further ahead" (Delta Committee, 2008). This 'Second Delta Committee', also known as the Veerman Committee, after its chairman, advised the Dutch government to launch a National Program embedded in a new Delta Act (Delta Committee, 2008). The new Act was promulgated and came into force in 2012, forming the legal basis for a National Program with a Delta Fund for its implementation (Van Haegen and Wieriks, 2015). One of the recommendations of the Delta Committee was to keep strengthening the North Sea coast with sand nourishments, potentially in combination with coastline expansion so as to "add great value to society" (Delta Committee, 2008).

Of course, the advice of the Delta Committee did not come out of the blue. Even before the Delta Committee was installed, engineers and policymakers were already searching for innovative means and ideas to counter further erosion of the sandy coast and combat the anticipated sea level rise. One of these innovative ideas is the use of mega-nourishments for coastal protection as described by Stive et al. (2013). The Sand Engine is the first mega-nourishment to be realised.

A.2 The pilot project

A.2.1 Objectives and design of the intervention

On behalf of RWS, Deltares made, a rough, preliminary design of the Sand Engine in 2007 (Bruens, 2007). This document outlined the objectives of the project at that moment. As shown in Table A-1, some events related to the project already

happened. The advisory committee of the province of South Holland presented their 'Coastal Booklet' (Tielrooij and Adviescommissie voor de Zuid-Hollandse Kust, 2006) to the Provincial Executive and the collaboration between the province and the Ministry/RWS was initiated. Bruens (2007) outlined the objectives mentioned in several documents and workshops.
From the 'Coastal Booklet':
- Improving the coastal safety together with improving spatial quality (recreational space);
- From information that came together with the tender for this preliminary design:
- Growth of the coastal area – that guarantees coastal maintenance – by supplying (an excess of) sand to the coastal system that will be spread out by natural processes;
- Using the principles of 'Building with Nature': use of natural materials (sand) and natural forces (long shore transport, wind, waves, tidal movement);
- Accommodating the need for ca. 6000 hectares of recreational green areas/nature area in the region;
- Creating space for spontaneous ecological development in the coastal environment.

In workshops and meetings preceding the preliminary design, a number of ambitions were mentioned:
- An innovative Sand Engine to form an (inter)national attraction and showcase;
- An innovative tender to stimulate the business sector;
- For the province, it is important that the project shows grandeur and that the public can see and enjoy the project.

(after Bruens, 2007).
Later, the objective of learning and knowledge development was added:
- Development of knowledge about the extent to wish coastal maintenance and recreational and environmental objectives can be realised together (Fiselier, 2010).

To fulfil these objectives and ambitions, several designs were made, modelled and calculated. Bruens (2007) works with variations of 'sand spoilers', 'sand barriers',

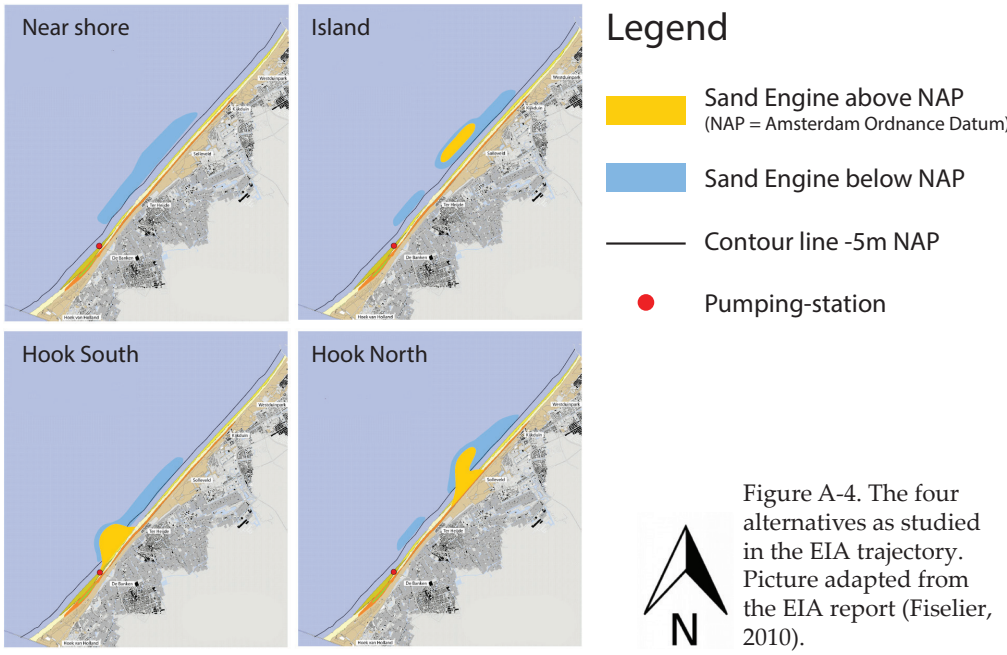


Figure A-4. The four alternatives as studied in the EIA trajectory. Picture adapted from the EIA report (Fiselier, 2010).

'lagoons' and 'islands'. In later documents – such as the EIA-Report (Fiselier, 2010) – the alternatives '(submerged) near shore', the 'island', the 'hook south' and 'hook north' are further investigated (Figure A-4). All the alternatives contain around 20 million m^3 of sand.

The EIA Report presented 'hook north' as 'preferred alternative' and in the end of 2009, the Steering committee selected alternative 'hook north'. The project location was chosen as just north of the Village Ter Heijde, next to Solleveld, a protected dune area where drinking water is infiltrated and extracted by a drinking water company. The choice for this location had implications for the design. The drinking water company pointed to potential effects on the water system possibly. There are some (old) polluted dunes in the area, and the drinking water companies feared that a changed water shed could lead to polluted water in their extraction area. The design of the project was extended to include a drainage system that would maintain the water shed at its original position (See Dunea et al., 2010). In the centre of the peninsula, a small but 40 m high 'Argus tower' equipped with cameras recording images of the project, was constructed. These images are used for monitoring and research.

A.2.2 Project organisation

In 2008, the 'Ambition document' was signed by a Member of the Provincial Executive, State Secretary of the Ministry of Transport, Public Works and Water Management, the municipal Mayors of Westland, The Hague and Rotterdam, the Dike Reeve from Delfland and the Chair of the Environmental Foundation South Holland*. The province of South Holland and Rijkswaterstaat, however, are considered to be the initiators of the pilot project. The Innovation Platform (IP) was also involved. The IP was a platform of representatives from the Dutch 'knowledge economy', chaired by the Prime minister. Its aim was to stimulate innovation and supported the project using its network (Innovation Platform, 2008).

The 'Ambition document' led to the installation of a Steering Committee with a broad range of representatives from a number of government departments (Figure A-5). The Steering Committee was supported by a team of officials from each of these organisations. Engineering professors (TU Delft) and members of the Ecoshape Consortium joined the Steering Committee. A group of collaborating business partners also expressed an interest in contributing to the project. In this first phase preceding realisation, the province of South Holland was the primary driver of the project.

Rijkswaterstaat took the lead during the tender and implementation phases. The province became responsible for maintaining the new land that was formed, contracting the Landscape South Holland Foundation** for the daily maintenance, and organising meetings with partners to discuss responsibilities. Rijkswaterstaat became responsible for the Monitoring and Evaluation of the project. To guide the Monitoring and Evaluation, the partners formed a new Steering committee. In addition, funding was acquired from the Dutch National Science Foundation to support a multidisciplinary research programme, STW NatureCoast, to enable scientific learning from the project. This thesis forms a component of the STW NatureCoast research programme.

A.2.3 Project development

A chronological overview of the events leading to the realisation of the Sand Engine

* In Dutch: Milieufederatie Zuid-Holland

** In Dutch: Stichting Zuid-Hollands Landschap

is provided in Table A-1.

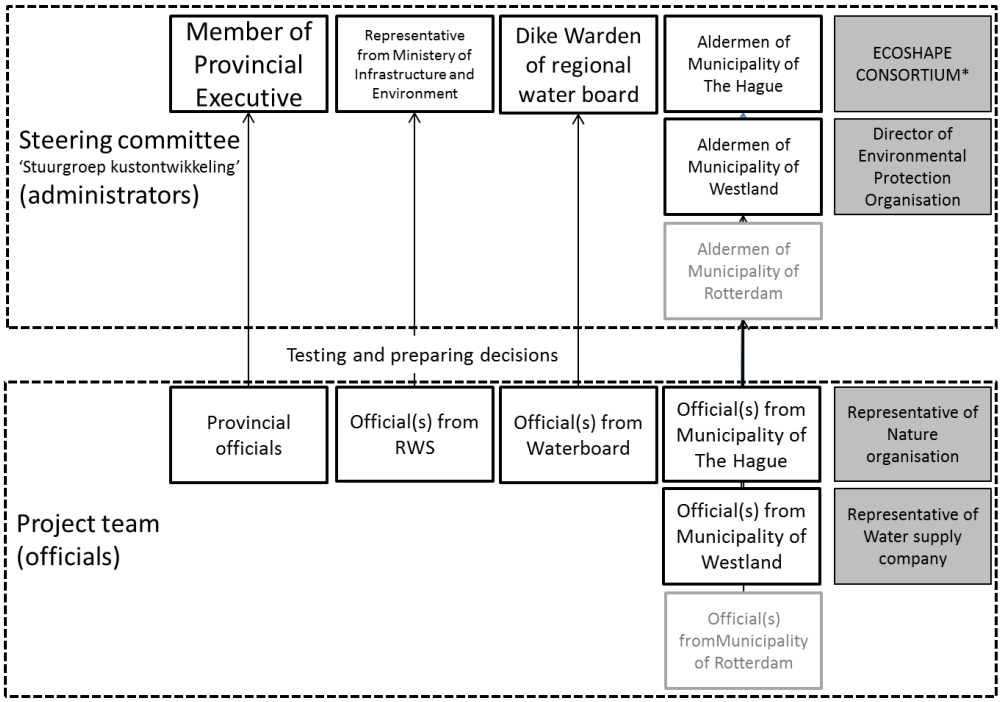


Figure A-5. Organisation prior to the realisation of the pilot project. Decisions were prepared by the Project team and made by the Steering committee. The Ecoshape consortium comprises by Boskalis, Deltares, Van Oord, Wageningen University and Research Centre, Witteveen&-Bosch, Vereniging van Waterbouwers, Municipality of Dordrecht, NIOZ, Delft University of Technology, Arcadis, IMARES, Royal Haskoning DHV, UTwente, RWS, Royal IHC. With the choice for Ter Heijde, the municipality of Rotterdam was automatically less involved than the municipalities of Westland and The Hague. The water supply company became engaged at a later stage as they were involved in solving ground water issues with the initiators.

Table A-1. Timeline with events and developments of the Sand Engine project.

Period	Events (directly and indirectly) related to the realisation of the Sand Engine
Since '80	- Ideas of province from coastal development. - Ideas of scientists and RWS for sandy shore protection.
1990	- "Dynamic preservation" of the coastal line is introduced in the New Coastal Bill
2000 and further	- Start of the "Weak link" projects; several spots at the Dutch coast turned out to be not safe enough on the long term, the Minister encourages the provinces to come up with plans that would improve coastal safety and spatial quality.
2005	- Deputy of South Holland installs an advisory committee to come up with an idea for coastal development in the province. - Within the RWS innovation program WINN the idea 'Zand en Ze(e)ker' is presented (Berendsen et al., 2005).
2006	- The advisory committee of the province presents the Coastal booklet (Kustboekje) to the Deputy (Tielrooij, 2006). - Within the RWS innovation program WINN the idea 'Island for one-season' is presented.

2007	-	Sand Engine pilot mentioned in the 'Water Vision' of the government (Ministry of Transport, Public Works and Water Management 2007).
	-	Sand Engine pilot presented on innovation meeting ("Dag van Maarssen"). State secretary promises support to the Deputy (RB, 2007).
	-	Preliminary design of Sand Engine by Deltares (Bruens, 2007) (by order of RWS).
2008	-	February 2008: Coastal Conference 'Winning with Water' organised by Innovation Platform, Sand Engine idea is presented. Prime Minister challenged the Province of South Holland to present an action plan soon (Balkenende, 2008).
	-	Signing Ambition agreement by Deputy, State secretary, mayors of Westland, The Hague and Rotterdam, Dike warden from Delfland and the chair of Milieufederatie Zuid-Holland.
	-	Starting Memo of EIA trajectory (MER procedure).
	-	Start of the "Weak Link" project Strengthening the Delfland Coast, in which a new row of dunes and a wider beach is constructed.
2009	-	Start of EIA trajectory.
2009/2010	Decisions on realising the project:	
	-	9th of November 2009: Provincial Parliament agrees under financial conditions.
	-	17th of December 2009: Steering Committee agrees with the design alternative 'hook north'.
	-	24th of February 2010: Provincial Parliament agrees.
2010	-	April 2010: Signing Maintenance agreement (about division of responsibilities when the project is realised).
	-	12th of November 2010: Convenant with the Drinking water company.
	-	Permits completed.
	-	December 2010: Tender completed.
2011	-	Realisation of the project.
2012	-	May 2012: "Stone-incident": province dams up a fast running channel with stone blocks to prevent swimmer safety problems. The project partners regret the province's choice for using stones. Later on, the stones were removed.
2014	-	March 2014: Presentation of intermediate evaluation by RWS.
		2,5 year Sand Engine Conference.
2016	-	September 2016: Presentation of 5 year evaluation by RWS.
		5 year Sand Engine Conference.

In the next two chapters, the development of the Sand Engine will be investigated further by applying the narrative methods developed in this thesis.

4.
A deductive narrative analysis: biographies of the Sand Engine

This chapter is an adapted version of the sections 3.3 – 3.5, and 4.1 – 4.2 in Bontje, L.E. & Slinger, J.H., 2017. A narrative method for learning from innovative coastal pilot projects - Biographies of the Sand Engine. Ocean & Coastal Management. 142, pp 186-197.

In this chapter, we explore the realisation of the Sand Engine pilot project using the deductive narrative method described in chapter 3. The experiences of actors are expressed in personal narratives obtained in open interview settings. The deductive narrative analysis results in biographies that represent shared actor-based perceptions of the origin and development of the pilot project. Insights can then be derived from analysis, interpretation and discussion of these biographies.

The chapter starts with a description of the narrative analysis (4.1). We then present the three biographies about the Sand Engine that were identified (4.2) and discuss the result of the survey that we used to validate the biographies (4.3). In 4.4, we discuss the insights derived from the deductive narrative analysis of the Sand Engine.

4.1 Narrative analysis of the Sand Engine pilot project

Restatement of the method

A round of open interviews with people involved in the realisation of the Sand Engine project was undertaken (see 3.3.2). The interviewees were asked to relate their personal experiences within the project (Appendix D). The interviews were transcribed and the transcriptions were sent back to the interviewees for a check on accuracy. Subsequently, the transcripts were analysed using a deductive coding framework in which chronicle and emplotment (cf Czarniawska, 2004) are taken as the starting points. In particular, sequences of events, the orientation in time and space, and the

problem-solving qualities ascribed to the pilot projects form analytical threads.

4.1.1 Analysing chronicle and emplotment by comparing sequences of events, duration and spatial orientation

Figure 4-1. An example of the situational orientation (dotted lines) and sequences of events that led to the realisation of the Sand Engine. The example is extracted from a personal narrative by a provincial manager. The complete analytical table can be found in Appendix F.

The distillation of the sequences of events from the 13 interviews yields an analytical table (Appendix F) of 13 sequences of events and their relative position in time and space. Figure 4-1 illustrates one of these sequences in detail. A summary of the situational orientation at the start of the narrative is circled with dotted lines. The table in Appendix F presents the sequences of events of all interviewees and enables us to compare the time-span of the sequences and the situational orientation of the narrative. The table also provides a first insight in emplotment.

Six interviewees outlined relatively short sequences with time-spans of several years, while the other personal narratives spanned more than a decade or several decades. In addition to the differences in the time scale spanned by the narratives, there is a difference regarding the attachment of the personal narratives to a specific location.

Additionally, the sequences of events provide insights on emplotment; how the events are linked causally. Some interviewees link the Sand Engine explicitly to other coastal projects on which they were working (Zwakke Schakels/ Weak Links, in three narratives) or they link to the need for innovation (in three narratives).

The narratives with a relatively short time span are linked to a local or regional scale, while the narratives with a larger time span take place at a higher geographical scale. The example of Figure 4-1, for instance, takes place at a regional to national scale. In the first group of narratives (short time span, local level) the Sand Engine is viewed simply as a project. Interviewees from the second group of narratives (longer time span, regional to global level) see the Sand Engine not as a project, but as a concept. They refer less to the specific location at which the Sand Engine was implemented than do the people who view the Sand Engine as a project. "We represent it as a small triangle, but that triangle could be positioned at any place [along the coast]", is a clear illustration from an

interview in which the interviewee views the Sand Engine as a non-site-specific concept.

4.1.2 More on emplotment by comparing the problem-solving qualities of the Sand Engine pilot project

In Table 4-1 the main outcome of the problem-solving qualities component of the analysis is presented in terms of: Which problems needed to be solved in the perception of the interviewees (column I in Table 4-1) and what does the Sand Engine contribute to the solutions (column II in Table 4-1)?

Although they formulate it slightly differently, almost all interviewees emphasised the importance of coastal safety in the Netherlands or in the region. Sea level rise is commonly acknowledged as increasing the relevance of coastal safety policies, measures and investments. In addition to coastal safety, interviewees mentioned more actor-specific problems or needs which partly overlap; such as the need for innovation or for regional economic development (rows B, H, K/L) or the need for knowledge (row H, I, K/L). Some needs are very stakeholder-specific, such as securing the safety of the drinking-water-collection (row N/O) or securing the surf spots (row D). In the narratives of three interviewees, the Sand Engine project itself is a (potential) problem (row G, F, N/O) rather than a problem-solving intervention.

Column II reveals that interviewees frequently view the Sand Engine as an (iconic) example that contributes to the problems they mentioned, not as the unique solution. One interviewee concluded that the Sand Engine improved surfing conditions (row D) and some interviewees stated that the reinforcement project (Zwakke Schakel/Weak Link Delfland Coast) was far more important for solving the long term flooding problem (row C and J). The initiators mentioned more problem-solution structures than other actors. They formulated, and explicitly listed, the problem-solving qualities in each of their personal narratives (rows A, B, K/L). The fact that they easily and readily name such a list of qualities suggests that they have regularly used these problem-solution structures in their communication about the pilot project.

4.2 Results: biographies of the Sand Engine pilot project

The comparison of the sequences, duration, spatial orientation (Appendix F) and the different problem-solving qualities attributed to the Sand Engine by the various interviewees leads to three distinct clusters (Table 4-2). The common characteristics of these clusters form three overarching biographical narratives:

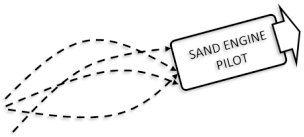
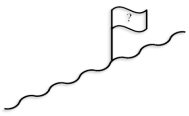
1) the Sand Engine as something (unknown) that had to implemented,
2) the Sand Engine as an iconic departure from usual practice and
3) the Sand Engine as 'just' a stage in an incremental process of coastal development.

Table 4-1. Overview of the problems and needs mentioned in the personal narratives (I) and the solutions to which the Sand Engine (SE) contributed according to the personal narratives (II).

		I. Problem(s)/Need(s)	II. Contribution of pilot project to solution
A	From a narrative out of the then provincial council	Worldwide in coastal areas: - lack of space - need for maintaining/improving environmental, nature and landscape values - and need for (coastal) safety.	3 possible solution strategies for lack of space are: 1) developing/building upwards 2) more intensive use of hinterland 3) developing seawards by using a multifunctional and integral approach, using natural materials and creating an added value ('building with nature'). SE is small example of the latter solution.
B	From a narrative out of the provincial management	(Western) Netherlands below sea-level: - Must be prepared on super storm - And on further sea-level rise.	(After other reinforcement projects, 'Weak links') SE is a step further in working on coastal safety.
		Southern region of Randstad did not perform well: - Economic performance - Environmental performance - Lack of recreational green space (pressure on green space).	- More green and nature in the region - Innovation in/for business (Showcase and knowledge) - Better nourishment techniques.
		Tender procedures for nourishment too fixed.	SE might open doors for more flexible tenders.
		Resistance for development coastal region.	SE might change this resistance.
C	From a narrative out of consultancy	Coastal safety issue in the region.	Reinforcement project already has covered this issue, so SE was (only) about maintaining the coast.
		Separate tender procedures for nourishment are expensive.	Is example of new ways of tendering nourishments.
		Nourishments disturb sea and coastal life.	Less disruption.
D	From a narrative out of the surfers community	Surf spots (and clean beaches and sea) are important for surfer association, these aspects need attention and protection.	SE provided temporally (for 1.5 year) an excellent surf spot. And it is still a good kite-surf spot.
E	From a narrative from a local spatial planning official	Municipality does not have so much coastal stripe.	The idea of SE from superior level was welcome (on some local spatial planning conditions) to broaden the coastal strip.
F	From a narrative out of the village	Undesired plans and developments in region.	None, SE itself is an undesired change for the region.
G	From a narrative from a local security official	Safety for beach users.	SE brings challenges, but covenant and measures secure this safety.
H	From a narrative out of the dredger business	Delay in large projects partly though lack of (ecological) knowledge.	SE contributes to knowledge (about ecology and sustainable development).
		Need for advanced ideas in nourishment business.	SE is an icon for modern, more sustainable, thinking, a showcase for building with nature (for worldwide clients).

I	From a narrative out of coastal engineer science	Coastal safety in the Netherlands (and today's society and politicians has more needs and demands, like multi-functionality). Need for knowledge about coastal morphology and nourishments.	Development of appropriate nourishment techniques: he Sand Engine is a great example for long term and multifunctional coastal maintenance. Functions as a large scale scientific study object.
J	From a narrative out of the regional water board	Delfland coast always was a small coastal strip.	The reinforcement project has strengthened the coast and the SE helps to maintain the new coastline.
K/L	From narratives out of Department of Waterways and Public Works (RWS)	Several needs: - More innovation (both within RWS as with market parties) - Exhibition ground for (technical) developments. Sea-level-rise.	SE shows the innovation capacity and function as showcase. (Other ideas from Innovation Programme WINN do that as well.) 3 strategies to counter sea-level rise consequences: 1) Strengthen the line of defence (the dikes/dunes) 2) Relocate line of defence backwards (receive the water behind dikes/dunes) 3) Relocate line of defence forwards (break the water force in front of dikes/dunes). SE is an example of the third strategy.
M	From a narrative out of nature development	Coastal safety is important in the Netherlands. There is also a need for development of nature which people can enjoy	Project as SE are primarily intended to strengthen coastal safety, but also provide opportunities to nature development (and large-scale natural processes).
N/O	From narratives out of a drinking water company	Coastal safety is important in the Netherlands. In their dune-area, the company needs to: - secure the safety of the drinking-water-collection - secure the ecological value	SE contributes to coastal safety. With some adaptations and management measures, the SE is not a danger for these needs.

Table 4-2. Overview of three biographical narratives on the development of the Sand Engine pilot project – these consist of interpreted personal narratives, not the official stances of formal agencies or institutions.

3 biographies: The Sand Engine…	Details and varieties within the biographies:	Based on personal narratives from the:	Time-span	Spatial orientation
 1. As something (unknown) that needed to be implemented in the region	Providing opportunities for actors	municipality, surfer association, nature development	Some years	Local to regional level
		water board		
	Potentially causing danger for actors	drinking water company municipality		
		village		
 2. As an iconic departure	Emerged from coastal defence techniques/ nourishment techniques/ successor of the Delta Works	dredger business	Decade or some decades	Regional to global level
		RWS		
	Emerged from knowledge development in coastal engineering (closely related to above)	engineering science		
		RWS		
	Emerged from Integrated Coastal Zone Development/ regional development	province, provincial council		
	Emerged from unwanted plan development (for economic activities which changes the areas character)	village		
 3. As a stage in an incremental process of coastal development	Nourishment, not really new techniques, but with some improvements relating tender procedures and ecological impact.	consultancy	Some decades	Regional to global level

4.2.1 Biography 1: something (unknown) that needed to be implemented in the region

From the perspective of some local officials and local actors, the Sand Engine was a project announced at a higher (provincial and national) level, and seen as an unfamiliar task to be implemented in their region (symbolised by the figure in the first of the three rows of Table 4-2). These narratives typically spanned a time period of a couple of years. The novelty of the task and associated uncertainties were not necessarily interpreted as negative. There were several positive expectations, including the opportunities for large-scale natural processes along the coast (from the stakeholder representing a nature development organisation), and opportunities related to the uniqueness of the Sand Engine for the region (from a local official).

However, the lack of familiarity and accompanying uncertainties also caused doubts amongst actors. To reduce these uncertainties to acceptable levels for the actors, additional model

simulations and financial calculations were performed and covenants were signed.

Zooming from the biographical narrative back to the sequences of events reveals that actors viewed different studies and covenants as crucial to the realisation of the project. These included an agreement on maintenance and responsibilities (water board), additional hydrological research and the resulting extra hydrological measures (drinking water company), as well as an agreement on lifeguard duties and beach surveillance (local safety official).

4.2.2 Biography 2: an iconic departure

The majority of interviewees, however, did not view the Sand Engine as a project, but as the iconic outcome of a continuously evolving process, which commenced in the seventies or eighties (symbolised by the figure in the second row of Table 4-2). Interestingly the interviewees referred to different continuously evolving processes, which only partially overlap. Some interviewees from the field of coastal engineering consider the Sand Engine as a new step in the development of nourishment techniques serving multiple purposes (multi-functionality). This idea overlaps partially with other views that the Sand Engine is a new step in the integrated development of coastal zones, because integrated development incorporates the idea of multi-functionality. In such a way, several stories about the concept of the Sand Engine become interwoven, positively reinforcing each other.

However, the interweaving of several stories can also strengthen negative feelings, as illustrated by the reaction of a particular local interviewee. To him, the Sand Engine represents the regeneration of old ideas for integrated coastal development in this locality. These involved plans for the construction of near-shore island(s) with housing and economic activities. Such economic development would have brought much unwanted change to the inhabitants of the nearby village and was viewed as undesirable. Although the concept of the Sand Engine differs substantiality from the old plans, the interweaving of the ideas coloured the interviewee's narrative and strengthened his negative interpretation.

4.2.3 Biography 3: A stage in an incremental process

The third biographical narrative represents an intermediate perception, based initially on one interview. In this perception, the Sand Engine has the advantages of limiting disruption to the ecosystem and of efficient contracting arrangements, but is not an innovation. It is merely a step, or even an exception, within the tradition of nourishing and maintaining the Dutch coast. As such, it is a stage within an ongoing and incremental process of coastal development.

The intermediate position of this biographical narrative, in which the Sand Engine is neither an 'exciting unknown project' nor an 'iconic departure', seems to make it a less attractive narrative.

However, it may have more silent followers amongst the broader coastal management community.

4.3 Validation of the biographies

A validation exercise was conducted at a conference in Wageningen, the Netherlands, devoted to 'Building with Nature' research (12th of November 2014). The three biographical narratives were narrated to 44 conference participants. The conference participants are considered representative of the broader coastal community involved with developments in the nourishment and maintenance of the Dutch coast, but are not necessarily representative of the local actors in South Holland.

When the three biographies were narrated, the participants were asked to indicate on a questionnaire form:

1) which of the three biographical narratives, if any, they recognised (a closed-ended question) and;
2) for which of the three biographical narratives, if any, they felt the most affinity (a closed-ended question).

If they did not feel affinity with any of the three biographical narratives, they were asked to suggest another potential biographical narrative (open-ended question). (For the original survey and the presentation in Dutch, see Appendix G).

An outcome of lack of recognition, or a lack of affinity, and the identification of many other narratives would indicate that the biographies do not fit with the retrospective views of the broader coastal community and vice versa. Because the participants were primarily representatives from consultant engineering companies, and governmental and scientific organisations, a preference for the second and third biographical narrative could be expected.

Indeed, it was conceivable, but not likely, that the first biographical narrative, favoured by local actors, might not even be recognised by the conference participants. The results of the validation survey (Table 4-3) accord with our expectations based on the composition of conference participants. More than a third of the participants recognised all three biographical narratives, and 70% recognised two or three of them. Biographical narrative 1, which scored lowest on recognition and affinity (as expected), was still recognised by more than half of the community. One participant felt most affinity for biographical narrative 1. He works for the drinking water company which makes him a stakeholder rooted in the local area. In addition, the validation survey reveals the anticipated silent support for biographical narrative 3 and justifies distinguishing this biographical narrative.

The overwhelming recognition of the three biographical narratives combined with the identification of each of the participants with at least one biographical narrative serves to validate the three biographical narratives that were derived from the narrative analysis. This validation does not mean that the biographies represent a statistically proven truth, but merely

Table 4-3. Summary of validation survey, n=44, showing 1) the percentage of participants who recognised each biographical narrative, 2) the percentage of participants who felt most affinity for each biographical narrative 3) the percentage of participants who recognised 0, 1, 2 or 3 of the 3 biographical narratives.

	1) Recognition of biographical narrative	2) Felt most personal affinity for:
Biographical narrative 1	59%	2%
Biographical narrative 2	82%	45%
Biographical narrative 3	64%	57%

3) Overall recognisability of biographical narratives	
Percentage of respondents that recognises 0 out of 3 narratives	0%
Percentage of respondents that recognises 1 out of 3 narratives	30%
Percentage of respondents that recognises 2 out of 3 narratives	36%
Percentage of respondents that recognises 3 out of 3 narratives	34%

indicates that the clustering of interpretations is recognisable within this coastal community and that the biographies can be used to deepen understanding of the project and for further reflection.

4.4 Conclusions and reflections

In this chapter, we have applied a novel method for integrating and analysing the 'storified' experiences of the actors involved in the Sand Engine pilot project. But, what kind of insights on the Sand Engine has the narrative analysis delivered? And, what does the method contribute to the learning from pilot projects for coastal management?

4.4.1 Insights from the narrative understanding of the Sand Engine pilot project

The biographies help in explaining why many actors reflect positively on the realisation of the Sand Engine. Since everybody cannot be involved in the conception phase of a project, there will always be projects that are seen as 'something (unknown) coming from on high'. Most interviewees who had such an experience, were nevertheless reasonably happy about the way the Sand Engine project was presented and how the process was organised.

However, the differences between biographies 1 and 2 reveal a potential pitfall. While actors rooted within the region were inclined to tell narratives analogous to the first biographical narrative, a narrative on a local level, the initiators and their most direct supporters experience the process as biographical narrative 2; an iconic departure. So, the dominant narrative 2 does not take the local landscape, the 'genius-loci', into account. This non site-specific characteristic of the dominant biographical narrative 2 poses the risk that local actors may not recognise their own beliefs and desires in the communications of the initiators. A lack of understanding between the actors attached to the two biographies could have

widened the gap between initiators and local actors. This gap was not explicitly studied in this work, but is recognisable in remarks within the narratives of some local actors, such as: "What did they do with the input from the region? Nothing." or "They did not listen to our story". Fortunately for the initiators, the dissatisfaction was insufficient to disrupt the process.

Most of the actor-based perceptions were very positive. The Sand Engine comprises so many ingredients that 'there is something in it for (almost) everybody' yet it retains key binding elements like the importance of coastal safety, which is undisputed in the Netherlands. This is reflected in biographical narrative 2, 'Sand Engine as an iconic departure', which actors endorse for a wide variety of reasons (Table 4-2, column 2).

Resonance of narratives

Some narrative-elements emerged in several personal narratives. For instance, several interviewees mention that the project is 'an impulse for the Dutch [dredging]business' although they themselves are not directly involved in such a business. And some actors speak highly of the 'room for natural and morphological processes', even if they themselves are not (primarily) concerned with this topic. This conforms to the idea of Van der Stoep (2014) who reasoned further on the work of Benford and Snow (2000): "When stories resonate among listeners, the latter are more inclined to participate in storytelling". The resonance of the positive narrative-elements among several of the interviewed actors seems to be an indication of effective storytelling during the pilot project initiation process.

This resonance also requires reflection. First, to what extent are the experiences told by the interviewees 'polluted' by the resonance of the success stories? If some (serious) problems had occurred and the resonating stories had become negatively-loaded stories, the personal narratives would presumably have been told in a different way.

Second, whose stories are heard? By using a snowball technique in identifying potential interviewees that were involved in the realisation, actors located at the perimeter of the actor network, for example those experts critical of the effects of the pilot project on silt dynamics, were not selected for interviews. The inherent methodological bias towards success experiences ensured that success stories are heard. In this case, the widespread positive narrative-elements and the support for the biographical narrative 'Sand Engine as iconic departure' may be viewed as outcomes of resonating success experiences. The 'Sand Engine as iconic departure' can itself be understood as a cultural artefact developed within the Dutch coastal community.

An interesting aspect of the 'balanced' biographical narrative 3, 'Sand Engine as stage in incremental process..', is that it had a small root in the interview series, but a very strong basis in the validation survey. While interviewees tend to emphasise the 'iconic' aspects of the project in the interview conversations (leading towards

narrative 2), the broader coastal community – with less personal involvement in the project – has slightly more affinity with narrative 3.

In short, the multi-faceted nature of the Sand Engine has allowed actors to select and couple diverse narrative-elements into their own biography of the pilot project. This multi-faceted nature has definitely helped in bridging the potential gap between initiators and other actors. It was also helpful in the'continuous swing' of the actors (Van Buuren and Loorbach, 2009), from inwards (the pilot project team) back outwards, to their own base, to ensure that the idea can count on support in the crucial parts of the actor-network.

Multi-faceted nature

The resonance of positive narrative-elements has contributed to the positive spirit in which the Sand Engine is regarded. This is still recognisable in the Dutch coastal management community to date. As an outcome of the ex-post understanding of the Sand Engine case, it would seem advisable for pilot project initiators to actively manage the multi-faceted nature of a project. For instance, developing strategies to include diverse elements within their narratives, so as to broaden the potential identification with the narratives, could be considered.

4.4.2 Reflection on the deductive approach

Each pilot project in coastal management involves a unique group of actors, and the process towards realisation differs. This means that if this method is applied in another situational context, different narratives will be distinguished and other lessons may be drawn. However, the narratives provide insights regarding the experiences of actors in such contexts in a concentrated form, from which the whole coastal community can learn. They allow coastal initiators to understand the different perspectives held on a pilot project, and this understanding can be used during the organisation of follow-up activities (e.g. dissemination or institutionalisation within the same context). At the same time, the narratives create awareness of the situational dependence in the realisation of innovative coastal projects. The situational dependence implies that disseminating or replicating the concept of a successful pilot project into a different context, will require attention both for the physical differences and for the differences in actor perceptions.

Experiences in a concentrated form

As demonstrated in this chapter, the narrative analysis of open interviews enabled an exploration and validation of selected actor experiences in the Sand Engine pilot project. The biographical narratives served to deepen insight on the process of realising an iconic pilot project. They are narratives are not detailed reconstructions of the 'historical' process in which important moments were identified, but they are biographies with different narrative characteristics that can be interpreted (discussed further in 8.2.2).

While most other applications of narrative methods focus on deadlocks (Van Eeten, 1999) and situations characterised by conflicts,

attempting to use narratives to resolve such situations (cf the method of Roe, 1994), this method can also explore similarities and overlaps between actor experiences and indicate how these have contributed to the success experience of a pilot project.

In the next chapters we describe the application of an inductive narrative method to the Sand Engine case (chapter 5) and the case about Ystad's sand nourishment (chapter 6).

5.
An inductive analysis: narratives on the realisation of Sand Engine project and beyond

In chapter 5, we apply an inductive narrative method to the original (first round) interview transcripts. This yields narratives reflecting a narrative competition about the Sand Engine within its actor-network. The development of these narratives is then discussed in reflective interviews (second round), contributing to a dynamic view rather than a purely retrospective view (chapter 4) on the development of the pilot project.

The first section of this chapter briefly restates the steps within the inductive narrative approach. 5.2 presents and discusses the meta-narratives that play a role in the development of the Sand Engine project. We then continue analysing the further development of these narratives, based on the reflection interviews (5.3) and the participant observations (5.4). Conclusions follow in 5.5.

5.1 An inductive narrative approach to the Sand Engine

An inductive narrative method is developed (3.5) to yield narratives that portray the narrative competition (as indicated by the first magnifying glass in Figure 5-1) and the narrative dynamics over time (second magnifying glass) in coastal pilot projects.

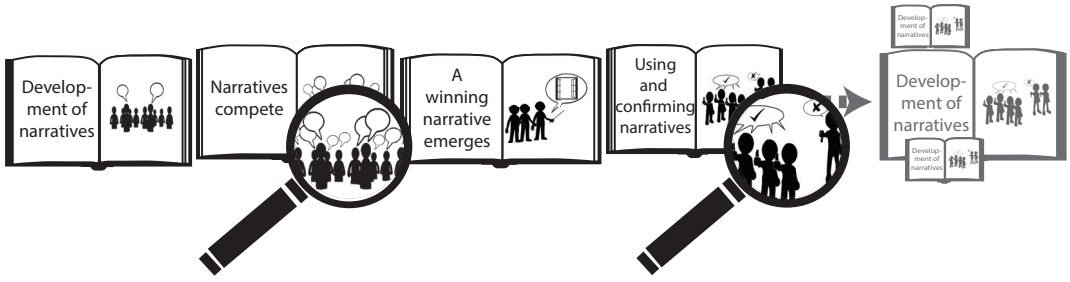


Figure 5-1. This chapter focuses on the narrative competition in the Sand Engine project (5.2) and the developments of the narratives after realisation (5.3-5.4).

Restatement of the method

The first round of 13 open interviews with 15 people involved in the realisation of the Sand Engine project was conducted in 2014 (Appendix B). The interviewees were asked to relate their personal experiences within the project (Appendix D). The interviews were transcribed and the transcriptions sent back to the interviewees for an accuracy check. Instead of analysing deductively (chapter 4), we then analyse the transcripts in an inductive way, implying that all components within the interview transcripts are assessed as potential narrative elements. These potential narrative elements are selected and coded with an initial code – a label name that summarises the content of the selected quote. Codes and quotations are then analysed based on their similarities, contrasts and variations and clustered in narrative categories (Appendix H).

For each narrative category, the codes with their related narrative elements are grouped under the clusters orientation, complication and resolution structure, forming the narrative candidates (3.5.1).

The narrative candidates are validated as a part of the second interview round, in which the narrative candidates were presented to the interviewees. This validation activity differs substantively from the survey undertaken in the deductive method (chapter 4). Such a survey provides quantitative evidence of validation, but is not helpful in understanding how the narratives evolved after realisation of the project. In a semi-structured interview, the respondents indicated the extent to which they recognise the narratives and to which part of the actor-network they allocate each narrative (Appendix I). So, the validation exercise has a fundamentally qualitative rather than a quantitative orientation. The interviewees also reflected on the development of the narratives, the present connections between the narratives, and how they expect the narrative competition to develop in the near future. In this way, the dynamics of the narrative competition are studied and the analysis becomes more than retrospective.

The current development of the narratives on Sand Engine was also observed during the participant observation of 33 events. The outcomes of the research activities mentioned above are further discussed in this chapter.

5.2 The narratives, their roots and the degree of recognition

The inductive narrative analysis of the interview transcripts yielded 4 narratives that portray the discussions around the Sand Engine project. Table 5-1 lists the number of potential elements selected and the number of different codes underlying these narratives per narrative.

In the next sections the roots of each narrative, the narrative itself and how recognisable the narrative was in the second round of interviews are described. The narratives themselves were translated from Dutch for this thesis.

Table 5-1. Four narratives are distinguished. Per narrative the number of narrative-elements coded in the 13 interview transcripts and the number of initial codes underlying the narrative are listed.

Title of narrative	Abbreviation of Sand Engine Narrative	Number of selected narrative elements	Number of initial codes
A new hero in conquering the sea	SEN1	31	14
An innovation important for NL Inc.	SEN2	22	14
Benefactor for everyone	SEN3	61	26
Potential dangerous unknown	SEN4	45	7
Total		159	61

5.2.1 A new hero in conquering the sea

This narrative is based on 14 initial codes assigned to 31 quoted narrative-elements (Table 5-1). These narrative-elements derive primarily from transcripts A, B and I, from the (former) member of the provincial council who is both a Building-with-Nature advocate, a director from the province, and a professor of coastal engineering (Figure 5-2).

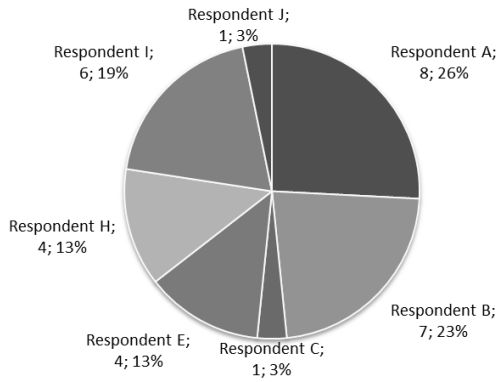


Figure 5-2. 'Roots' of the narrative 'A new hero in conquering the sea', based on 31 narrative-elements, spread across 7 out of 13 interview transcripts.

The following narrative was constructed from these codes:

Orientation *"The Netherlands has a long tradition of waging a 'war against water'. From the high Middle Ages onwards, more and more wetlands were converted to habitable areas. Later, lakes were drained to reclaim a lot of land.*
Complication *The reclaimed land is all low-lying and must be protected against flood water from the rivers and against the powerful storm surges from the sea.*
Resolution *Hydraulic engineers have always worked on providing new solutions in this war against water. This has meant that the Dutch consider hydraulic engineering of paramount importance. After the disastrous floods of 1953 the Delta Works were realised.*
But during their realisation, sandy (soft) solutions became increasingly important in conquering the sea. Sand nourishments can counteract erosion and enhance the dunes, beaches and the coastal foundation.
Complication *Bearing sea level rise in mind, the scale of sand nourishments needs to increase.*

A new hero in conquering the sea

Resolution *The Sand Engine concept could make such an upscaling possible. Such a mega-nourishment will feed the coastal system of a larger area and over a longer time horizon. And it accomplishes this in a relatively nature friendly way. It is a new hero in the war against water that uses the forces of the nature to protect the coast. It is not building against nature anymore, it is building with nature!"*

Story of control

Compared with Stone's (2002) broad policy stories (Table 2-3, section 2.3.2), this is not a story of decline: the Dutch tradition in hydraulic engineering is so strong that 'we' can solve difficult situations. There is an ongoing development of technology, with this pilot project representing the latest development. This concurs with a variation of Stone's control-story: The situation is bad (i.e. the low-lying, wet country in the middle ages or the disastrous floods of 1953), however, we have demonstrated that we can control the situation (through sound hydraulic engineering). The engineering sector continues to work on new ideas and techniques to maintain control

Table 5-2. Distribution among the different degrees of recognition of 'A new hero in conquering the sea' on the basis of 5 reflection interviews.

A new hero in conquering the sea	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	0
A neutral reaction, recognising parts of it, but not full	2
A clear reaction of recognition	1
A very enthusiastic reaction of recognition	2

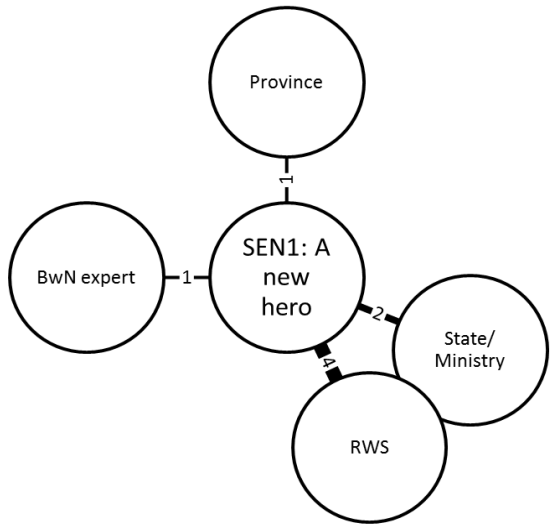


Figure 5-3. The five reflection interviewees attributed 'A new hero in conquering the sea' to four different actors. The numbers indicate how many of the interviewees related the actor to this narrative. Overlap of circles indicates overlap of actors: RWS is the executive arm of the Ministry of Infrastructure and Environment.

in the future, with the Sand Engine project as an important example. Table 5-2 reveals that the five reflection interviewees recognise the story to differing degrees. The interviewees attributed the narrative mostly to the state level government and the executive arm of Rijkswaterstaat (Figure 5-3), including people working for Rijkswaterstaat themselves. That people attributed the story to these organisations reflects the increased support within this organisation over time. Before the realisation, there were some doubts within Rijkswaterstaat (for instance Aukes et al., 2017), but currently the organisation proudly disseminates this narrative.

5.2.2 An innovation important for NL Inc.

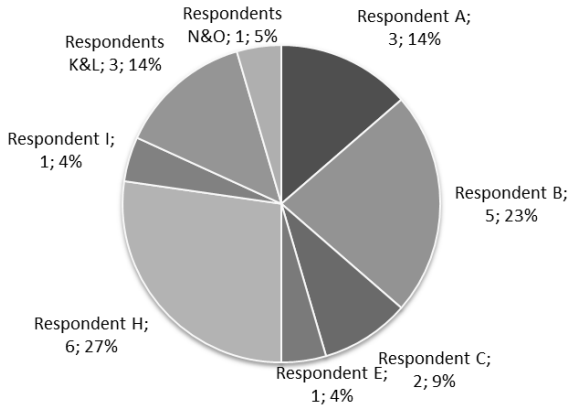
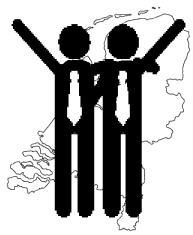


Figure 5-4. 'Roots' of the narrative 'An innovation important for NL Inc.', based on 22 narrative-elements, spread across 8 out of 13 interview transcripts.

This narrative is based on 14 initial codes assigned to 22 narrative-elements (see Table 5-1) and mainly rooted in transcripts B and H, the interviewees from provincial management and commercial parties or business partners (Figure 5-4, Appendix B).

The following narrative was constructed from these codes:

Orientation *"The Netherlands is famous for its hydraulic engineering and the national hydraulic engineering sector is a strong sector worldwide.*
Complication *However, Dutch companies still show their foreign guests and potential clients the Delta Works as iconic projects, and the Oosterschelde surge barrier is already 30 years old. The barrier is also not undisputed with regard to its effects on the natural environment. So, the sector could thrive for a long time on the success of the Delta Works, but now Netherlands Inc. need a new hydraulic engineering showcase, which portrays a modern, more environmental friendly way of ensuring coastal defence.*
Resolution *The Sand Engine initiative has this potential. The knowledge that can be gained with this innovative pilot project will enhance the competitive position of the Dutch companies on the global market. A showcase with international allure that can make every Dutchman proud."*



An innovation important for NL Inc.

Story of stymied progress

Stone (2002) explains that variations in the story of decline and the story of control are often combined. This story is just such a combination, with – what Stone termed – stymied progress. In this variation things begin terribly (the disastrous floods of 1953), but then things get better, thanks to a certain someone (the Dutch

hydraulic engineering sector). But the sector is hampered (stymied progress) and needs a new showcase to maintain its important global position (story of control).

Table 5-3. Distribution among the different degrees of recognition of 'An innovation important for NL Inc.' on the basis of 5 reflection interviewees.

An innovation important for NL Inc.	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	0
A neutral reaction, recognising parts of it, but not full	2
A clear reaction of recognition	2
A very enthusiastic reaction of recognition	1

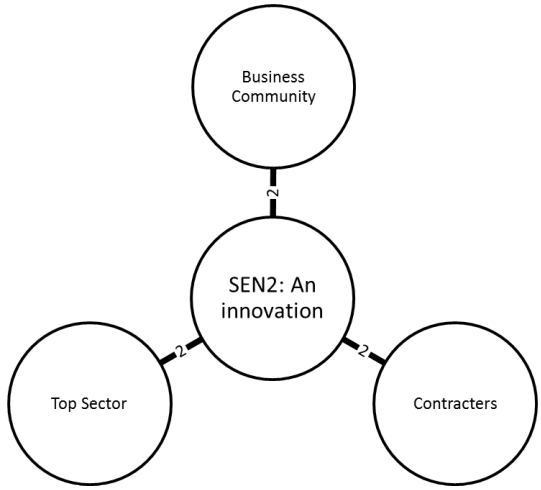


Figure 5-5. The five reflection interviewees attributed 'An innovation important for NL Inc.' to three different actors. The numbers indicate how many of the interviewees related the actor to this narrative.

Table 5-3 reveals that the five reflection interviewees recognise the story to differing degrees. The interviewees attributed the narrative to the commercial parties (Figure 5-5). The Top Sector Water is a consortium of business, government and research and follows from the Top Sector Policy. This policy was introduced in 2010 and intended to strengthen the national 'knowledge economy'. It is clustered around 9 different 'Top Sectors'. Although the pilot project was not realised within Top Sector Water policy, people associate the project with this Top Sector, showing that the narrative 'An innovation important for NL Inc.' fits both the ambitions of Sand Engine and these of the Top Sector Water.

5.2.3 Benefactor for everyone

This narrative is based on 26 initial codes assigned to 61 quoted narrative-elements (see Table 5-1) and is rooted in almost all transcripts (Figure 5-6), except those of interviewee F, the critical villager, and N&O, the people from the drinking water company.

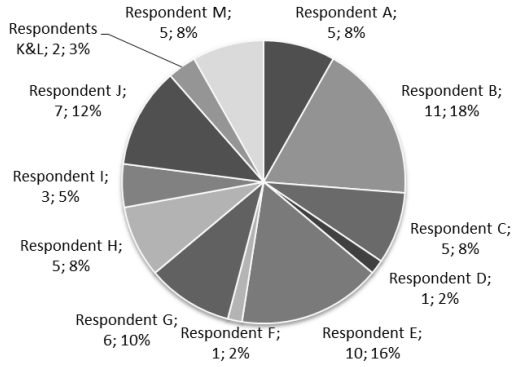


Figure 5-6. 'Roots' of the narrative 'A benefactor for everyone', based on 61 narrative-elements, spread across 12 out of 13 interview transcripts.

The interviewees from provincial management (B) and the spatial department of the municipality (E) are the largest contributors.

The following narrative was constructed from these codes:

Orientation *"Our country and our region face many challenges. These challenges lie within different domains.*
Complication *Nature areas, the quality of the living environment, the regional economy and coastal safety are all under pressure.*
Resolution *However, different stakeholders are currently discussing the idea of a multifunctional project, which can address all these challenges. The idea is to construct a large-scale nourishment with enough sand to feed the coastal system for years. This will improve coastal safety in the region over a long period. At the same time, the hook-shaped nourishment will provide space for recreational purposes and provide several different habitats and a diverse landscape in which natural processes can occur. In addition, such a large-scale nourishment is expected to decrease the disturbance for marine benthic fauna over time and to decrease the sand nourishment costs. This idea is beneficial for all stakeholders along the coast, so let's collaborate in realising the project and address all the different challenges."*

Benefactor for everyone

Story of control

This narrative represents another variation of Stones' story of control. The situation is 'bad', with many problems: the lack of green and recreational areas, the air pollution (fine particles), the stagnation of the regional economy and the coastal safety issue, including the prospect of sea level rise. However, a project like this improves the situation for everyone. You cannot be against it, the narrative claims.

Table 5-4. Distribution among the different degrees of recognition of 'A Benefactor for everyone' on the basis of 5 reflection interviewees.

Benefactor for everyone	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	0
A neutral reaction, recognising parts of it, but not full	1
A clear reaction of recognition	2
A very enthusiastic reaction of recognition	2

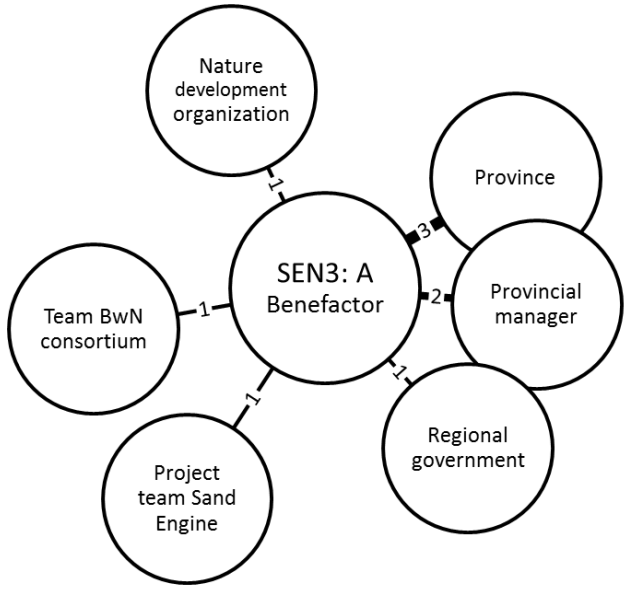


Figure 5-7. The five reflection interviewees attributed the 'A benefactor for everyone' to six different actors. The numbers indicate how many of the interviewees related the actor to this narrative. Overlap of circles indicates overlap of actors: province, provincial manager and regional government all refer to (a part of) the same actor organisation.

Table 5-4 reveals that the five reflection interviewees recognise the story to differing degrees. The interviewees mainly attributed the narrative to the province (Figure 5-7). Since the province is not responsible for coastal safety, this integrated narrative - emphasising a whole range of benefits - was important for them in justifying the expense. As one of the reflection interviewees stated: it was important that the province could tie the storyline of coastal safety together with the storyline of recreation, nature and spatial quality. Other interviewees classified this story as crucial to the collaboration between the province and Rijkswaterstaat, and so crucial for the realisation of the project.

Two interviewees also attributed the narrative to their own team – the team of the consortium that helped prepare the pilot project and the team that coordinates the monitoring and communication. Using this narrative, they aim to convince others of the multiple advantages of the project.

5.2.4 The potentially dangerous unknown

This narrative is based on 7 initial codes assigned to 45 narrative-elements (see Table 5-1) and is rooted mainly in transcripts E, F and G, from the interviews with the officials from the municipality and with the critical villager (Figure 5-8). The provincial management (B) and almost all others mentioned the concerns of people in the region.

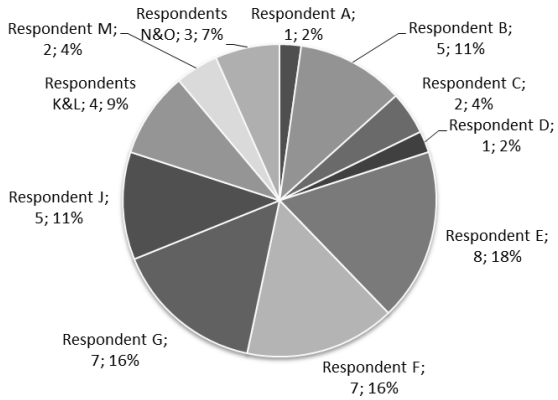


Figure 5-8. 'Roots' of the narrative the 'Potentially dangerous unknown', based on 45 narrative-elements, spread across 11out of 13 interview transcripts.

The following narrative was constructed from these codes:

Orientation *"The government – province and the ministry – have come up with a plan to create an enormous peninsula off our coast.*
Complication *Their idea is that this project will protect the coast, but they do not seem to realise that they are taking enormous risks that can endanger citizens. For example, swimmer and beach safety are affected. There will be different currents and together with the sand, old munition from the sea-floor can land on the beach. When the beach is too wide and dangerous, it will not be attractive to visitors. This will damage the local economy.*
Resolution *We have to explicate these problems and try to denounce and stop this development…"*

The potential dangerous unknown

Story of decline

This is a story of decline as described by Stone (2002, p.139): everything goes well, till the initiating government parties come up with the idea of realising a status project that brings danger to innocent citizens and hard-working entrepreneurs.

Fight against different villains

These types of decline-stories are not new in the region. In the nineties, when other plans for coastal development were advocated, there was a great deal of public protest against the ideas that would, in the eyes of the opponents, harm the landscape and living environment of people. A famous comedian was even involved in storytelling during a protest evening. His story was that during their long history, the citizens of the region have had to fight against different villains to save their region, and they will now do so (Schmit, 1996). An interviewee from the village framed the village and its inhabitants as 'victims' of a series of unwanted development plans. For decennia, the village is afflicted by all these plans and citizens cannot really influence the decision-making processes.

There are also lighter versions of this story; namely of people that are worried about the potential impact on safety (without making such firm claims), about the potential impact on nature (for instance the impact of mud on benthic life) and hydrology, whether it will work (or that it will turn out to be a failed investment). 'Dangerous' in these versions refer to 'uncontrollability'. The

initiators reacted to this potential 'uncontrollability' with a story of control (as described by Stone); adequate measures will be taken to circumvent any trouble regarding beach safety and the hydrological situation. They emphasised that the different numerical models have shown that the Sand Engine will work (for instance respondent A).

Table 5-5. Distribution among the different degrees of recognition of 'A potential dangerous unknown' on the part of 5 reflection interviewees.

A potential dangerous unknown	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	0
A neutral reaction, recognising parts of it, but not full	1
A clear reaction of recognition	3
A very enthusiastic reaction of recognition	1

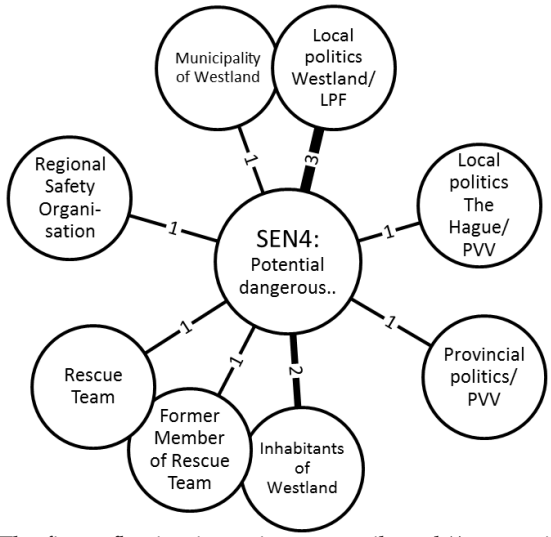


Figure 5-9. The five reflection interviewees attributed 'A potentially dangerous unknown' to eight different actors. The numbers indicate how many of the interviewees related the actor to this narrative. The circles close to each other indicate that the actors are affiliated with each other.

In the reflection interviews, the 'extreme' version of the story was presented. The extreme version was recognised by all five interviewees to differing degrees (Table 5-5). The narrative is attributed to different local and regional actors (Figure 5-9), such as the inhabitants of the village, people from the local sea rescue team, and some critical local political parties.

5.2.5 Additional narratives

During the interviews, the respondents were asked whether they would like to add narratives to the four presented to them. Two respondents said that, although it is somewhat present in the NL Inc.

narrative, the importance of knowledge-development could form a narrative on its own. Two other respondents mentioned that the Sand Engine as cultural phenomenon forms a potential additional narratives. These two potential narrative categories are taken into account during the analysis of the Sand Engine related events (5.3).

5.2.6 Foundation and recognition of narratives summarised and discussed

The roots and recognition of the narratives on the realisation of the Sand Engine distinguished in the preceding section are summarised in Table 5-6. Stones' general storylines can be found back in the narratives.

Table 5-6. Summary of the foundation (roots) of the narratives and the actors the interviewees associated with them.

Abbr.	Narrative	First interview round Mainly rooted in transcripts of interviewees with:	Second interview round Interviewees mainly associated the narrative with:
SEN1	A new hero in conquering the sea	(Former) member of the provincial council (also known as a Building-with-Nature advocate) and a professor of coastal engineering	National government/ ministry and Rijkswaterstaat
SEN2	An innovation important for NL Inc.	Provincial management and business collaboration	Business
SEN3	Benefactor for everyone	Provincial management and spatial planner	Province
SEN4	Potential dangerous unknown	Critical villager and spatial planner	Local and regional actors and critical political parties

Narratives 1 through 3 are positive narratives which can be told together without contradicting each other. Together, the group of positive narratives promulgate an argument of 'you cannot be against this idea', definitely helping various advocates in spreading their positive verve around the idea for this pilot project. This concurs with findings from the deductive analysis (chapter 4).

We also found a negative narrative. In the reflection interviews, the extreme version of the fourth narrative, was attributed to local actors and local politics, but less extreme versions, e.g. the fear that it could be an investment failure, were also found at higher, national policy levels. Critical people that emphasised the risks of the pilot project and doubted whether the proposed mega-nourishment would be an improvement regarding efficiency and budget were found in different organisations. The further development of these variations of the 'Potentially dangerous unknown' is discussed in 5.3.1.

Narrative competition

The three positive narratives used by advocates of the project and the negative variations used by the opponents competed for dominance (Figure 5-10). At the higher, provincial and national

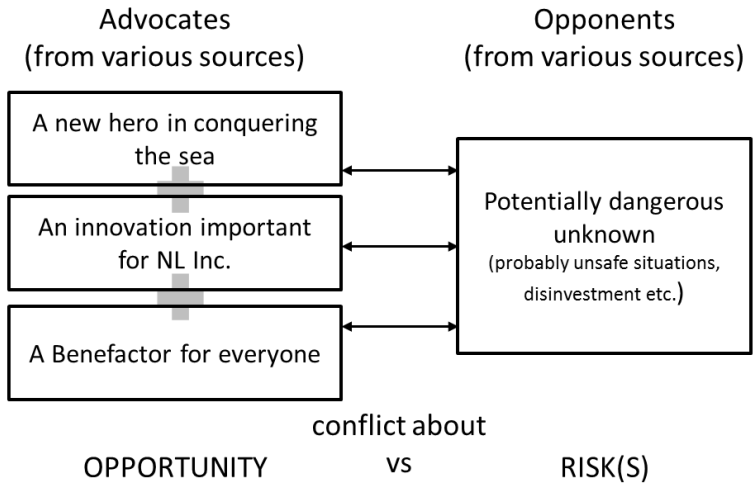


Figure 5-10. The combined positive narratives outcompeted the potential dangerous unknown in decision-making and the combined narratives formed a winning 'story-combination', facilitating the realisation of the pilot project.

policy level, sufficient people with power belonged to the 'optimistic camp' and decisions were made to realise the project. Of course, in a democracy decision-makers need approval from elected bodies. In this case for example, the provincial executive needed approval from the provincial parliament (9th of November 2009, see case description). This narrative competition didn't only take place prior to the realisation of the project, but also developed after its realisation. The 'Potentially dangerous unknown' is rooted in many personal narratives and recognised by the reflection interviewees who function at an operational level indicating that the people involved were very aware of this narrative. Its development is discussed in 5.3.1 and the development of the optimistic narratives is discussed in 5.3.2.

5.3 The development of the narratives and their competition

The four narratives that played a role in the narrative competition prior to the realisation of the Sand Engine project have been described. In this section, we discuss the further development of these narratives, following the realisation of the project.

5.3.1 Development of the 'Potentially dangerous unknown'

The three positive narratives gained support and triumphed over the dangerous unknown narrative in the decision-making stage. However, the 'Potentially dangerous unknown' narrative had evoked awareness in the group of collaborating partners. They considered it very important that after realisation nothing 'dangerous' should happen as this could change the positive vibe. In our terms, it could have altered the balance in the narrative

competition.

Preventive measures

Therefore, several preventative measures were taken. A digital application was developed for the sea rescue service team. The application uses a hydrodynamic model to predict dangerous currents for swimmers. The sea rescue team also received extra equipment. The project team initiated a pro-active communication policy to inform beach visitors about the risks of swimming in such a dynamic area, and about safe hiking routes.

The sensitivity regarding the swimmer safety issue became very apparent when a strong current occurred in the spring of 2012. At the instigation of the province, the mouth of the coastal lagoon was closed off with stones, and a new opening was made. Several project partners were disappointed that stones were used instead of sand. Stones do not fit well with the 'Building with Nature' concept along a sandy coast, so this action undermined the 'new type of hero' narrative. The advocates of the project considered the stones as a needless panic reaction. For opponents of the project, such as the critical local political parties, the incident confirmed their opinion. One could say that this was the moment at which the narrative 'A potentially dangerous unknown' reached its peak.

The 'Potentially dangerous unknown' at its peak

Members from the present project team acknowledged the impact of this 'stone-incident' in the reflection conversations, but also indicated that they are satisfied with how the 'Potentially dangerous unknown' narrative has been dealt with in general. The narrative was acknowledged and efforts were made to communicate clearly about the risks. From their perspective, and from the perspective of the other reflecting interviewees, the importance of the 'dangerous unknown' narrative has diminished with the passage of time, because the people who communicated this narrative seem to have ceased to do so. This refers both to the critical citizens and local political parties who earlier expressed their worries about the swimmer safety and to the professionals that earlier expressed their concerns regarding the efficiency, costs and potential physical consequences such as the composition of the sea bed. These narratives are not prominent in the discussion anymore (which of course does not mean don't have any support anymore). Currently, the interviewees encounter many satisfied reactions. Interviewees also pointed to the increased numbers of beach visitors. The project seems not to have become the dangerous unknown that ruined the local economy. In contrast, the 'unknown' has brought something special to this coastal region, nullifying the promulgators of the 'Potentially dangerous unknown' narrative.

5.3.2 Development of the three optimistic narratives

The positive narratives as distinguished in the first round of interviews involved arguments to enable realisation of the Sand Engine. Logically, the content of the narratives should change after realisation. However, according to the interviewees, the tenor of the narratives is still valid. The three narratives still enhance each

Increasing number of ambassadors

other, making the Sand Engine something exceptional – a special place. This is explicitly promulgated in the communication strategy, for example by allowing those who wish to do so to use the aerial photographs of the Sand Engine for free. Another interesting point is that the 'stages' (such as presentations and excursions) are shared amongst different ambassadors from different project partners. As in the pre-realisation phase, there is a group of ambassadors that spreads positive messages. With one important difference. There is now a place to visit. Consequently, even more people, such as enthusiastic beach visitors or foreign guests, can potentially become ambassadors.

The 'Benefactor for everyone' narrative praised the recreational function of the project, but was not very clear about which specific advantages for recreation would be realised. Which kind of people would be attracted to the spot that would be created? After realisation, it became clear that surfers (especially the first year) and kite surfers enjoy the waters around the peninsula. The peninsula and the nearby beach are used extensively for walking.

Sand Engine as cultural object

From the moment that the peninsula was created, people came to explore and discover. The many nature-related excursions, sport and cultural activities that currently occur show that people have taken possession of the new spot. There is even an artists' collective that explores the Sand Engine as 'cultural phenomenon', by organising public expeditions with artists and philosophers and creating art inspired by the Sand Engine. Potentially, as reflected by two of the interviewees, the 'Sand Engine as cultural object' is a separate narrative (as taken into account in 5.3).

Tours for potential clients

The 'innovation important for NL Inc.' narrative emphasised the importance of the project as a showcase for hydraulic engineering. Interviewees from business and government are happy with how the project works as a showcase, as there are many requests from abroad to visit the Sand Engine. Companies organise tours for potential clients, as do the project team of Rijkswaterstaat, who receive guests from foreign government organisations. As one of the interviewees says: 'Definitely, the show is working'. But the question remains; does it also lead to new business opportunities for Dutch industry? In most countries, the decision-making procedures for project ideas at a scale comparable the Sand Engine take some time and the answer to this question is not yet clear.

New sandy projects

So, will the showcase also work as a business case? And will the 'new hero in conquering the sea' be confirmed? In the Netherlands, new sandy projects are being realised. How do people relate these projects to the Sand Engine?

- Some interviewees relate the strengthening of the (conventional) Hondsbossche Pettermer Sea Defence structure with dunes and beaches in the Province of North Holland strongly to the Sand Engine. They also ascribe the projects Houtribdijk (IJsselmeer) and the Prins Hendrikdijk (Texel) to the influence of the Sand Engine.

"You see the similarities", they say; "the new type of hero seems to be growing".

- However, some interviewees question whether the project Sand Engine was crucial for these projects. After all, since the policy change in the nineties, sandy solutions became the preferred ones. Since then (in particular since the 'Zwakke Schakel' projects), several (smaller scale) projects have been realised, for example in the province of Zeeland, in which different types of sandy measures are implemented to improve coastal safety and the spatial quality of the coastal zone. Maybe the 'hero' is not the Sand Engine itself, but sand in general, according to one of the reflection interviewees.
- Another interviewee sees the Sand Engine as one of the outcomes of several processes. These processes can result in more sandy and integrated solutions. Although the Sand Engine is a nice example of such a solution and can function as an inspiration source, it is not viewed as the main driver behind all the new initiatives.

So, people think differently about the relationship between the Sand Engine project and other new Dutch initiatives. The latter two points accord with the biography that views the Sand Engine as part of an incremental process (chapter 4). These points contrast with the first one that attributes a more important role to the Sand Engine.

There is also an initiative undertaken in the UK to use 'sandscaping' in creating resilient coasts (Vikolainen et al., 2017). Rijkswaterstaat presented the Sand Engine at a workshop in London, in 2015 (The Crown Estate, n.d.). As stated on the Crown Estates website, Sandscaping is "informed by the European 'Building with Nature' approach" and the partnership is "applying the principles established in a pilot project, 'Sand Engine', developed in 2011 in The Netherlands" (ibid).

Positive narratives and new projects

Although the exact influence of the Sand Engine pilot on the new initiatives is difficult to assess, aspects of the positive narratives that played a role in the narrative competition of the Sand Engine can be identified in communication material about the new initiatives:

- Using Sandscaping for creating resilient coasts can bring "multiple social, economic and environmental benefits" (The Crown Estate, n.d.) (Benefactor for all).
- The Houtribdijk will be partly strengthened with sand and will "provide opportunities for nature and recreation" (Rijkswaterstaat, n.d.-c) (Benefactor for all).
- The Prins Hendrikdijk at Texel will be strengthened "in a very special way" with sand "combining safety with nature" and "connecting to the wishes of municipality and citizens" (Hoogheemraadschap Hollands Noorderkwartier, n.d.) – "an innovative solution" (Hoogheemraadschap Hollands Noorderkwartier, 2012) (New hero, innovation, benefactor for all).
- The Hondsbossche Pettemer Zeewering is strengthened with new beach and dunes which "form a natural, innovative, coastal improvement" (Rijkswaterstaat, n.d.-b) (A New hero, innovation,

benefactor for all).

Another project mentioned by the interviewees in which the narratives can also be traced is the Markerwadden. This differs somewhat from the projects above, because it is initiated by a nature organisation and consists of artificial islands made from deposits that currently increase the turbidity in the Markermeer. By using the deposits for creating islands, the lake could become healthier (ecologically) and will provide more room for indigenous nature, such as spawning areas and increased areas for shoreline vegetation. The largest island will provide recreation facilities for nature and water related activities. The islands "provide space to people and nature" and are "a showpiece* for the Dutch hydraulic engineering sector" (Natuurmonumenten, n.d.) (Benefactor for all, innovation important for Inc. NL).

So, the interviewees mentioned several projects that they associate with the Sand Engine project. And the communication about these project reflected the thinking identified in the Sand Engine narratives. In line with Vreugdenhil et al. (2012), this means that the pilot project has been disseminated; i.e. knowledge within the pilot project is transferred and the pilot is adapted to other, local circumstances.

Institutionalisation of knowlegde

In addition to the new projects, a new long-term research program, 'Coastal Genesis II'** has started. With its focus on morphological research, Rijkswaterstaat seeks knowledge regarding policy decisions that will be required by 2021 in order to maintain a structural and sustainable sand balance in the Dutch coastal zone. They wish to know the role that large scale nourishment can fulfil. The outcomes of the monitoring and evaluation of the Sand Engine provide input in the design of this knowledge program. In terms of Vreugdenhil et al. (2012), this can be seen as the start of an institutionalisation process in which the knowledge of the pilot project may become part of the standard practices of Rijkswaterstaat.

5.4 Participant observation: narratives as a lens on pilot project related events

Between 2013 and 2016, 33 Sand Engine related events were visited and observed by the researcher. Field notes about the presentations and discussions were collected in a 54 page logbook. 47 additional reports, visual aids and videos sourced from the events complemented these notes. As described in 3.6, the field notes are analysed using the four narratives and the additional two narrative categories suggested during the reflection interviews in 5.2.5 ('Sand Engine as cultural phenomenon' and 'Sand Engine for knowledge-development'). Traces of the narratives were sought within the notes. Appendix K lists the different events together with the researcher's interpretation of the traces and the additional sources (reports, visual aids and videos) related to the event. Table 5-7 shows an excision

* Originally in Dutch: 'Visitekaartje'

** Originally in Dutch: 'Kustsgenese II'

Table 5-7. Sand Engine related events and the recognition of the narratives. This table is an excision of appendix K that outlines the 33 Sand Engine related events, the involvement of the researcher (where the researcher was actively involved, only remarks of other participants are included), the traces of the narratives within the notes, the interpretations of the researcher and the titles of accompanying reports, visual aids and videos. Explanatory notes on the next page.

Eventnr. (own involv*)	Date and place	Name of event	Type of event	Stage and audience **	Traces of narratives: The 'original' narratives: SEN1 - Hero	SEN2 - NL Inc.	SEN3 - Benefactor	SEN4 - Danger	'Add.' Narratives: SEN? - Knowledge	SEN? - cultural	Accompanying reports, visual aids and Videos	Recognition of narratives and interpretation of the way they are used
E18 (3)	20-5-2015 Leiden	NatureCoast User Conference	Small conference for research community and the 'users'	- presentations in medium group - presentations in small group		X			X	X	PPT: Nature Coast User meeting Leiden	- Presenter reflects on the 'innovative drive' that helped in realising the project - BV Inc. - Much focus on knowledge-building and "telling the research story", e.g. the MegaPex movie - Knowledge - Presenter tells about the framework for Sandy Strategies - NL Inc.
E19 (3)	1-7-2015 Kijkduin	Excursion Young professionals IAHR Conference	Excursion	- informative walks in medium groups	X				X		Report on excursions in newsletter: Zandmotor update July 2015	- Focus on research on the Sand Engine - Knowledge - Focus on Dutch coastal defence (Maaslandkering and Sand Engine) - Hero

*Classification of own involvement in events

1 = only observing
2 = mainly observing
3 = participating
4 = active/steering

** Classification of audience size:

small audience < 20 people
medium audience 20-40 people
large audience > 40 people

Narratives are used to reflect on the process that happened

Narratives are used in present or future situations

from this table as an example.

5.4.1 Traces of the four 'original' narratives during Sand Engine related events

Traces of all four 'original' narratives were found in the field notes. Not only in the presentations and discussions about the Sand Engine project itself, but also in presentations and discussions about broader coastal management themes, such as in speeches about Flemish coastal management and about Dutch adaptive concepts in coastal management (examples from Event E03, see Table Ap-6 in Appendix K). It is interesting that the 'dangerous unknown' narrative has the least recognisable traces; the dangerous aspects were not discussed very much at Sand Engine related meetings. The 'original' narratives were often used by presenters to reflect on the realisation of the project (dark grey/blue filled cells in table). But they are also traceable in present and future-oriented presentations, in which for instance the 'NL Inc.' and 'Benefactor for all' acquire an export-focus (E03, E08, E12, E18, E24, E25, E27, E32, light grey/orange filled cells). Sometimes, a more historical version is combined with a present and future oriented narrative, such as 'The Netherlands is famous for developing their delta, so we need to develop smart and integrated solutions for the deltas of tomorrow' (E27).

Narratives used in reflection and future-oriented presentations

An oft used medium for sharing results and experiences in this project is video. At the 5 Year Sand Engine Conference (E32) RWS presented a video 'The Sand Motor – Five years Building with Nature' and the Province made a video about the Conference days (E32 and E33). These videos are the clearest examples of performances of success. But many of the discussions and presentations in which the three positive narratives were traced can also be seen as performances of success.

5.4.2 Generation of new narratives during Sand Engine related events

The Sand Engine is often portrayed as a source of knowledge and as a cultural phenomenon.

One group of artists in particular found their way into the Sand Engine community. They organise Sand Engine related events themselves (e.g. E13) and are involved in several meetings (E18, E22, 32). The artist collective considers the Sand Engine as an icon of the Anthropocene, a term used to indicate the era in which human beings influence terrestrial spheres (such as the atmosphere and biosphere). The Sand Engine is discovered and embraced by people. And by means of artistic investigation and interaction with the public, the artist collectives 'construct new stories' on the project (as they explained at the Sand Engine conference, E32).

Cultural Sand Engine stories

Many of the Sand Engine events visited were research-oriented meetings. Not only with the people from the research program NatureCoast, but also with a broader coastal community which is invited once or twice a year to the NatureCoast User

Academic Sand Engine stories

Conferences (E04, E14, E18). These conferences and other meetings provided a stage for the project proponents. At one of these conferences (E18), a NatureCoast member explicitly mentioned that they were thinking about how to 'tell the research story'. One of the ways that the research community has adopted in sharing information about their research is producing documentary-like videos, e.g. 'The Sand Motor, passionate research' (presented at E08), 'The MegaPex movie' (announced on E18) or the video-clips of all the PhD candidates (E32). Another way of sharing information by researchers is to organise excursions. One of the largest excursions was organised for young professionals attending the world congress of IAHR (international Association for Hydro-Environment Engineering and Research) in 2015 (E19). The young professionals were offered a guided tour, visiting several researchers at different places on the Sand Engine. By these means (user-meetings, conferences, videos, excursions) the researchers contribute to performances of success of the Sand Engine as their research object.

In short, traces of the 'original' narratives can be recognised in the field notes of presentations and discussions at Sand Engine related events. Some of these performances are performances of success of the Sand Engine, but the use of these narratives is not restricted to the Sand Engine project (or concept) itself. Broader and more future-oriented versions can be traced. The research and art communities are explicitly working on 'their' narratives that present the Sand Engine as research object and as a cultural phenomenon.

5.5 Conclusions and reflection

The sections above reveal that the combination of positive narratives became a 'confirmed' narrative after realisation. But what does this teach us about Dutch coastal policy after the realisation of the pilot project (5.5.1)? And how useful was the inductive narrative method (5.5.2)? Section 5.5.3 initiates the discussion about the differences between the outcomes of the inductive and deductive methods.

5.5.1 A narrative understanding of the Sand Engine in present Dutch coastal policy

The 'present' portrayal of the narratives (Figure 5-11) barely shows a narrative competition. Two potential narratives regarding the knowledge generation by research around the project and on the cultural importance of the Sand Engine (5.2.5 and 5.4.2) fit the positive combination and the 'Potentially dangerous unknown' is no longer heard frequently.

Both the project itself and its winning narratives are actively used in presentations on the Sand Engine, at conferences and in excursions. Aspects of these narratives are emerging in several other projects. Dutch coastal policy seems to be evolving; reflecting a path choice to prefer sand while maintaining the coastline at its 1990 position (since 1990), and indicating that the additional ambition

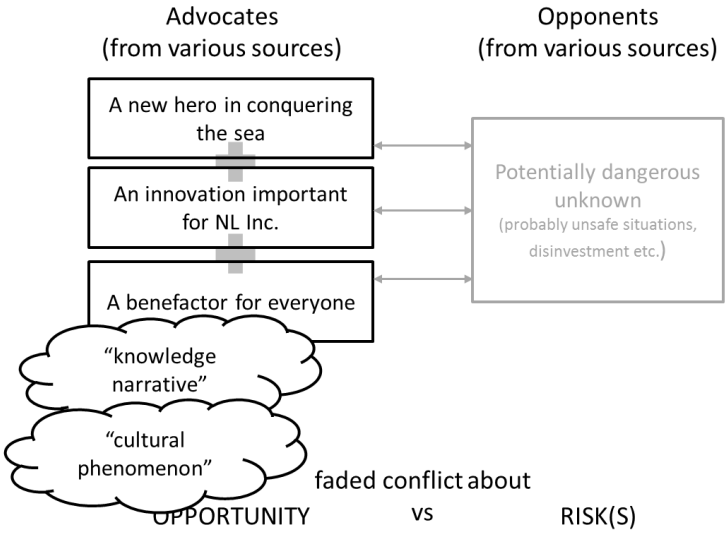


Figure 5-11. The 'present' portray of the narratives around the Sand Engine project.

to keep the amount of sand in the coastal zone in balance (since 2000), will be developed further. How the 'multi-functional' sand nourishments will add value, contributing to and informing new policy, is yet to be established, but the indications are that their role

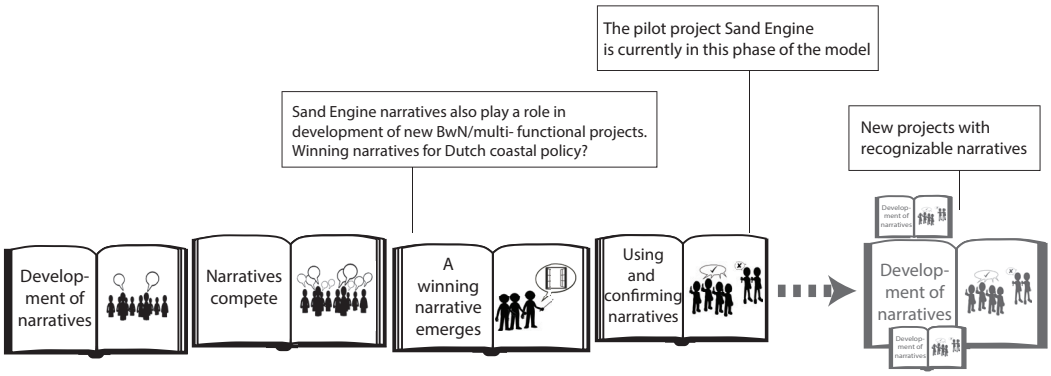


Figure 5-12. The pilot project Sand Engine has attained the 'use and confirmation' phase in the narrative model. On the policy level, it seems that the winning narrative for more BwN and/or multifunctional sandy solutions for coastal management is emerging.

will be significant.

Figure 5-12 shows the position of both the pilot project and the impact of its narratives at policy level within the narrative model of the development of pilot projects. In 7.1, the development of the narratives about the Sand Engine project will be interpreted further.

5.5.2 Reflection on the inductive approach

The aim of this thesis is to deepen the understanding of the

development of coastal pilot projects and their effects in their actor-networks. To what extent did this inductive narrative method contribute to the understanding of the development of the Sand Engine pilot project? Portraying the narrative competition with four narratives made the discussions within the decision-making process very tangible, in the sense that the narratives could be presented to a new group of interviewees. The narratives functioned as an interview-stimulus, a starting point for reflection on the realisation ánd evolution of the project. The narratives inspired people to share their thoughts both on the content of the narrative and about the impacts of the narratives. Of course, by using these stimuli in the second round of interviews, the conversation is steered and is no longer open. However, there was still room for people to introduce their own narrative categories. After the presentation of a narrative, some people automatically responded and articulated whether a narrative was true or false in their eyes. The first reaction of some of the other interviewees was more reflective.

Spontanous reflections

The second round of interviews was not only useful to establish recognition of the narratives, but also to study the dynamics of the narrative competition after realisation. The five interviews conducted in this study provided insights in how the interviewees experienced the development of the narratives after the realisation. This was complemented by the observations of the researcher during 33 field visits. Table 5-7 is an ethnographic product of a particular observer – the author of this thesis – who visited and observed a number of Sand Engine-related events. The analysis of the field notes confirms that the narratives are still present in the coastal management discussions, e.g. in discussing new projects.

In general, the inductive method is considered a useful narrative method that improved the understanding of the development of the Sand Engine in its actor-network. The method will be used for studying a second case, Ystad's sand nourishment, presented in the next chapter. As noted above, the dynamics of the narrative competitions of the two cases will then be interpreted further (7.1).

5.5.3 Reflection on the two different sets of narratives

Whereas the deductive method provided a retrospective analysis of the realisation process (4.2), the inductive narrative method delivered narratives indicative of the present relevance, after the realisation of the project. The two different methods used the same initial interview data, but identified two different sets of narratives.

The narratives from chapter 4 outline the development of the project (biographies), and the narratives from this chapter portray the dynamic narrative competition and the flow from orientation to complication and resolution. The first set contains actor-shared explanations for the realisation of the pilot project, the latter set seem to contain arguments for or against the project. While they are different types of narratives, they also have some overlap (Table 5-8). Only the 'balanced' biography 'Sand Engine as a stage in an

Table 5-8. Overview of the narratives distinguished by applying the deductive and inductive methods to the Sand Engine case study.

Narratives distinguished by the deductive narrative method (chapter 4)	Narratives distinguished by using the inductive method (this chapter)
The Sand Engine as an iconic departure	
– As successor of Delta Works	*A new hero in conquering the sea*
– Emerging form knowledge development in coastal engineering	*An innovation important for NL Inc.*
– Emerging from regional/integrated development	*Benefactor for everyone*
– Emerged from unwanted development plans	
The Sand Engine as something unknown that needed to be implemented	*Potential dangerous unknown*
– providing opportunities	
– potentially dangerous	
The Sand Engine as a stage in an incremental process of coastal development	

incremental process of coastal development' cannot be identified among the narratives of this chapter*. Such an intermediate narrative is not very useful during the narrative competition in which initiators and other organisations strive to gain support for their ideas. It makes sense that the 'balanced' narrative could represent a retrospective (ex-post) actor view rather than a view from the ex-ante position. The deductive narrative method and the accompanying survey yielded a more nuanced picture than that of competition. The differences between the two narrative methods are discussed further in chapter 7.2.

* In discussing new projects in the reflective interviews, some interviewees expressed a 'balanced' opinion in line with the 'Sand Engine as a stage narrative', see 5.3.2. This is, however, not one of the identified narratives as presented in the second column of Table 5-8.

Prelude B
Case description Ystad's sand nourishment project

Figure B-1. The beach of Ystad Sandskog in 2015. Photograph from author.

B.1 Context of the project

B.1.1 The Swedish and Scanian coast

Situated on the Scandinavian Peninsula, Sweden borders many waters; the Gulf of Bothnia, The Baltic Sea, the Oresund, the Kattegat and Skagerrak. With many islands and inlets, the coastline exhibits an irregular shape. Norman and Erlingsson (1988) estimate the length of the coastline, including Gotland and islands that are connected to the mainland (by a bridge) to be about 13 x 10^3 kilometres. In this thesis, pilot projects for sandy coasts are central. Merely 3% of the Swedish coastline is a sandy shore (Norman and Erlingsson, 1988). However, this figure is 25% for the most southern county, Scania (Malmberg Persson et al., 2014). Southern Sweden is also the only region that is not uplifted by the post-glacial rebound (Sporrong, 2008), meaning that the Scanian coast faces a relative sea level rise.

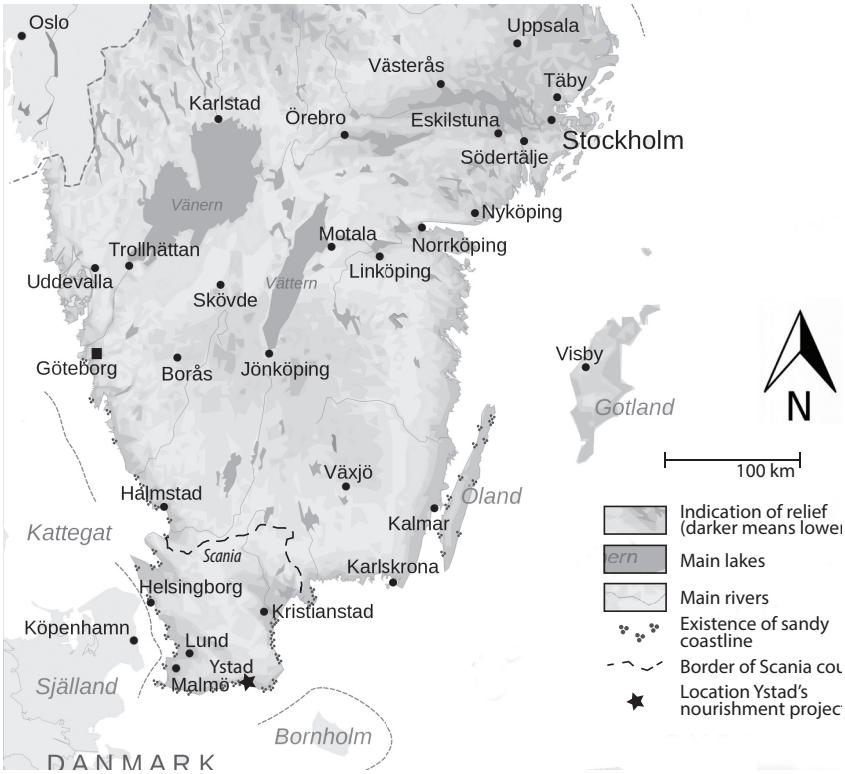


Figure B-2. Map of Southern Sweden, showing the relief, lakes, rivers and indicating sandy coasts (mainly in Scania) and the location of Ystad's nourishment project - map adapted from Koyos (2009), based on Swedish Geological Survey (2014), Öland's Tourist Office (2015), Blekinge's Tourist Offices (n.d.), Norman and Erlingsson (1988), Halland Region et al. (n.d.).

The beaches of Scania vary; they can consist of sand or have a wide range of grain sizes even up to boulders. There are 'pocket' beaches – mostly small beaches between two headlands, with no or limited material exchange. Or there are open coast beaches, with longshore transport. Behind the beaches, dunes or cliffs are located. According to Larson and Hanson (2013), the Scanian coast faces three types of erosion:

1) erosion at beaches where man-made structures have disturbed the equilibrium;
2) erosion along some parts of open coasts where there is no sand balance yet (mainly through natural causes) and
3) erosion of dunes and cliffs during storms.

Locally, interventions are realised to counter erosion. The municipality of Ystad has a long history of erosion (Malmberg Persson et al., 2014) and a long history of preventive measures (Larson and Hanson, 2013, Bontje et al., 2016). From the 1950's on, these interventions mainly comprised hard constructions, such as groynes, seawalls, gabions and revetments. Measures using sand are rarely applied in Sweden. Some examples are bypassing sand or moving sand from the outer part of the coastal profile to the foreshore or dunes (after a stormy winter). Prior to Ystad's sand nourishment project, sand nourishment using sand extracted from the sea-floor had never been done in Sweden. All interventions at the coast are initiated locally: there is no single entity responsible for coastal protection management nationally in Sweden.

B.1.2 The actors in Swedish coastal policy

Within the administrative system in Sweden, the responsibility for land protection lies at the local level. Private land owners are required to protect their land themselves. Protection of the (common) coast is considered as 'a spatial intervention', part of the spatial planning tasks of the municipality.
The municipalities have a strong position regarding spatial planning, but spatial plans need to be approved by the County Administrative Boards (CABs). These are regional administrative bodies representing the national government who need to check whether the spatial plans of the municipality cohere with national interests. Important requirements for any spatial intervention come from the Environmental Code, which came into force in 1999. It represents a combination and renewal of 14 environmentally related Laws (Lundin, 2000) and has the purpose of promoting sustainable development to assure a healthy and sound environment for present and future generations (Ministry of Environment, 2000). The party responsible for an activity or intervention needs to prove that the activity complies with the general rules of consideration of the Environmental Code (Lundin, 2000).

The 'Strandskydd', or shore land protection, is the part of the Environmental Code that is particularly applicable to coastal protection measures (Chapter 7, Ministry of Environment, 2000). Shore land protection was established in the 1950s to preserve access to waterside areas based on the traditional 'Allemansrätten', the right for all people to access the countryside. Since 1994, the shore land protection has included protection of biodiversity in all waterside areas. Areas within a radius of 100 (sometimes enlarged to 300) meters of any water body are protected. It is prohibited to construct new buildings or other structures that influence the accessibility and biodiversity of the area. A municipality can apply to the Country Administrative Boards for an exemption (Chapter 7, sections 13-18, Ministry of Environment, 2000). If a coastal area is designated as part of a national park, a nature reserve, a cultural reserve, a natural monument or a habitat protection area, more legislation applies and more exemptions are required.

The Environmental Code prescribes that for interventions such as a beach nourishment, a permit from the Land and Environmental Court is necessary. The permitting process has an open design. All agencies and administrative bodies can provide advice during the procedure. Regional Land and Environmental Courts

consist of a legally qualified and experienced judge assisted by an environmental advisor and two expert-lay judges. The final appeal is the task of the Svea Court of Appeal (Lundin, 2000).
A permit related to the Continental Shelf act is needed for extracting sand from the sea. These permits can be issued by the Geological Survey of Sweden (SGU) which can also request a higher administrative level to decide (ministries). Within the permitting procedure, all agencies and administrative bodies can send an advice regarding the request. Interestingly, the permit requested by the municipality of Ystad at the beginning of the 20th century was the first request for sand extraction from the seabed in around 25 years (respondent G).

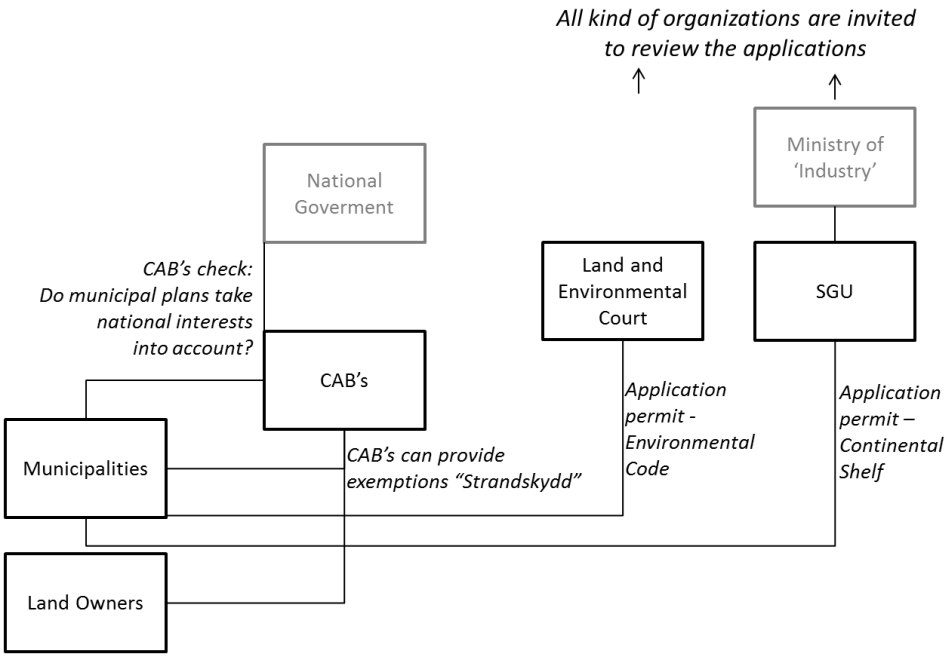


Figure B-3. Schematic overview of actors and responsibilities in Swedish coastal management from the spatial planning perspective.

Climate change is a further policy issue to be taken into account. For Scania, most of the effects of climate change will be related to the coastal zone. The national exploration off the Swedish Commission on Climate and Vulnerability (2007) mentions storms, erosion and flooding as major threats for Scania. Since adaptations in the Planning and Building Act in 2008 and 2010, municipalities are obliged to deal with the consequences of climate change in their comprehensive plans and more detailed local development plans (Storbjörk and Uggla, 2014; Glaas and Juhola, 2013; Johansson and Mobjörk, 2009). Another national regulation assigns a strengthened role to the County Administrative Boards (CAB's) in coordinating climate adaptation within the region (Storbjörk and Uggla, 2014, based on Government Offices 2009; Glaas and Juhola, 2013; Johansson and Mobjörk, 2009)). As a consequence of their role as coordinator of climate adaptation in the region, the stake of the CAB of Scania in coastal management has increased.

The Regional Councils are another political and administrative body that can play a role. The Regional Councils are elected bodies, responsible for themes other than the themes of the CABs. Some of their themes, however, such as regional

development, make the Regional Council of Scania a potential stakeholder in coastal management issues. They collaborate with Scanian Association of Local Authorities and the CAB of Scania within the 'climate cooperation', for example, aiming for consensus and collective action on climate change issues (Klimatsamverkan Skåne, n.d.).

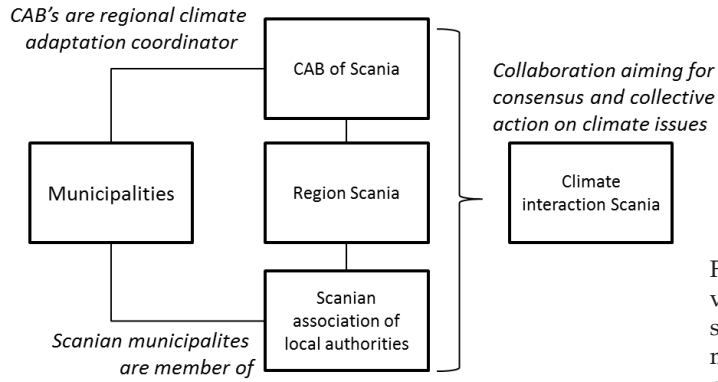


Figure B-4. Schematic overview of actors and responsibilities in Swedish coastal management from a climate change perspective.

At the national level in Sweden, there are relatively small ministries supported by many national agencies of which several have a stake in coastal management. The SGU has already been mentioned, but there is also the Swedish Meteorological and Hydrological Institute (SMHI), the Swedish Civil Contingencies Agency (MSB), the Environmental Protection Agency (EPA), the Swedish Agency Marine and Water Management (SwAM), the Swedish National Board of Housing, Building and Planning (Boverket) and the Swedish Geotechnical Institute (SGI). There is some involvement of these agencies in erosion issues (Figure B-5). The MSB provides a degree of financial support for projects that counter river erosion, but – to the regret of the Scanian municipalities – not for projects against coastal erosion. Since 2003, the SGI is appointed as 'national erosion coordinator', meaning that they organise 'Coastal Meetings' for all the agencies working on coastal issues), provide advice, and coordinate knowledge regarding erosion (Swedish Geotechnical Institute, n.d.). The SwAM is in charge of marine spatial planning (MSP), including preventing conflicts about marine resources (Swedish Agency for Marine and Water

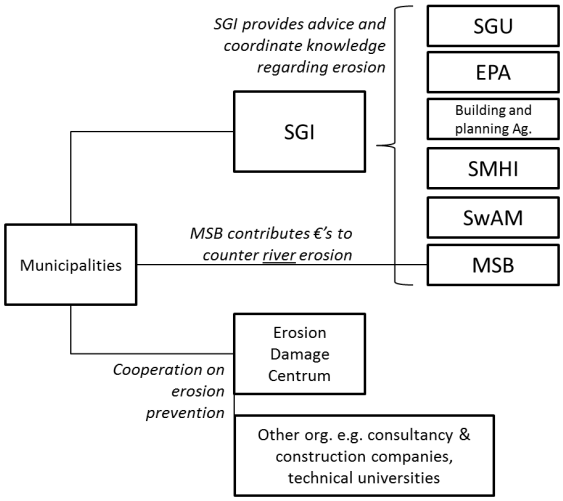


Figure B-5. Schematic overview of actors and responsibilities in Swedish coastal management from an erosion perspective.

Management, 2013).

In short, actors at the local level are most responsible for coastal erosion management in Sweden. Within all of the procedures related to coastal interventions, they depend on ideas and opinions at the regional and national level. In 1994, a group of Scanian municipalities convened in the 'Erosion Damage Centre' (Municipality of Ystad and Erosion Damage Centre, 2005). The aim of this ongoing collaboration is to share experiences and to collectively ask attention for the topic of coastal erosion within the higher political and administrative levels.

B.1.3 Challenges for coastal policy

In their exploration of the threats and opportunities of climate change for Sweden, the Swedish Commission on Climate and Vulnerability (2007) explains that increased sea levels and stronger winds – more often coming from the west – will increase the risks of beach erosion and flooding along the sandy parts of the Swedish coastline. The coastal zone – especially in the south – is relatively densely populated and accommodates relatively many buildings. The increasing risks require improved planning of new building constructions and more preventative measures (Swedish Commission on Climate and Vulnerability, 2007). Because of the division of responsibilities in coastal management (as described above), these challenges are considered to be local and regional challenges. And indeed, it is one of the municipalities – namely Ystad - that has turned out to be a frontrunner in preventative measures, initiating the first large-scale nourishment project in Sweden.

B.2 The pilot project

B.2.1 Objectives and design of the intervention

Ystad municipality has experienced the most serious beach erosion in Sweden for a long time (Malmberg Persson et al., 2014). There are two major erosion spots; Ystad Sandskog, just east of the city of Ystad, and Löderups Strandbad, located along the bay east of Ystad. In both bays, there is an unbalanced sand transport system. The harbour of Ystad contributes to the imbalance by disturbing the natural sand transport. The sand that is periodically dredged to keep the waterway open is not replaced (Municipality of Ystad, 2008a). The beaches are considered important for inhabitants and visitors to the municipality and for the local economy (Municipality of Ystad and Erosion Damage Centre, 2005). A number of the visitors are the owners of the around 1,000 holiday houses located close to the two beaches (Statistics Sweden, 2010).

Protective measures – hard constructed interventions – were realised in the past, but did not prevent further erosion in these spots. Therefore, the municipality also aims to use so-called soft protection measures; making use of natural materials (such as sand) and trying to improve the sand balance(Municipality of Ystad, 2008b). The main objective of Ystad's sand nourishment project is to counter beach erosion by improving the sand balance.

The design of the project involved four rounds of nourishments in which 3,4 x 10^5 m^3 was to be deposited (at first) on the beaches. 1,0 x 10^5 m^3 was planned for the first round in 2011, the residual amount was supposed to be equally divided over the following three rounds (Swedish Geological Survey, 2011). The nourishment project therefore is a nourishment program extending from 2011 to 2021 (when the permit to extract sand expires). The sand is extracted from an accumulation spot, near the

Sandhammer bank. That means that the sand has the same composition as the sand on the local beaches. Or, as the municipality states, 'we are just closing the sand transport cycle'.

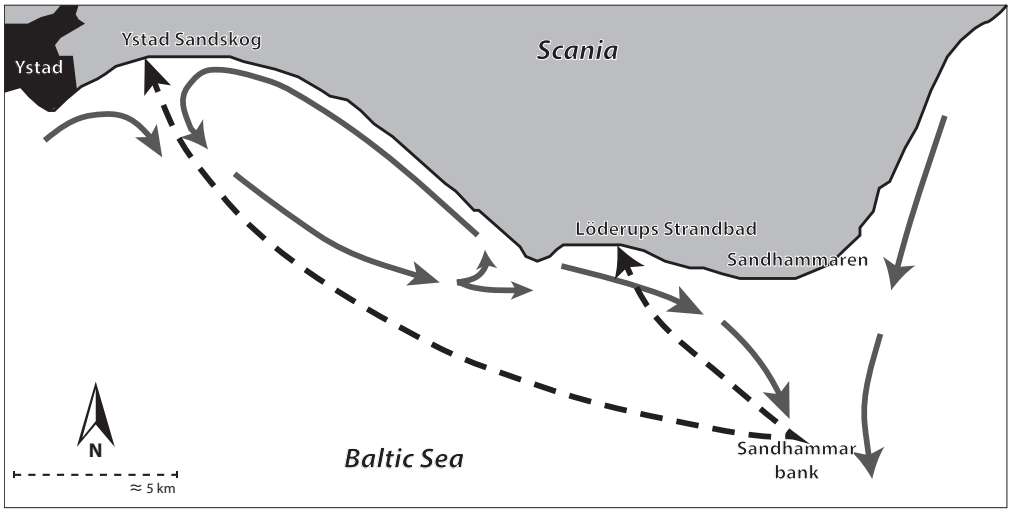


Figure B-6. The nourishment sites of Ystad's nourishment project. The continuous arrows show the sand transport patterns along this part of the Scanian coast, the dashed arrows show the intervention: sand is taken from the Sandhammer bank and nourished at Ystad Sandskog and Löderups Strandbad. Map from Almström and Hanson (2013).

B.2.2 Project organisation

According to the Swedish administrative organisation, the municipality of Ystad was the leader in the processes of applying for permits and realising the project. They were assisted by consultants from the coastal division of a large consultancy firm. A professor in coastal engineering has provided advice to the municipality on their coastal issues, over the last four decades. During the permitting processes, the municipality was in contact with numerous stakeholders. The consultants and professor helped to explain what beach nourishment is and why it is a good solution for the erosion problems.

When the permits were granted, the municipality commissioned the nourishment project. A Danish company won the tender and was contracted to realise the sand extraction and sand nourishment. Environmental consultants were hired to conduct the required ecological research (Figure B-7).

B.2.3 Project development

A chronological overview of the events leading to the realisation of the Ystad's sand nourishment project is provided in Table B-1.

In the next chapter, the development of Ystad's sand nourishment project will be investigated further by applying the inductive narrative approach developed in this thesis.

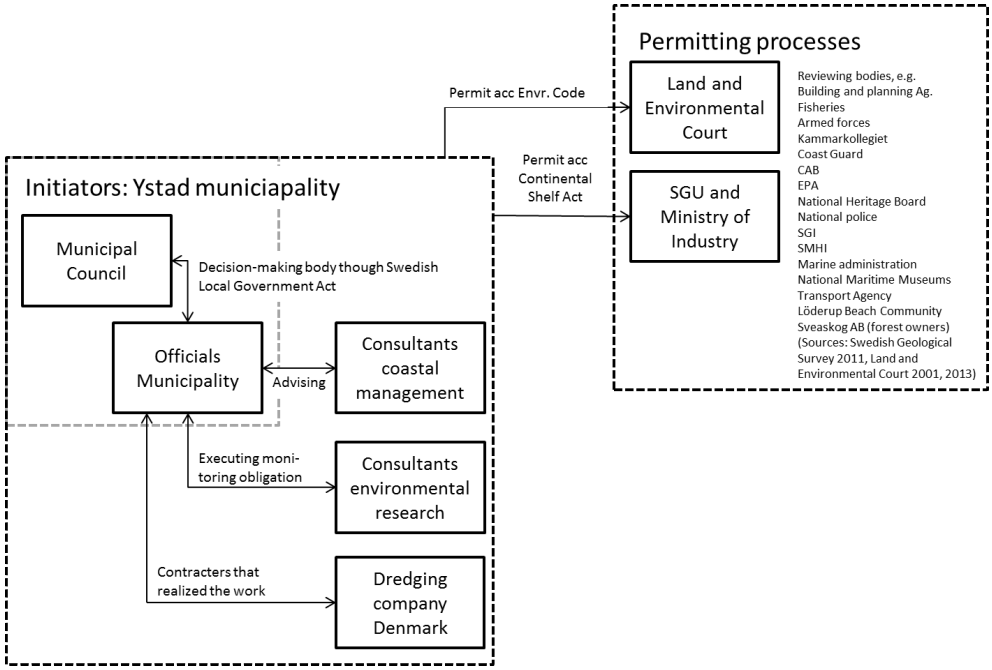


Figure B-7. Schematic overview of actors in the realisation of Ystad's nourishment project.

Table B-1. Timeline with events and developments of Ystad's nourishment project

Period	Events related to
1990's	- Realisation of additional groyne in Ystad (Larson and Hanson, 2013) and discussions about the idea of using nourishments to counter erosion (Respondent N)
1994	- Ystad, other Scanian municipalities and some organisations form the "Erosion Damage Centre" (Municipality of Ystad and Erosion Damage Center, 2005).
1999	- Ystad applies for the beach nourishment at the Environmental Court.
2001	- Environmental Court grants a permit that is valid for 10 years (Almström and Hanson, 2013).
2002	- Ystad applies for the first time for extracting sand in accordance with Continental Shelf Act.
2003	- The permit for sand extraction is rejected by the ministry.
2005	- Ystad applies for the second time for extracting sand for the nourishment.
2007	- For the second time, the permit is rejected.
2008	- Ystad formulates its policy for management and protection of the coast, adopted by the city council on 18th of September. It proposes an integrated approach, including also soft measures to protect the coast (Municipality of Ystad, 2008a).
2010	- Ystad applies, with all new papers, for the third time for extracting sand.
2011	- The permit for extracting sand is granted by SGU – valid for 10 years (Swedish Geological Survey, 2011). - The tender for the project is realised. - The first round of nourishment is realised at Ystad Sandskog and Löderup Strandbad.

2013	-	Extension/new permit from the Environmental Court is granted – valid for 10 years (Land and Environmental Court, 2013).
2014	-	The second round of nourishment is realised at Ystad Sandskog and Löderup Strandbad.
2017	-	The third round of nourishment is realised at Ystad Sandskog and Löderup Strandbad.
2020	-	Fourth round of nourishment is scheduled (Swedish Geological Survey, 2011).

6.
Narratives on the realisation of Ystad's sand nourishment project and beyond

Analogous to the Sand Engine case, we use an inductive narrative method for distinguishing narratives that portray the narrative competition around Ystad's sand nourishment project. In this chapter we present the outcomes of this inductive narrative analysis, starting with a brief restatement of the steps within the inductive approach (6.1. The narratives playing a role in the development of the project are presented in 6.2. We then analyse the dynamics of the narrative competition and the developments of the narratives after the realisation of the project (6.3 and 6.4). Conclusions follow in 6.5.

6.1 An inductive narrative approach on Ystad's nourishment project

We apply the inductive narrative method to study the development Ystad's nourishment project, both before and after the realisation. This yields narratives indicative of a narrative competition (as indicated by the first magnifying glass in Figure 6-1). These narratives also serve to study the dynamics in the 'use and confirmation' stage (second magnifying glass).

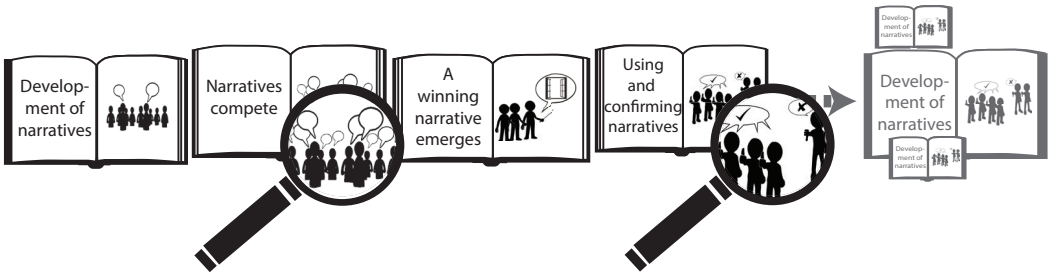


Figure 6-1. This chapter focuses on the narrative competition in Ystad's nourishment project (6.2) and the developments of the narratives after realisation (6.3-6.4).

Restatement of the method

The first round of 11 semi-structured explorative interviews was conducted by Zilin Wang. The 13 respondents are people involved in the discussions around Ystad's nourishment project. They were encouraged to relate their experiences (Appendix M). The interviews were later transcribed rigorously and the transcriptions were sent back to the interviewees for an accuracy check. The accurate transcripts are then analysed inductively for potential narrative elements. These are selected and coded with an initial code – a label name that summarises the content of the selected quote. Codes and quotations are then analysed based on their similarities, contrasts, and variations and clustered in narrative categories (Appendix O).

For each narrative category, the codes with their related narrative elements are grouped under the clusters orientation, complication and resolution structure, forming the narrative candidates (3.5.1).

The narrative candidates are validated as part of a second interview round, in which they were presented to the interviewees. In 11 semi-structured interviews, 13 respondents (Appendix M) indicated the extent to which they recognised the narratives and to which part of the actor-network they allocated each narrative (Appendix I). In this way the four narrative candidates are confirmed as competing narratives within the Ystad actor-network. The interviewees also reflected on the connections between the narratives and on the development of the narratives over time. In this way, the present dynamics of the narrative competition are studied.

The use and development of the narratives after the realisation of Ystad's nourishment project was observed by the researcher when attending 6 events.

The outcomes of these research activities are elaborated in this chapter.

6.2 The narratives, their roots and the degree of recognition

The inductive narrative analysis of the interview transcripts yields 4 narratives that portray the discussions around Ystad's nourishment project. Table 6-1 lists the number of narrative-elements (in the form of quotations) and the number of different codes underlying these narratives.

In the next sections the roots of each narrative, the narrative itself and how recognisable the narrative is to interviewees in the second round of interviews are described.

6.2.1 The non-acknowledged and urgent national problem

This narrative is based on 57 initial codes assigned to 100 quoted narrative-elements (Table 6-1). The narrative-elements are rooted in all interview transcripts (Figure 6-2), but mostly derive from interviewees A, C, E, H and N.

Table 6-1. Four narratives are distinguished. Per narrative the number of narrative-elements coded in the 11 interview transcripts and the number of initial codes that underlie the narrative are listed.

Title of narrative	Abbreviation of Ystad's Nourishment Narrative	Number of narrative-elements	Number of initial codes
The non-acknowledged and urgent national problem	YNN1	100	57
The non-urgent, local problem	YNN2	16	11
A (potential) dangerous unknown that threatens the marine environment	YNN3	33	18
An environmental friendly and flexible solution	YNN4	74	51
Total		223	137

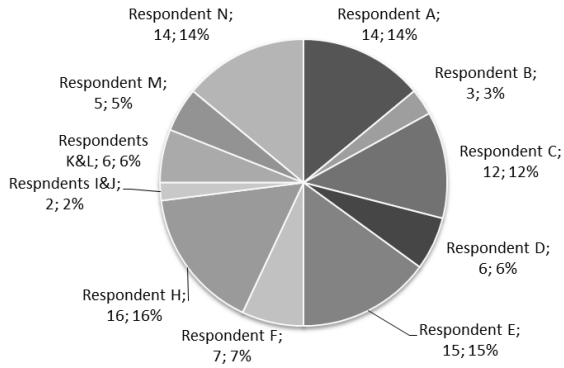


Figure 6-2. 'Roots' of the narrative the 'Non-acknowledged national problem', based on 100 narrative-elements, spread across 11 out of 11 interview transcripts.

The following narrative was constructed from these codes:

Orientation *"Skåne has suffered coastal erosion for a long time now. Beaches have disappeared, dunes are damaged and houses slump into the sea. Swedish territory - with its infrastructure and buildings - is threatened. However, 'Sandy Skåne' is located far from the national government in 'Rocky Stockholm' and the responsibilities are divided and unclear. It seems that no-one wants to take responsibility for this costly problem. This means that the municipalities in Skåne, for instance Ystad, need to protect the coastline themselves.*

Complication *However, climate change and accompanying sea level rise make the situation worse. The problem is more widespread and the urgency increases. More and more assets are vulnerable to erosion. The municipalities are in need of support from the national government.*

Resolution *Persisting with ideas and projects to protect the coast, Ystad and the other municipalities seek to cooperate. They clarify the problem, explain the need for research on the coastal system, and identify potential solutions. Finally, the national government will be brought to realise that*

The non-acknowledged and urgentnational problem

coastal erosion is a national problem and will then support the regions that suffer from it."

Story of control

This narrative represents a variation of Stones' story of control. All stories of control have in common that they state that there is a choice (Stone, 2002, p.144). Here, the choice lies with the national government. If they join the municipalities in their efforts to protect the coast, the situation will be under control.

Table 6-2. Recognition of 'The non-acknowledged and urgent national problem' as coded in the 11 interview transcripts.

The non-acknowledged national problem	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	1
A neutral reaction, recognising parts of it, but not full	2
A clear reaction of recognition	5
A very enthusiastic reaction of recognition	3

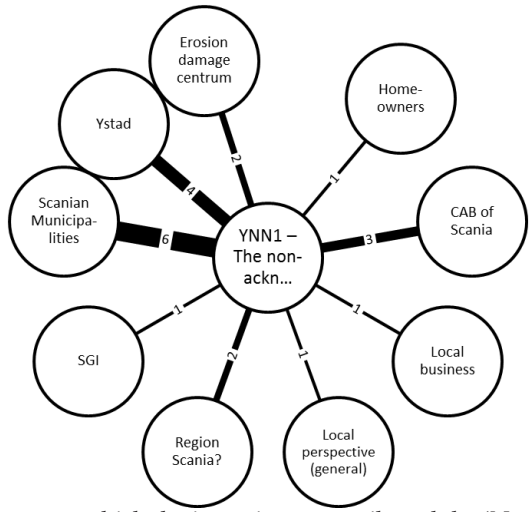


Figure 6-3. Actors to which the interviewees attributed the 'Non-acknowledged national problem'. The numbers indicate how many of the interviewees related the actor to this narrative.

Only one interviewee did not clearly indicate that he recognised the narrative. There were two interviewees who recognised elements, but not the full narratives. These were interviewees from the geological survey of Sweden (SGU) who did not recognise the resolution of the narrative. All other interviewees clearly recognised or even enthusiastically recognised the story's complication as 'exactly the situation we are in now' (Table 6-2). One of the respondents undertook research among Scanian coastal actors herself and recognised this narrative as a perspective of the local actors in the region. This is also reflected in Figure 6-3 which shows to which actors the interviewees attribute this narrative. Most

associations were with Scanian municipalities, Ystad (one of the Scanian municipalities), the Erosion damage centre (collaborating Scanian municipalities) and also the County Administrative Board. Region Scania was mentioned twice, but with hesitation. The position of Region Scania seemed not to be entirely clear for these two interviewees. In four interview transcripts, interviewees indicated that they feel personally attached to this narrative (Table 6-6).

6.2.2 The non-urgent local problem

This narrative is based on 11 initial codes assigned to 16 quoted narrative-elements (Table 6-1), so this narrative seems less 'deeply' rooted among the interviewees. This seems reasonable as most of the interviewees were located in Scania. They seemed rather support the previous narrative that considers erosion as 'The non-acknowledged, national problem'. The narrative-elements of 'The non-urgent local problem' do not have roots in transcript A, I&J, M and N, but relatively strong rots in B, H and K&L, who are interviewees from SGI, Region Scania and the County Administrative Board of Scania (Figure 6-4).

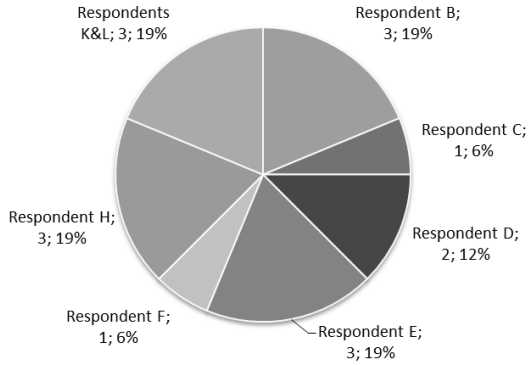


Figure 6-4. 'Roots' of the narrative the 'Non-urgent local problem', based on 16 narrative-elements, spread across 7 out of 11 interview transcripts.

The following narrative was constructed from these codes:

Orientation *"Municipalities of Sweden have the authority and the responsibility regarding physical planning. They have at their disposal several planning instruments that allow them to plan and develop the municipal territory. In other words; they can intervene in the physical environment.*
Complication *Municipalities in the Skåne region face the challenge of coastal erosion. Climate change and accompanying sea level rise make this an issue, both now and in the future.*
Resolution *Because of their strong position in relation to planning and interventions, it is the responsibility of the municipalities to deal with the problem. For example, a comprehensive plan is a planning instrument that they can use to develop an integrated approach to deal with sea level rise. Municipalities can consider authorising planned retreat (of the coastline) or different interventions to protect economically interesting beaches, like building groynes. They – the municipalities – are equipped to deal with these issues. The national government, in the meantime, works on issues of national interest, or at the national scale, or on issues that are particularly dangerous."*

The non-urgent local problem

Another story of control

This is also a 'story of control', the problems in the coastal zone can be controlled. However, in this narrative, the present system and responsibilities are not under discussion: it is perfectly clear that the municipalities are responsible for solving (potential) problems.

Table 6-3. Recognition of 'The non-urgent local problem' as coded in the 11 interview transcripts.

The non-urgent local problem	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	1
A neutral reaction, recognising parts of it, but not full	1
A clear reaction of recognition	9
A very enthusiastic reaction of recognition	0

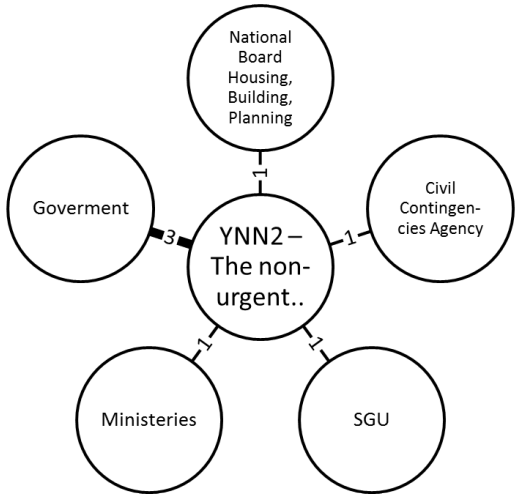


Figure 6-5. Actors to which the interviewees attributed the 'Non-urgent local problem'. The numbers indicate how many of the interviewees related the actor to this narrative.

As visible in Table 6-3, this narrative was clearly recognised by almost all interviewees. Only the interviewees from SGU were (again) less certain about their recognition. They seem to retain a distance from these political issues. One of them explicitly said that he was not participating in these kinds of political discussions. Not all interviewees associated explicit actors with this narrative (Figure 6-5). But all actors that were mentioned were actors at the national level, namely: the government, ministries and three national agencies.

6.2.3 A (potential) harmful unknown that threatens the marine environment

This narrative is based on 18 initial codes assigned to 33 quoted narrative-elements (Table 6-1), rooted in all transcripts (Figure 6-6). The narrative-element that has the broadest basis is the part

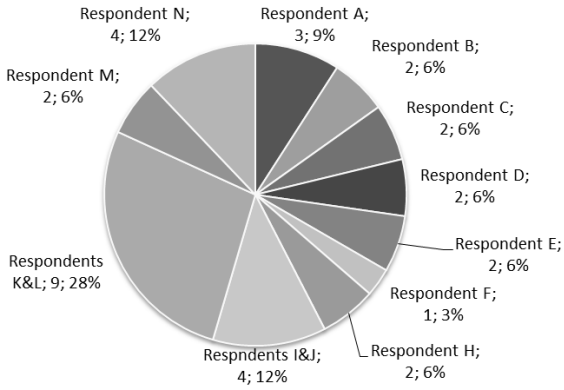


Figure 6-6. 'Roots' of the narrative the 'Potentially harmful unknown that threatens the marine environment', based on 33 narrative-elements, spread across 11 out of 11interview transcripts.

about the scarcity of suitable sand in Sweden. The interview with respondents K&L has made a large contribution to this narrative.

The following narrative was constructed from these codes:

Orientation *"In Sweden, the environment is considered very important. Protection of the environment is established in the Environmental Code that aims to guarantee a healthy and sound environment for future generations. It prescribes handling the environment with care and taking precautionary measures when needed, so that the valuable environments are maintained into the future.*

Complication *A municipality in Skåne region would like to carry out a beach nourishment project to combat the process of erosion. That idea implies extraction of sand from the sea-floor. This can be harmful for the marine life around the extraction area, as was seen for example at the Danish side of the Oresund channel. It is not desirable that other municipalities become interested in such interventions, also simply because the amount of sand in the Swedish seas is limited.*

Resolution *We have to exercise care in providing permits for these kinds of projects, and we must not encourage other municipalities to think of sand nourishments. Only if we persist in being careful, can we maintain the quality of our natural environments."*

The (potential) harmful unknown that threatens the marine environment

From the broad policy narratives of Stone, this is a 'story of decline', the healthy and sound environments are in danger, because of sand extraction and sand nourishment. The narrative certainly is a story of decline that "warns us of suffering and motivate us to seizes control" (Stone, 2002, p.145).

Story of decline

This narrative was recognised by everyone (Table 6-4). It was mostly linked to the County Administrative Board, sometimes even to a particular person within the County Administrative Board, and towards nature conservationist and nature conversational organisations (Figure 6-7). People working for the municipality of Ystad (respondents D, O) emphasise the importance of this narrative while engaged in narrative 4. They said that this critical narrative on sand nourishments keeps them alert and makes the implementation better (see 6.3.2).

Table 6-4. Recognition of 'The (potential) harmful unknown that threatens the marine environment' as coded in the 11 interview transcripts.

The (potential) harmful unknown that threatens the marine environment	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	0
A neutral reaction, recognising parts of it, but not full	4
A clear reaction of recognition	6
A very enthusiastic reaction of recognition	1

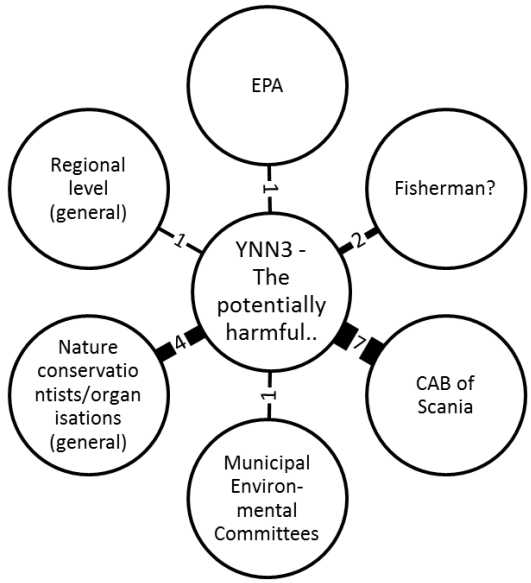


Figure 6-7. Actors to which the interviewees attributed the 'Potentially harmful unknown that threatens the marine environment'. The numbers indicate how many of the interviewees related the actor to this narrative.

6.2.4 A nature friendly and flexible solution

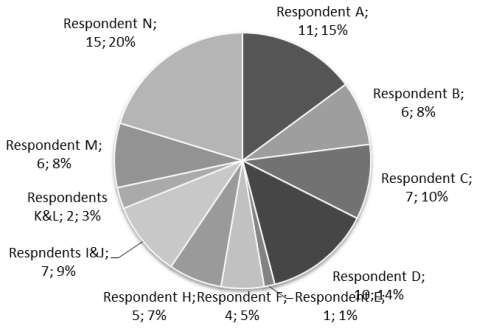


Figure 6-8. 'Roots' of the narrative the 'Environmental friendly and flexible solution', based on 74 narrative-elements, spread across 11 out of 11 interview transcripts, and with respondent N as greatest contributor.

This narrative is based on 51 initial codes assigned to 74 quoted narrative-elements (Table 6-1), rooted in all transcripts, although only with 1 or 2 quotes in transcript E and I&J (Figure 6-8). Respondent N is clearly the greatest contributor to this narrative. It is also interesting that the second contributor is respondent A, who has worked with respondent N in coastal consultancy assignments. The third contributor is respondent D, from the municipality where the solution is implemented.

The following narrative was constructed from these codes:

Orientation *"Skåne region suffers coastal erosion and Ystad is one of the places that face this problem since the 19th century. Over the last decades the municipalities have carried out several projects to counter erosion and to protect their beaches, dunes, infrastructure and buildings. Nowadays, we know that some hard infrastructures have negative side-effects or can even increase erosion. Soft solutions, like using sand, rather than hard and fixed solutions, like groynes, are seen as nature friendly ways of encountering erosion in many areas of the world. Adding sand to the coastal line is also a flexible solution; you can stop doing it whenever you want. Ystad also wanted to carry out a beach nourishment using sand from a marine area where the sand from the region naturally accumulates. The sand is re-used by closing the sand transport cycle. In addition, no rare species inhabit the extraction area.*

A nature friendly and flexible solution

Complication *In spite of all advantages of using sand to counter erosion, the permitting process turned out to be very difficult. That is due the novelty of the project. Some people in the process were uncertain and didn't take it upon themselves to make a positive decision.*

Resolution *Although the municipality received a few 'no's' during in the permitting process, they persisted. They kept explaining the idea to different organisations and institutions. Realising the beach nourishment pilot project at Ystad and showing positive results will open doors for the more flexible sandy solutions."*

Using Stone's broad policy stories, this is again a 'story of control'. And once more, there is a choice to make in order to gain things under control. The government(al organisations) needed to make it easier (for the heroes) to implement nourishment projects.

Story of control

This narrative is recognised by every interviewee (Table 6-5). The

Table 6-5. Recognition of 'An environmental friendly and flexible solution' as coded in the 11 interview transcripts.

An environmental friendly and flexible solution	Frequency
Recognition disaffirmed	0
A very vague reaction on recognition	0
A neutral reaction, recognising parts of it, but not full	1
A clear reaction of recognition	3
A very enthusiastic reaction of recognition	6

interviewees strongly associate this narrative to the municipality of Ystad, and towards the professor in coastal processes (respondent N) that informs people a lot about coastal engineering principles (Figure 6-9). Four interviewees feel themselves personally attached to this narrative, among them that specific researcher and people working on the issue at the municipality (respondents D, O).
As mentioned before (6.2.3), the latter two also take the third, critical narrative into account in order to implement an 'optimal' nourishment.

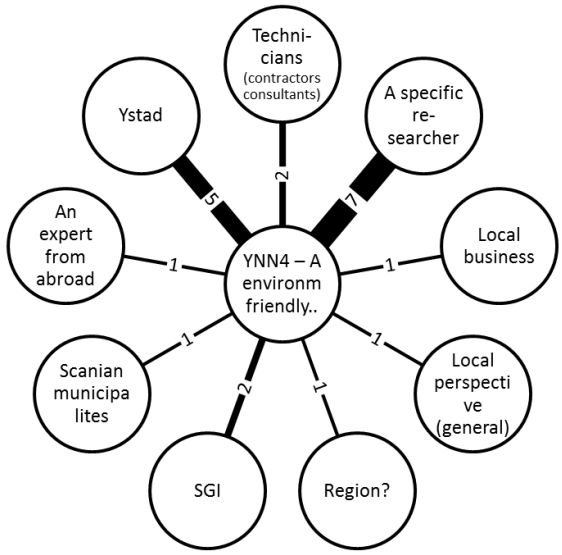


Figure 6-9. Actors to which the interviewees attributed the 'Environmental friendly and flexible solution'. The numbers indicate how many of the interviewees related the actor to this narrative.

6.2.5 Additional narratives?

Because narratives are analyst-constructed typologies (3.5.1), their composition includes choices by the analyst. It can be debated whether the urgency-issue and the scale of the problem should be part of the same narrative. In the first round of interviews, all the interviewees who argued that erosion is an urgent issue also argued that the problem is not limited to the local level (but related to the global problem of climate change) and then reasoned further that the national government needed to acknowledge this and needed to provide support. This is why the urgency-issue and the scale-issue are interwoven in 'the non-acknowledged and urgent national problem' and in 'the non-urgent local problem'.

In the second round of interviewees, interviewees didn't suggest new narratives. A theme that came several times back, when they were asked whether they wanted to add narratives, was knowledge. One of the interviewees was disappointed because many Swedish people are reluctant to accept knowledge from abroad. Nourishments have demonstrated their values and benefits at many places, why do not make use of these insights from abroad? Others were indeed emphasising the need for more knowledge about the specific Swedish physical and ecological contexts. We do not consider this knowledge discussion to be an additional narrative, but rather a 'subplot' in the discussion between the 'Potentially harmful unknown' and the 'Environmental friendly and flexible solution'.

6.2.6 Foundation and recognition of narratives summarised and discussed

The roots and recognition of the distinguished narratives around the realisation of Ystad's beach nourishment are summarised in Table 6-6.

Table 6-6. Summary of the foundation (roots) of the narratives and the actors the interviewees associated with them.

Abbr.	Narrative	First interview round Mainly rooted in transcripts of interviewees with:	Second interview round Interviewees mainly associated the narrative with:	Personal attachment of:
YNN1	The non-acknowledged and urgent national problem	Local and regional actors	Local and regional governmental bodies	3 people associated with municipal level
YNN2	The non-urgent local problem	National and regional actors	National government and national agencies	-
YNN3	A (potential) harmful unknown that threatens the marine environment	CAB of Scania	CAB of Scania and environmental protectionists	-
YNN4	A nature friendly and flexible solution	Local actors	Municipality of Ystad and specific researcher	3 people who were involved in the Ystad project

Narrative competition

Stones' general storylines can be found back in the narratives. There are two pairs of conflicting narratives, together forming a narrative competition (Figure 6-10). The first pair ('The non-acknowledged and urgent national problem' vs 'The non-urgent local problem') is

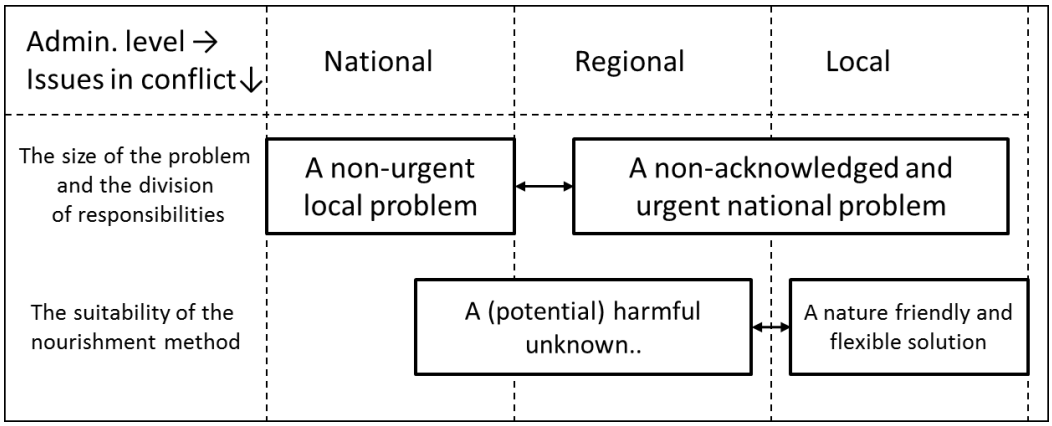


Figure 6-10. Visualisation of the narrative competition within the discussions about Ystad's nourishment project in which 2 sets of competing narratives portray an institutional conflict and a conflict about method, mainly between administrative levels.

structured around the 'complication' of responsibility for climate change and whether coastal erosion is part of this responsibility. In this issue, the regional bodies seem to be positioned in the middle between the local actors and the national actors.

The second pair of conflicting narratives is structured around the method of beach nourishment; is it a complication ('a (potential) harmful unknown..') or resolution ('A nature friendly and flexible solution')? This is a discussion in which in particular the County Administrative Board of Scania and the Municipality of Ystad take the strongest positions. At the national level, there are several doubts about the method. During the permitting process, the Environmental Protection Agency was uncertain about the method. The recently formed Swedish Agency for Marine and Water Management (SwAM) also has a cautious attitude. The Swedish Geotechnical Institute can be seen as a supporter of nourishment methods, they have contributed to a nourishment handbook.

6.3 The dynamics in the narrative competition

This section highlights the developments within the narrative competition. One of the interviewees disassociated himself from reflecting on the competition between the narratives, because he considered it as part of his task as official from a national agency to remain neutral. Except for this interviewee, everyone mentioned the two conflicting pairs of narratives.

6.3.1 'A non-urgent local problem' vs 'A non-acknowledged national problem'

In reflecting on this competition, all interviewees state that it is difficult to say which narrative will win in the end. Most people do not feel any increasing interest on the part of the government

in Stockholm. Interviewees from the regional level formulate quite positively that 'at least there is an increased awareness on national level' (interviewees T, U, V). There is a kind of deadlock here; the municipalities want resources, mainly financial resources, according some interviewees. However, the national government does not agree that it is a governmental responsibility to finance protective measures. At the same time, municipalities, some more than others, are hesitant regarding receiving guidance from upper level.

Routes to uplift the problem

A few routes are explored to uplift the Scanian erosion problem.

- The king, crown prince, ministers, parliament members were all invited to visit Ystad. This may have increased the awareness in Stockholm, but it did not lead to changes in the system.
- Local actors received honours from the King for their efforts for the region. Since the King of Sweden is not part of the government, however, acknowledgement by the King did not have any implications for the system.
- Another way to uplift the issue is the political route via politicians of Region Scania to the parliament members in Stockholm. However, people are aware that it takes time to settle in and that a change of political chairmanship has influenced this route (B).
- In the past, there was also a stronger relationship with the (former) governor of the CAB who – although the CAB is not a political entity – could contribute to the acknowledgement on national level (N).
- A meeting to demonstrate sites of the storm damage on the Scanian coast was intended to inform and convince a critical mass of people from the parliament in Stockholm. However, the meeting was cancelled in 2014 due to calendar conflicts (N).
- The SGI (appointed as national erosion coordinator) aims to bridge the institutional gaps by:
- Organising yearly coastal meetings; a platform where national agencies, researchers and local and regional actors can meet and discuss.
- Coordinating a Network of Agencies for Coastal Erosion
- Emphasising the erosion risks in a broader network: the National Platform for disaster risk reduction.

The acknowledgement of the erosion problem is strongly related to the discussions about climate change. Municipalities and regional organisations have worked hard to show the effects of climate change for Scania. Although they say that it is difficult to predict which narrative will win, many interviewees think that in the end, erosion and flooding in the coastal areas will be acknowledged as part of a national problem.

- At least the municipalities are realising that they need to act (interviewee A).
- The Coast and River section of an engineering consultancy company could grow to a substantial group, indicating an increase of

attention.
- The regional organisations (CAB and Region Scania) acknowledge the problems and would like to contribute in further acknowledgement.
- On many conferences, the erosion and sea level rise problems of Scania are brought to the attention (interviewee O).
- The national government works on a climate adaptation plan (but there is not yet a national strategy for climate change adaptation) and the SMHI proposed that the government can take bigger responsibility (interviewee D, O).
- The national government currently (2015) is reviewing the climate adaptation system so far (interviewees T, U, V).

Although the extent to which erosion should be attributed to climate change is discussed (aspects as the structural geology, hydro morphological situation and human interventions also influence erosion), the climate change discussion puts the erosion problems in a broader perspective. From the 'narrow' perspective the erosion problem is considered as 'a problem for the municipality that is losing its beach', while from the broader perspective the erosion problem can be considered as part of the effects of climate change, which will influence more Swedish municipalities. In this way, the narratives in this conflict form an example of scale framing (Wang, 2015 cf Van Lieshout 2012). Scale framing, according to Van Lieshout et al. (2012), is "the process of framing a phenomenon on a certain scale". In this competition the local actors frame erosion as a global, national problem, while others, such as the national agencies, frame erosion as a local problem.

Scale framing

According to the interviewees, things are starting to happen regarding climate change adaptation on the local level. The regional level would like to contribute with ideas and knowledge, whereas the system as established on the national level is seen as rigid and not helpful.

Referring back to effects of pilot projects in the actor-network, the narrative competition regarding the nature of the erosion problem and the responsibility is still in balance, indicating that Ystad's sand nourishment project didn't as yet have a significant impact on this discussion.

6.3.2 'A (potential) harmful unknown..' vs 'A nature friendly and flexible solution'

Many interviewees think that the 'A nature friendly and flexible solution' will win ground in the competition. Several interviewees have noted that the main advocate of the '(potential) harmful unknown..' in the last couple of years seemed to have changed his mind a bit, by acknowledging that nourishments can be a suitable solution on a few places. People from the CAB are still emphasising that it is not everywhere suitable and that caution is still needed. Although realising the nourishments in Ystad has helped in acknowledging nourishment as an accepted method, Swedish

people are still a bit suspicious (as formulated by A); it cost a lot of money and the sand is disappearing anyway. The process of – what advocates of the method name – 'educating' politicians, public servants and the public, takes root slowly.

Informing politicians, public servants and the citizens

- Since the professor – an authority on coastal processes and erosion – realised that 'hard structures' alone are not enough to counter erosion and that sand can be helpful, he also became the first person spreading this message.
- He has given numerous lectures to politicians, public servants and the public, which is according other interviewees quite effective, in for example convincing Ystad's politicians.
- The messages received support and the group of advocates has grown, with politicians, servants and entrepreneurs mostly based in Ystad municipality.
- The professor together with SGI made a 'handbook on nourishment' (Hanson et al., 2006) to increase the knowledge about the method.
- Actors in favour of using the nourishment method (such as A, C, N, F, W) share the same type of metaphors to explain that every type of measure – needs maintenance; "painting a house" and "renovating a road" are activities that always need to be repeated – "and no-one is questioning that".
- When the permitting process for Ystad's nourishment turned out to be a long and difficult process, a group of advocates also went to Stockholm, to inform different ministries and agencies, such as the Environmental Protection Agency (EPA). The advocates explained the technical material and also connected this to the marine biologists working at EPA, for example by explaining that nourishments can contribute to shallow coastal waters, a valued biotope.
- Excursions and meetings with speakers from other countries are organised to learn from other countries, e.g. speakers from abroad are invited to the yearly coastal meeting.
- The first nourishment is presented on several meetings and conferences. That is considered helpful. But when more municipalities start with nourishments, more data can be collected and more knowledge can be developed (interviewee A).

On the other hand, 'the (potential) harmful unknown' is spread as well.

Spread of the 'Potential harmful unknown'

- The Danish extraction of sand in the Øresund, a strait between Denmark and Sweden, has caused negative feelings about sand extractions. When Denmark in 2014 gave permits for more sand extraction from the Øresund – already affected by earlier extractions, a protest was organised by Greenpeace, the World Wildlife Fund, fishermen and others (Helsingborgs Dagblad, 2014). The media attention was quite large and interviewees think that this discussion will influence the discussion about the nourishment plans of the municipality of Ängelholm, which is situated not far from the Øresund region.

- Respondent D and Q mentioned a radio interview with municipal official D and marine ecologist, which ended up in a conflict with each other.
- The biggest fear is the potential impact on Swedish waters, such as the Baltic Sea. This Sea is considered as a vulnerable area (interviewees K, L, S), not comparable with e.g. the North Sea. The Swedish people care about water and sea, reflected in the foundation the SwAM in 2011, a government institute focussing in these issues.

Different perceptions on 'environmental friendly'

The two narratives have a different perception of what is 'environment' and what is 'environmental friendly'. Supporters of the 'harmful one' view environment from a precautionary perspective, the supporters of the 'nature friendly and flexible one' from a pragmatic perspective. The supporters of latter would like to explore possibilities (that a nourishment can offer), while 'the harmful narrative' can be used as blocking power.

A knowledge deadlock

The people who are in favour of exploring more consider the Swedish system as not helpful in that ambition; the Environmental Code – with its precautionary principle – is restrictive and does not provide space for exploring. When effects are unknown, projects can not be implemented, which is a pity for the case of climate adaption (Respondent D). On the other hand, the cautious actors emphasise the need for more knowledge about the environmental effects (K, L, T, U, and V). But there is a bit of knowledge-deadlock here. The advocates of the nourishments emphasise that new projects will increase the knowledge base, while the opponents of the nourishments (mainly opponents of sand extraction) do not want to realise projects from which the effects are not known. And in line of what respondent Q reflected upon: it is not sure whether 'more knowledge' can bridge the gap between the two camps, because it is based on a very classical class between 'environmentalists' and 'engineers'.

One of the interviewees pointed towards the spreading of ecologists and engineers in the Swedish labour market: the number of ecologists working for the national agencies and other governmental organisations outranges the number of (coastal) engineers. According to him, this influences the starting position of coastal engineered solutions: the '(potential) harmful unknown' has a relatively strong basis in these governmental organisations. CAB, Region Scania and Scanian Association of Local Authorities collaborate together in applying for an EU LIFE project in which they want to explore environmental friendly solutions for coastal problems by realising pilots. They will work together with ecologists from a university. In one way, this initiative confirms the focus on environment at these governmental organisations. On the other hand, they also show ambition to develop new initiatives.

Complementary in stead of competing?

There are also interviewees who do not see the two narratives as competing. The narratives need each other, state interviewees D and O: the critical undertone of the 'harmful unknown' forces them - implementers of nourishment - to work

carefully. These interviewees appreciate the present balance between the narratives.

A potential development that can disturb the subtle balance between the '(potential) harmful unknown' and the 'nature friendly and flexible solution', is mentioned by several interviewees; when industries, such as the building industry become interested in using sand extracted from the sea-floor. It is unknown how much sand is available, but a large demand for this sand will influence the availability for nourishments.

In contrast to the discussion about the nature of the erosion problem and the responsibility, the discussion about the suitability of nourishment as a method to counter erosion has, in the slipstream of the development of Ystad's project, moved forward a little. Although people are still careful, nourishments now are seen as potential option in countering erosion in a larger part of the actor-network. In terms of Vreugdenhil et al. (2012), we can say that the development of the narratives shows a form of dissemination; the experiences of Ystad's project enter into (discussions about) new projects, such as protecting the beaches of Ängelholm.

6.4 Participant observations: narratives as a lens on coastal related events in Scania

The author visited Sweden twice for this case study. First to get to know the Scanian coastal community. This was followed by the first round of interviews by ir. Zilin Wang. The author's second time was to conduct the second round of interviews. Over this period, it was possible to join 6 coastal events, resulting in 11 pages of field notes and observations and 16 sets of presentation slides.

The table in Appendix Q lists the different events together with the researcher's interpretation of the traces and the additional sources related to the events. Table 6-7 shows an excision of this table as an example.

Traces of the 'non-acknowledged national problem' and 'a nature friendly and flexible approach' could be recognised during most events. That is not surprising; the researcher joined events organised by the Scanian coastal community – were the 'non-acknowledged national problem' has it strongest roots – and in particular by the small coastal engineering community, the main advocates of nourishment as solution for coastal erosion. In the largest meeting, the 2 day coastal conference of 2014 (E02 and E03), all narratives could be traced. In the presentation of the SwAM, the vulnerability of shallow waters and the potential danger of extraction are highlighted. The CAB emphasised the responsibilities of the municipalities regarding erosion and accentuate the uncertainties of large-scale sand nourishment. Consultants in coastal engineering relate Portuguese strategies to counter erosion and how Sweden can learn from this. In short, traces of narratives could be recognised in the coastal events.

Table 6-7. An example of one observed coastal related events and the recognition of the narratives at this event. It outlines the characteristics of the event, the traces of the narratives within the notes, the titles of accompanying reports, visual aids and videos, and the interpretations of the researcher. Appendix Q lists the six visited events in this way.

Eventnr. (own involv*)	Date and place	Name of event	Type of event	Stage and audience **	Traces of narratives: The 'original' narratives: YNN 1 - non-ackn	YNN 2 - local	YNN 3 - Danger	YNN 4 - friendly	'Add.' Narratives: Knowledge	Accompanying reports, visual aids and Videos	Recognition of narratives and interpretation of the way they are used
E02 (2)	30-9-2014 Kristianstad	Kustmöte-Coastal Conference 2014 - day 1	Conference coastal community Sweden	- presentations in large group	(X)	X	X	X	X	- Klimatanpassning i kustområden (Adaptation to climate change in coastal areas) - Ett interaktivt verktyg för integrerad kustförvaltning (an interactive tool for integrated coastal management) - Mätning på Grunda Vatten (Measurement of shallow waters) - SGUs projekt Skånestrand – jordarter och maringeologi längs Skånes stränder (SGU projects Skåne Beach - soils and marine geology along Scanian beaches) - Sårbarhets-kartering (Vulnerability mapping)	- Presentation about Polish coastal management showed that there is an 'inplay' between national and local level - (non) acknowledged problem - And that nourishments are an accepted and preferred method in Poland - friendly - CAB explains the responsibilities of municipality and state - local - CAB explains uncertainties of beach nourishment-danger - HAVS explains vulnerability of shallow coasts and the dangers of sand extraction - danger - Climate change including extreme weather will have impact on whole Swedish coast (most Scania) - non-acknowledged - Several institutes emphasised the importance of knowledge - knowledge - The SGU talks about the research on the geology of coast of Scania and the vulnerability of Löderup - a bit between non-ackn. and local narrative.

*Classification of own involvement in events

1 = only observing
2 = mainly observing
3 = participating
4 = active/steering

** Classification of audience size:

small audience < 20 people
medium audience 20-40 people
large audience > 40 people

Narratives are used to reflect on the process that happened

Narratives are used in present or future situations

6.5 Conclusion and reflection

The results of the narrative analysis are discussed using the conceptual model as developed in chapter 2.

6.5.1 A narrative understanding of Ystad's nourishment project in present Swedish coastal policy

For Ystad's beach nourishment, a policy window finally appeared when the permit was approved. However, the narrative competition is still going on, and has not yet resulted in policy change. The analysis in this chapter revealed two pairs of competing policy narratives. One pair about the institutional conflict and the other about the method of sand nourishment. Although actions are taken, real policy change is not realised. Instead, the two pairs of competing narratives are holding each other in balance. Since a critical official from the CAB mentions sand nourishment as 'one of the options' to deal with erosion, 'the nature friendly and flexible solution' may be considered a winning story. However, many people remain careful, so smaller, but similar discussions are expected for the next similar projects. In the competition about responsibilities, there are no signs that one of the narratives will become 'a winning story' in the near future. It is expected that the narrative discussion will continue to occur at 'project level' and not at the 'policy level'.

Discussion stays at project level?

However, in 6.3 we saw some indicators of rapprochement between competing narratives. These can be helpful starting points for developing two fused narratives to which actors of different levels and with different interests can commit (see the meta-narrative method of Roe, as referred to in chapter 3, Table 3-2). May be these

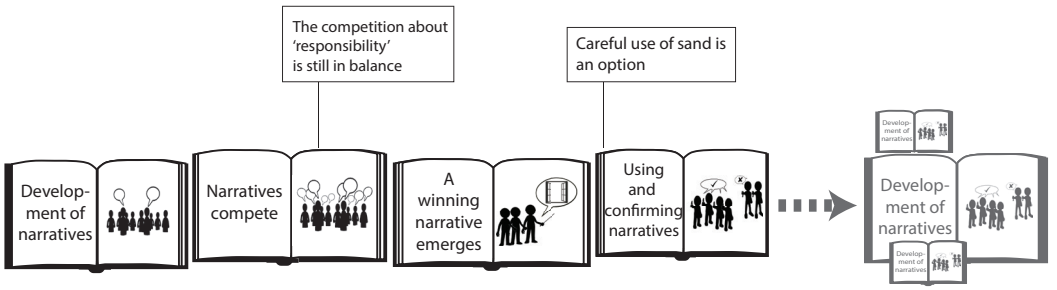


Figure 6-11. Using sand nourishment to counter erosion has reached 'use and confirmation' phase of the narrative model. Maybe more sand nourishment projects can be realised now. The competition about who should take which amount of responsibility is still in balance, a kind of deadlock.

narratives can become 'the winning ones' and trigger policy change.

A fused meta-narrative between the two competing narratives about the institutional situation could be the acknowledgement of (erosion as part of the) climate change problem at the national level. A resolution could be an adjustment of the system so that (potential) solutions/methods for adaptation can be explored and realised more easily.

Fused meta-narratives?

A fused meta-narrative between the two competing

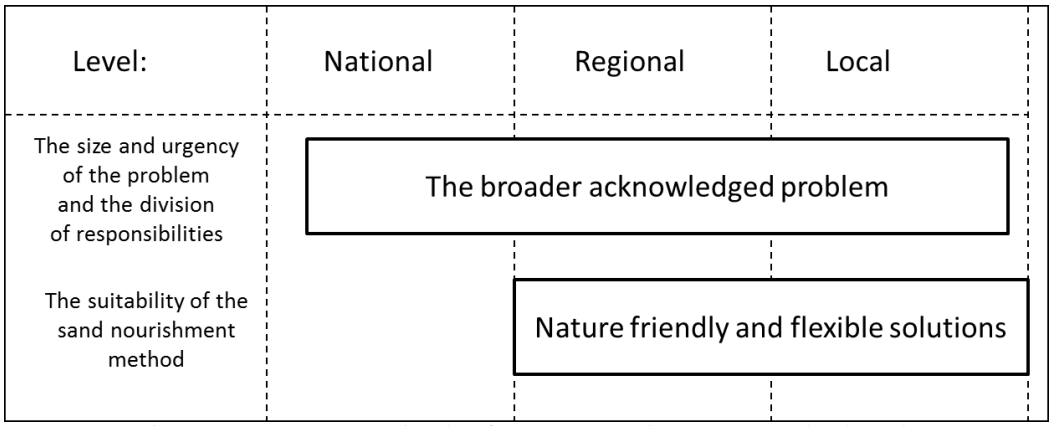


Figure 6-12. The competition as visualised in figure 6-10 can be re-organised in broader narratives supported by a larger group of actors.

narratives about the method sand nourishment could be a broader version of 'nature friendly and flexible solutions'. This involves a further acceptance of nourishment – if sand extraction is executed carefully – as a relatively environmental friendly and flexible solution. At the same time, other ideas can be explored to come up with even more nature friendly and flexible solutions, fitting the Scanian (environmental) situations. The initiative from regional parties to apply for EU LIFE funding could be a trigger to merge the competing narratives into this broader narrative to help in forming a real community of all actors from administrative bodies and research institutes.

The development of the narrative competition in this case is further interpreted and discussed in 7.1.

6.5.2 Reflection on the inductive narrative approach

The main part of the inductive analysis turned out to be relatively flexible to conduct. Although the exploratory interviews were conducted by a different interviewer in a semi-structured way (3.2.2), it was possible to distil narratives out of the transcripts. An extra check was built-in for the reflective interview round, in which interviews were conducted with both a selection of the interviewees from the first round and a new group of interviewees (Appendix M). In this way, the recognition of the narratives was checked more broadly within the community. The language in the interview conversations was English, which was not the native language of both the interviewees and the interviewers. The risks of miscommunication, however, were reduced, by the good and open relationships between interviewees and interviewers. Clarification could be asked at any time (also afterwards by e-mail) and the interviewees were asked to check the summaries and transcripts of the interviews.

In the participant observations during this case study, the number of observations was low. During the largest meetings, E02, E03, the official language was Swedish, so there was a language barrier. Also,

the field observations in this case study are only considered to have provided the researcher with more feeling with the Swedish coastal community and discussions. Firm conclusions cannot be drawn based on this fieldwork. The yearly coastal conference is gathering of professionals working with coastal issues and researchers. If a Swedish-speaking researcher would observe at the Swedish coastal conference every year, over a longer time-period, then, the development in the presentations of all the attending organisations, could be analysed to reveal changes in Swedish and Scanian coastal policies.

The inductive method is discussed further in 7.2.

7.
Comparing cases and methods, discussing the model

Our aim is to deepen the understanding of the development of (coastal) pilot projects and their effects within their actor-networks. Therefore, we developed a narrative model that functions as a conceptual lens in studying the development of pilot projects in their actor-networks (chapter 2). We have analysed the development of the Sand Engine project, using both a deductive and an inductive narrative method (chapter 4 and 5). We also applied the latter method to Ystad's beach nourishment project in chapter 6. What can we learn from a comparison of these two cases? And what can we learn from using the two different methods? Which lessons can be drawn from using the narrative model?

We reflect on the similarities and differences in the narrative competitions distinguished in both cases (7.1) using several concepts from chapter 2. In the second part of this chapter, we compare the outcomes of the inductive and deductive methods, seeking to explain why they are different and how we can use these differences in narrative research design (7.2). In 7.3 we reflect on the narrative model, the conceptual lens adopted in this research. To make this chapter understandable for selective readers some findings from the previous chapters are repeated (4-6).

7.1 Comparing cases

Different sets of narratives

Both of the inductive narrative analyses within the Dutch and Swedish case studies brought four narratives to light, as summarised in Table 7-1.

Dilemmas and opportunities

Both cases yielded a narrative that emphasised the risks of the methods that are proposed in the pilot projects (SEN4 and YNN3). These narratives are variations on Stone's category of 'stories of decline', warning that the pilot project can lead towards an unwanted future. The narrative in the Dutch case stresses diverse risks and the narrative in the Swedish case stresses mainly the risks for the (marine) environment.

Table 7-1. Titles of the narratives in the Sand Engine case and the sand nourishment case in Ystad and the typologies of how they 'run' according to Stone's broad policy narratives. The arrows indicate similarities between the narratives in the two cases.

Meta-narratives Sand Engine Case	Meta-narratives Ystad's Sand Nourishment Case
(SEN4) 'Potentially dangerous unknown' Stones policy narratives: A variation on 'story of decline', uncontrollability.	*(YNN3) 'A (potential) harmful unknown that threatens the marine environment'* Stones policy narratives: A 'story of decline', seize control.
(SEN1) 'A new hero in conquering the sea' Stones policy narratives: A 'story of control'	*(YNN4) 'A nature friendly and flexible solution'* Stones policy narratives: A 'story of control'
(SEN3)'Benefactor for everyone' Stones policy narratives: A variation on 'story of control'	*(YNN1) 'The non-acknowledged and urgent national problem'* Stones policy narratives: A 'story of control', assistance from government needed.
(SEN2) *'An innovation important for NL Inc.'* Stones policy narratives: A 'story of stymied progress'	*(YNN2) 'The non-urgent local problem'* Stones policy narratives: A 'story of control', but responsibility at local level.

In both cases, there are also narratives that highlight the opportunities that the pilot projects provide (SEN1, SEN3 and YNN4). The narrative about the importance of the Sand Engine project for the Dutch water sector (SEN2) completes the triad of positive Sand Engine stories (it fits with SEN1 and SEN3). Using the perspective of Stone, 'An innovation important for NL Inc.' (SEN2) is a little different, because it emphasises the problem or hitch within the sector that needs to be solved. The project is considered a showcase to achieve this. So, this narrative is a story of 'stymied progress' rather than a 'story of control' but the three stories can still strengthen each other.

The two narratives about how severe the coastal problems are in Sweden and who is responsible for gaining control over these problems are each other's complements (YNN1 and YNN2). This type of narrative did not play a role in the Dutch competition.

The different structures of the narrative competitions

The two sets of narratives portray two different narrative competitions regarding the Dutch and Swedish pilot projects, respectively. These competitions differ in structure (Figure 7-1). Lessons can be derived from the two cases by exploring the differences between the narratives and the narrative competitions.

7.1.1 Exploring the differences

In the Dutch situation, the narratives competed in one conflict: Does the Sand Engine represent a great opportunity or does it involve too many risks? The people emphasising the risks were opponents or sceptics scattered across different organisations and among the inhabitants of the region. Their 'Potentially dangerous

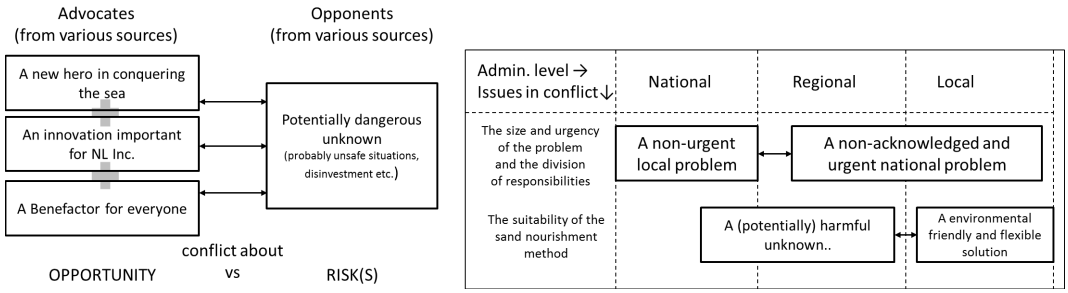


Figure 7-1. The narrative competitions portrayed for the realisation of the Sand Engine (originally Figure 5-10), and for the realisation of Ystads nourishment (originally Figure 6-10).

unknown' narrative had different versions; an extreme version – mainly allocated to the inhabitants and local politicians – and the moderate versions found within different (governmental) organisations. Different dangers play a role in these narratives, such as swimmer safety, potential negative influence on the local economy, the risks of disinvestment, and the influence of silt on benthic life. However, as concluded in chapter 6, the versions of the 'Potentially dangerous unknown' were outcompeted by the strong combination of narratives emphasising the opportunities of the project, promulgating an argument of 'you cannot be against this'. Whereas the opponents and sceptics were scattered amongst the policy community, the advocates emphasising the opportunities became organised during the process, forming a diverse yet coherent team of initiators and supporters.

Dutch narratives: one conflict, organised support and scattered opposition

The specific structure of the narrative competition (around one conflict, and not 'in balance') has developed within the unique coastal policy context in the Netherlands:

- Because of the risk of coastal flooding, coastal policy has a strong position in the Netherlands. There is a widespread conviction that coastal protection is needed and there is no discussion regarding this issue. This contrasts with the discussion portrayed by 'The non-acknowledged and urgent national problem' and the 'non-urgent local problem' in the Swedish case.
- The 1990's coastal policy with its 'dynamic preservation'-principle opened the door to different sandy solutions for coastal protection (Prelude A.1.1).
- The Weak Link policy facilitated the involvement of the provinces in integrated, multifunctional coastal projects (Prelude A.1.2).
- Managing water and engineering new solutions are part of the Dutch culture and economy (e.g. world-renowned dredging contractors and engineering consultancy), creating the expectation (even a 'duty') for Dutch coastal engineers to come up with innovative ideas as epitomised by the Top sector Water (Top Sector Water, n.d.).

These aspects make the cultural and institutional context in which coastal policy in the Netherlands is discussed a fertile ground for ideas for new, sandy and multi-functional projects. Although

Attractiveness to claim responsibility

finances are a point of discussion in every project, in such a context it is interesting for people to advocate an innovative coastal idea and in so doing claim responsibility in these issues. This is very different in the Swedish context, where:

- Coastal policy is not a policy sector itself, but is seen as a part of spatial planning for which the responsibility lies at local level (Prelude B.1.1 and B.1.2).
- The conviction that coastal protection is necessary is only present at the local level and partly at the regional level (chapter 6).
- And, in contrast to the Netherlands, the country does not have a national history, and accompanying feelings of obligation, for coastal innovation and coastal policy.

In such a context, it is less interesting for people to claim responsibility for issues of coastal protection. Instead, Sweden has a tradition in, and accompanying feelings of obligation for, environmental protection. This explains why the narratives that discuss the risks of the project (YNN3 and YNN4) are focused on environmental risks.

Swedish narratives: a second conflict

In the other Swedish narratives, there is a conflict about the size of the problem and the division of responsibilities. The narratives in this conflict form an example of scale framing (Wang, 2015 cf Van Lieshout 2012). In contrast to the Dutch narratives, the Swedish narratives are strongly aligned with the different administrative levels. Therefore, the narrative competition can be portrayed within an administrative frame (Figure 7-1).

Swedish narratives: allocated to different administrative organisations

So, an interesting difference between the cases is that whereas for the Sand Engine project discussions took place across the administrative boundaries, for the Swedish project most discussions took place in line with the administrative boundaries. The strong support across the organisations within a relative tight coastal policy community was helpful for the development of the Dutch pilot project. The Swedish discussions take place in a less tightly knit actor-network and are in line with the administrative levels. By referring to the current distribution of responsibilities among the different levels, this structure contributes to the present deadlocks.

Evolution of narratives

Both narrative competitions involve a discussion about the risks associated with the pilot project idea. In the analysis of the Dutch narrative competition it was revealed that the Sand Engine project team actively managed the 'dangerous narrative' after realisation. The positive narratives together achieved a 'triumph' against the sceptical and cautious narrative. Such a 'triumph' can be explained using the concepts performance of success and performativity (Van Assche et al., 2012) as discussed in chapter 2.3.5 and 2.4 (4th phase of narrative model). During the participant observation component of the research (3.6) several presentations and conversations containing success stories were witnessed. Such presentations and conversations can be seen as performances of success.The Dutch

coastal community provides a fertile ground for discussing new ideas and can be regarded as receptive to coastal success stories. The existing discourses about successful Dutch coastal interventions make the actor-network susceptible to performativity. Performativity makes the success stories stronger and effective, because of the resonance with existing discourses and values. The combined action of performance of success (all kind of positive presentations and conversations about the project) and performativity (growth of success because of existing discourses in the community) explain the 'triumph' and spread of the positive Sand Engine narratives.

No triumphal feelings in Sweden

Although Ystad's sand nourishment plan was approved and is realised, this cannot yet be connoted as a 'triumph' for the pilot project and the proposed sand nourishment method in the Swedish narrative competition. Analogous with the Sand Engine project, Ystad's nourishment project was also presented on several stages, as performances of success. However, the coastal community in Sweden is not only more loosely knit but is also smaller than in the Netherlands as is the audience for these performances. This means that the discursive environment for sandy solutions in Sweden is not large, nor is it as dominant as in the Netherlands. It also does not have these (latent) discourses about successful coastal interventions. As a consequence, there is also less performativity. This confirms the idea of Van Assche et al. (2012) that "the configuration of the discursive environment represents the potential for a success ascription to be spread" (p.568, also discussed in 2.3.5).

Precaution in the Swedish context

The people who share the local concerns regarding erosion indicated that the method of using sand for coastal protection was received more positively after the realisation of Ystad's sand nourishment. Several people at the Country Administrative Board and the Swedish Agency for Marine and Water management, however, are still very cautious. They refer to the need for more knowledge about the effects on the marine environment and about the amount of sand available (the knowledge deadlock). Caution can, therefore, be considered an important value in the discursive environment of coastal and environmental policy in Sweden.

Emancipation of a policy sector

In this study, the competing narratives about the responsibility in Sweden are indicative of a process of 'emancipation' of coastal policy. People from the Scanian municipalities strive to place the need for support from the national government on the agenda. This was not necessary in the Netherlands, where there is an established coastal sector that is extremely receptive to success narratives. The development of the competing narratives related to the risks associated with the innovative idea, therefore, differs substantially between the Dutch and Swedish cases. In the Dutch case the 'opportunity narratives' clearly dominated the sceptical narrative. In Sweden, the 'flexible and friendly solution' was the eventual winner in the long permitting process, and permits for Ystad's sand nourishment were granted. However, this does not mean that this

Differences between different arenas

narrative 'defeated' its opposing 'dangerous unknown' story in arenas other than the jurisdictional permitting process.

7.1.2 Further interpretation of pilot project effects

The two pilot projects function as examples of success in their discursive environments. Further, the pilot projects in the Netherlands and Sweden exemplify different degrees of 'performances of success' and 'performativity' (cf Van Assche et al., 2012). But what about the 'exemplar' concept of Molle (2008) and the concepts of 'Leitbild', 'promising target' and 'realised target' of Kuusi and Meyer (2002) that were classified in 2.1 as potentially useful for interpreting the effects of pilot projects? How useful are they in our empirical cases?

Grew into an important exemplar?

The 'network of active supporters' in the two cases consider the pilot project as an important exemplar for future coastal policy (cf Molle, 2008). The network of active supporters in the Netherlands, however, has more influence at national level than the Swedish network that is still striving for the acceptance of their method by more actors. In the Netherlands, in the meantime, all kinds of institutions have been established that "will carry the message forward and develop it" (Molle, 2008) The Sand Engine concept developed into an accepted exemplar with the realised Sand Engine project as icon that is "routinely showcased to officials and foreign visitors" (Molle, 2008). The 'attractive' and 'successful' Sand Engine itself influenced the institutional landscape. Many new collaborations are set up, both before the realisation and after the realisation and all of the people involved in these activities are helped by the success story of the Sand Engine.

For the Ystad project, these kinds of activities happen on a far smaller scale. All the efforts that are made by the municipality and their allies to reform the present governance structures can be viewed as institutional work (Bontje et al., under review). At present, the effect of this work (the extent to which institutions have changed) is still disappointing to actors at the local level. It has yet to grow into an important exemplar.

Leitbild… ?

As a technical intervention, the pilot projects can be viewed from the perspectives of technological paradigms. Has the concept 'Sand Engine' functioned as a Leitbild for the development of a Dutch coastal management paradigm (2.1)? Did it have a guiding function for an emerging technical paradigm in coastal management in the Netherlands and beyond? None of the interviewees emphasised the exceptional nature of the nourishment techniques that were used: these techniques were not new. There was already an established practice of using sand nourishment in Dutch coastal management. Kuusi and Meyer (2002) would consider the idea for the Sand Engine a promising target, in which different, existing and proven, nourishment techniques could be combined into a new, multifunctional artefact. Yet, the Sand Engine is a realised target which inspires further development. This is evident in the

… or promising/ realised target?

case study (5.2.2) where respondents emphasised that the Sand Engine inspired more large scale sandy and multifunctional projects. However, technically, the Sand Engine concept is not exceptional. From the perspective of Kuusi and Meyer, the project fits with the developments in an already established paradigm. This coheres with the intermediate biography (chapter 4) that classified the Sand Engine as a stage in an incremental development within coastal management. As a realised target (instead of a Leitbilder), however, the project still functions as a great source of inspiration for future projects in coastal management.

Concepts such as technological paradigms and Leitbilder seem less useful in interpreting the Sweden case where the network of active supporters is smaller. The realised nourishment project of Ystad is a source of inspiration, but only for this relatively small group. As mentioned previously, there is a network of actors that considers the Ystad project as an exemplar for other (Swedish) coastal zones with erosion problems, but a change of institutions is not observed yet.

7.1.3 Summary and conclusions

So, the comparison of the narrative competitions in the two cases leads to several insights in: the different development of the two projects, the effects of the pilot projects, and the success-experiences of the projects in their actor-network, summarised in this section.

The different reception and development of sandy pilot projects

The case comparison stresses the differences in the contexts which influenced the reception and development of the pilot project. Even the main similarity that was identified – the dilemmas between the risks and opportunities of the projects – highlighted these differences, because the interpretation of the risks and opportunities depended strongly on the different values present in the policy context.

Another difference lies in the attractiveness of initiating and supporting new, sandy and multifunctional projects. In the Dutch context of coastal policy making it is far more attractive to initiate and support new, sandy and multifunctional projects than in the Swedish situation, because these projects fit the underlying discourse in the Dutch coastal policy community better then they fit the underlying discourse in Sweden.

A further difference lies in the distribution of the people that were positive about the project (supporting 'the non-acknowledged and urgent national problem' and 'a nature friendly and flexible solution'). This distribution influenced the strength and development of the narrative(s) as well the structure of the narrative competition. The distribution of the supporters along administrative lines, as in the Swedish case, contributed to the present deadlocks. In the Dutch case, the supporters of the project were (increasingly) better organised across administrative lines, while the critical people were too scattered to form a strong voice.

In the Dutch context, the triad of positive narratives could

strengthen each other, which reflects the fertility of the ground for new, sandy and multi-functional projects in the Netherlands. In Sweden, the narratives about the size of the problem and the division of responsibilities reflect the 'emancipation process' of Swedish coastal policy. The conflict between the two other Swedish narratives stresses the underlying value on environmental precaution in the Swedish policy context.

The different effects of sandy pilot projects in the actor network

In understanding the effects of the pilot projects in their the actor-network, the concepts 'exemplar' (Molle, 2008) and 'performances of success' and 'performativity' (Van Assche et al., 2012) were most useful.

The concept of 'exemplar' in policy-making (Molle, 2008) helped to display the differences in impacts of the two pilot projects:

- A network of supporting actors considers the nourishment project in Ystad as an exemplar for other areas with coastal erosion problems. However, to function as real exemplar, this network needs to grow bigger and the method needs to be approved by (more) powerful institutions.
- The Sand Engine concept has developed into an approved exemplar with all kinds of institutions established to spread and develop the message. The realised Sand Engine project is often showcased to many (official) visitors.

For understanding the experienced success in the actor-network of the pilot project, the concepts of 'performances of success' and 'performativity' (Van Assche et al., 2012) were insightful. The triumph of the positive narratives about the Sand Engine project was facilitated by all the different stages on which the project's successes were proclaimed (performances of success) and supported by processes of performativity (growth of the success because of existing discourses in actor-network).

In the Swedish case, there are performances of success of the pilot project, but also performances that emphasise the importance of caution regarding interventions in the (marine) environment. The narrative that presented the sand nourishment as 'An environmental friendly and flexible solution' does not fit with underlying discourses in the Swedish community, so that narrative could not resonate with these discourses and could not profit as much from the mechanism of performativity.

7.2 Comparing the methods

In this thesis, two analytic methods for identifying narratives are designed and applied – a deductive method and an inductive method. In 5.5.3, an initial review was undertaken of the two sets of narratives that could be distinguished in the Sand Engine case study (Table 7-2), concluding that the first set contains actor-based, common explanations for the origin and development of the pilot project and the latter set constitutes narrative argumentation for or against the project.

From Table 7-2 we can compare the content base of the two

Table 7-2 (same table as 5-8). Overview of narratives distinguished in applying the deductive and inductive method on the Sand Engine case studies.

Narratives distinguished by the deductive narrative method (chapter 4)	Narratives distinguished by using the inductive method (chapter 5)
The Sand Engine as an iconic departure	
– As successor of Delta Works	*A new hero in conquering the sea*
– Emerging form knowledge development in coastal engineering	*An innovation important for NL Inc.*
– Emerging from regional/integrated development	*Benefactor for everyone*
– Emerged from unwanted development plans	
The Sand Engine as something unknown that needed to be implemented	*Potential dangerous unknown*
– providing opportunities	
– potentially dangerous	
The Sand Engine as a stage in an incremental process of coastal development	

sets of narratives. They show similarities. Both sets of narratives show that the interviewees experienced opportunities (row 1 and 2 for the biographies and row in for the inductive narratives) and risks (row 2). However, the set of biographies also contains a 'nuanced' biography, the Sand Engine as a stage in an incremental process of coastal development (row 3) which does not match the iconic nature of the project as expressed by the positive narratives. In the following section, the narratives are discussed further. What types of narratives are they? Why are they different? And what does this teach us about the analytic methods?

7.2.1 Interpreting and positioning the two sets of narratives

Biographies as historical explanatory accounts

The retrospective and explanatory characteristics of the biographies remind one of another academic discipline: history. Historical explanations – in the form of narrative – are regularly used in social science to "seek to identify the causes of outcomes in particular cases" (Mahoney et al., 2009, see 3.4). The deductive analysis involves comparisons of time-span and sequences of events. As a consequence, the resulting biographies incorporate time-related aspects that nudge the biographies towards historical explanations.

Historians frequently discuss the 'danger' or 'inevitability' of bias in historical accounts (McCullagh, 2000). One point of discussion is that there are often several well-justified accounts of historical events. Different people have different explanations. Some historians deal with the potential bias by explicitly not aiming for one historical explanation, but presenting multiple views on a historical subject. The bias of each narrator is then balanced by the bias of others (McCullagh, 2000 cf Burke, 1992). A task for the historian in such an approach is to explain why each group has the

view that it has.

The three biographies of the Sand Engine represent the views of different groups of people with diverse explanations for the realisation of the Sand Engine pilot project. In this line of reasoning, the deductive narrative method can be seen as a method to generate historical explanations of recent 'events' (such as the realisation of a pilot project), seeking to reveal and present multiple views of such events. A task for the researcher is indeed to explain the resulting differences and their implications (see chapter 4). The narratives summarise various, yet coherent, ways in which the people involved have experienced the realisation of the pilot project.

Narratives as informal arguments

The second set of narratives is not a set of biographies, but are narratives that reflect argumentative structures that were and are used in discussions around the development of the pilot projects. Narratives can contain arguments and argumentation can be backed by narratives (Lo Cascio, 1999), so narration and argumentation can interact (Lo Cascio, 2002). But, as discussed in 2.3.3, narratives differ in structure from arguments. In relation to narratives and arguments, the case studies in this thesis illustrate that:

- The narratives here are not formal arguments (they are not based on an instrumental, technical way of reasoning). They cannot be parsed according to a diagram such as that of Toulmin (1958), because they consist of 'events and situations' instead of 'standpoints and justifications' (cf Lo Cascio). Standpoints and justifications can be parsed as claims (standpoints), grounds, warrants, backings (all justifications) and qualifiers, but events and situations cannot. Instead, the emplotted narratives use a different reasoning. They can be considered as informal arguments (cf Kvernbekk, 2003).
- A narrative presents its components as a 'given truth' and invites the audience to believe the whole (cf Kvernbekk, 2003). This somewhat hidden characteristic of narratives became very visible in the reflective interviews, in which the first spontaneous reaction of respondents often was: "Yes, that is true!". Or "No, that is not true". Gasper and George (1998, see 2.3.3) argue that argumentation analysis should involve more than formal argumentation mapping alone. The inductive method developed in this research accommodates this stance. By revealing informal, narrative arguments, involving not only formal-reasoning, but also moral and emotive reasoning, it provides a useful addition to the toolbox of argumentation analysis.

7.2.2 Explaining and using the differences

Differences in data-collection and data-analysis

The difference between these two types of narrative products is caused primarily by the differences in the methods of analysing the data and new data-collection (Table 7-3).

The main data for the deductive process are the initial interview data in which the people involved reflected on the realisation of the pilot projects. Each transcript was first individually

Table 7-3. Characteristics of the deductive and inductive methods. The differences in data-analysis cause the differences in the narrative products that are then interpreted further.

Method	Deductive (section 3.4)	Inductive (section 3.5)
(Main) data collection	Open interviews	Open interviews
Data analysis		
- Coding	Each individual transcripts assessed on predetermined narrative characteristics: time-span, spatial orientation, problem-solution structures and sequences of events.	Open coding: all text considered as potential narrative elements.
- Assembly	Clustering of individual narratives based on the (above mentioned) narrative characteristics.	Structuring narrative elements according to orientation, complication and resolution
- Validation exercise	Static/ survey to check recognition	Dynamic/ Interviews for further analysis
Narrative products	'Biographies' Analogous to historical narratives In this case: able to 'grasp' the nuance within 1 individual transcript	'Narratives in competition' Analogous to informal arguments In the two cases: focussing on contrasts within all texts, less receptive for nuance?

deductively analysed (Table 7-3) based on a coding scheme deriving from literature. This focused on narrative characteristics, such as temporal boundaries, orientation, sequences of events and the problem-solution structure. This analysis resulted in narrative categories or typologies in which these specific narrative characteristics could be recognised (chapter 4). Because they are retrospective and emplotted in hindsight, the narratives have the form of historical narratives presenting different interpretations.

In the inductive analysis of the same data, coding was not constrained by predetermined narrative characteristics. All text (Figure 7-2) was assessed by the researcher in terms of whether it was potentially a narrative element. Open coding was used for this. The narrative elements were clustered and then grouped in terms of orientation, complication and resolution. So, these narratives were assembled differently and have a different content. They were also used as interview stimuli in new data-collection, in the second round interview conversations in which interviewees reflected upon the narratives. This means that the narratives could develop over time after the realisation of the Sand Engine. This makes the inductive method valuable for deepening the understanding of the realisation of coastal pilot projects as well as for understanding their evolution. The deductive method, for its part, filtered out the nuance that only one interviewee articulated ('Sand Engine as stage in the incremental

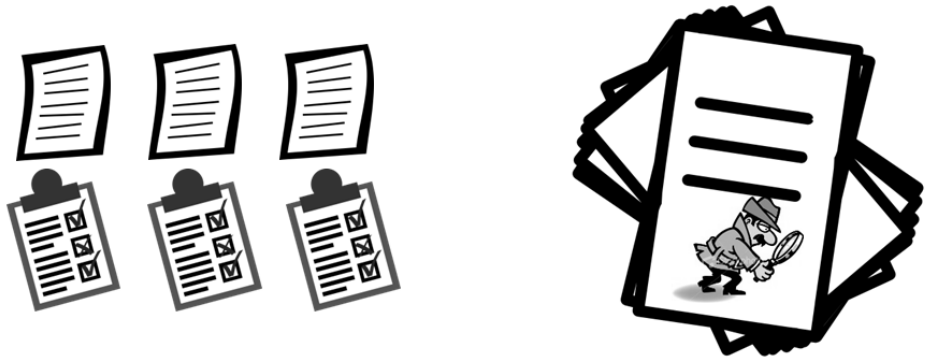


Figure 7-2. In the deductive method (left), the individual transcripts are assessed on predetermined characteristics. In the inductive method, the text of all transcripts was assessed on narrative-element (right). The deductive method, therefore, could grasp the nuance of one individual transcript, which was not revealed by the inductive method.

process of coastal policy development'). Later, the validation (4.3) showed that this narrative was supported in the broader coastal community.

Finding a way in the "continuum of narrative approaches"

So, it is clear that different data-analysis methods lead to different narrative products. The content of these narratives overlap partially, but they also yield different insights. The notions of Landman (2012) and Riessman (2008) that "there are many analytical features [in narratives and other texts] that could be at the interest of the researcher" and that "there is a continuum of narrative approaches" (chapter 3) are appropriate here. Researchers need to find their way in this continuum of approaches. The deductive analysis and the discussion of its products (the biographies) has deepened the understanding of how the realisation of the Sand Engine pilot project was perceived and has provided insights on when the project commenced according to the people involved (see 7.3.1). It also inspired this researcher to develop the inductive method in order to learn more about the subsequent evolution of the pilot project.

7.2.3 Comparing the two series of participant observations

Different embedding

The participant observations form an interesting step in deepening understanding of the development of pilot projects after their realisation. In addition to the reflective interviews, observation data was collected at events within the coastal actor-network. The observer made as many notes as possible, collected in case logbooks. The number of events visited and the depth of embedding within the coastal community, were lower for the Swedish case study owing to language aspects (6.4.2). Consequently, more importance is attached to the participant observation in the Dutch case than in the Swedish case.

In 2016, the observation task culminated with the 5 year conference on the Sand Engine. The logbook could then be analysed.

Participant observation illustrates development and spreading of narratives

A simple deductive coding scheme was used, based on the narratives (and the potential additional ones) as distinguished in the earlier narrative analyses. In the Sand Engine case, traces of the narratives could be recognised in the field notes, the presentations and discussions. The use of these narratives was not restricted to the Sand Engine project itself. Broader and future-oriented narratives were also traced. The research and art communities are explicitly working on 'their' narratives, presenting the Sand Engine as a research object and cultural phenomenon, respectively.

In the Swedish case, fewer events were visited and observed. Traces of 'the non-acknowledged and urgent national problem' and 'a nature friendly and flexible approach' were recognised most often. However, the events were organised by the Scanian coastal community in which these narratives have their strongest roots. So, whereas the observations of Sand Engine events confirmed the broad success experiences of the pilot project and revealed how people associated themselves with this success, by explicitly working on 'their' narratives, the observations in the Swedish meetings confirmed the more modest and local evolution of Ystad's nourishment project.

7.2.4 Summary and conclusions

Comparing the different narrative methods led to the following insights:

- The deductive method as conducted in this thesis led to biographies that function as historical explanations of how a pilot project came to be realised. In this way, the deductive method deepens insights in the different interpretations of the realisation of a pilot project.
- The inductive method as conducted in this thesis led to portraits of the narrative competition with narratives as informal arguments, representing the discussions within the competition. The inductive method deepens insights in both the discussions preceding the realisation of the pilot project and the evolution of the discussion after its realisation.
- Because the same starting data is used for both types of narrative methods, the differences between the narrative products are ascribed to differences in the data-analysis (coding, assembly and validation-exercises). The deductive analysis assesses each transcript individually and is therefore able to reveal a relatively 'nuanced' biography that was later confirmed as relevant in the validation exercise.
- In line with Lo Cascio (2002) and Kvernbekk (2003), the empirical part of this thesis, in particular the second round of interviews, illustrates that narratives present their components with hindsight and as 'a given truth' in which the audience is invited to believe 'the whole'.

Researchers interested in narratives have to find their way in "the continuum of narrative approaches". In this research the

deductive analysis not only improved the understanding of how the realisation of the pilot project Sand Engine was perceived, but the analysis and interpretation also worked as a guide for developing the inductive narrative method to learn about the development of the project after its realisation.

7.3 Discussing the narrative model

The model developed in chapter 2 has functioned as a conceptual lens for this thesis. It was assumed that the narrative model could contribute on two levels:

1) to the understanding of the development of (coastal) pilot projects in their actor-networks and;
2) to the understanding of the effects within the broader policy (change) processes.

In the sections below, we discuss the use of the model in understanding the development of pilot projects (7.3.1) and the instigation of policy change (7.3.2). Because this research investigated coastal pilot projects in particular, we also position the contribution of this dissertation within the coastal management literature.

7.3.1 Studying pilot projects with the help of the model

In this section, the functions of the model in studying pilot projects are discussed.

The first function is a guidance role. As a lens for studying the case studies, the model provided guidance in designing the empirical and analytical component of the research. The second function is that the model acted as a framework for interpreting the empirical results.

Guidance on method decisions

The most significant guidance came after the deductive narrative analysis of the personal actor narratives (in chapter 3, 4 and in Bontje and Slinger, 2017). That analysis results in biographies which need to be interpreted. The biographies are multiple retrospective shared actor-views on the process of realisation of the project (as visualised in Figure 7-3). These retrospective biographies 'end' when the project is realised. In line with the narrative model, however, we wanted to reconstruct the narrative competition playing a role in the development of the project and wished to explore how narrative competition develops after the realisation. As visualised in Figure 7-4, we needed to submerge in the personal narratives to surface narrative reasoning about the pilot project. The inductive method for analysing the open interviews was developed to enable such a submersion (first magnifying glass). The next step was the design of the interview protocol for the reflective interviews in which the development of the narrative competition after realisation of the project could be discussed (second magnifying glass).

Interpretation of empirical findings

How the narrative model contributes to the interpretation of the empirical findings and so deepens the understanding of the development of pilot projects and their effects in their actor-networks is discussed below.

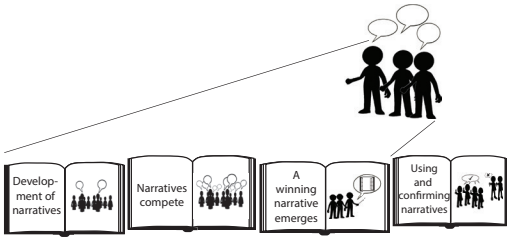


Figure 7-3. The multiple retrospective shared actor-views on the realisation of the pilot project (deductive method).

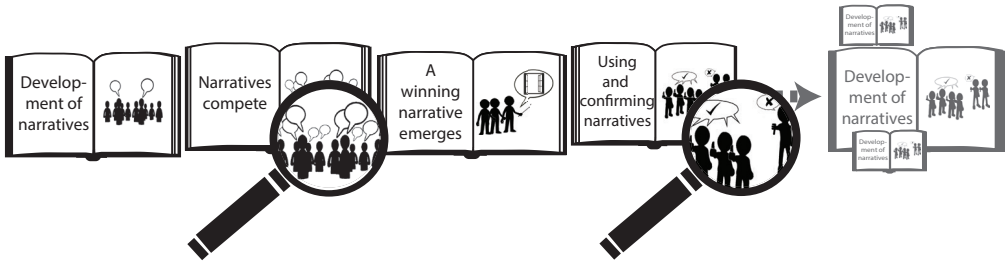


Figure 7-4. The inductive analysis involved submersion in the texts of the narrated actor experiences (first magnifying glass). The second magnifying glass indicates a new step in data-collection and data-analysis, the reflective interviews.

The open interviewing method (Sand Engine case) allows interviewees to start their 'story' about the project wherever and whenever they wanted to start. The deductive method includes a comparison of the start of the actor-narratives, which provides insights in which contexts the ideas were initially discussed. It shows that different actors experienced the start 'differently': whereas for some actors a pilot project is the result of a decennia long process, for others it is a process of a few years rather than decennia.

First ideas come up - Ideas articulated by several people

The inductive data analysis allows narrative reasoning to emerge out of the interview transcripts. The distinguished narratives were recognised by interviewees during the reflective interviews in both the Sand Engine and Ystad case. The people involved also point to the competition between the narratives. Recognition of the narratives and their competition by actors indicates the merits of the main aspects of this narrative model and justifies the analysis and interpretation of the narratives.

Wider discussion - Narratives and counter narratives - Specification - Assimilating and refuting narratives of others

The third stage turned out to be most difficult to grasp. The intangibility of 'a window' may be due to the different arenas in which decision-making takes place and because the development of a winning narrative is not always synchronised between these sub groups within the actor-network. For the Ystad project, for example, the discussions about using a nourishment technique were first held within the political arena of Ystad municipality itself. Later, discussions took place during the permitting process in a legal arena (in other parts of the actor-network). The model is based on the

A project/policy window emerges - It becomes clear that decisions will be taken

narratives within the actor-network(s). An actor-network is not one heterogeneous group, but involves actors in multiple arenas and at multiple levels (e.g. project and policy levels). This means that, depending on the selection of interviews, the (changing) narratives can reflect the developments in these different sub groups within the actor-network.

Clear project windows, as presented in the narrative model, were not observed in the two case studies. The empirical studies reveal strategies that can potentially contribute to the emergence of a winning narrative:

Strategies that potentially contribute to a winning narrative

- Organised initiators can make use of positive narratives that strengthen each other by identifying, creating, aligning, performing and spreading positive narratives in different parts of the actor-network (within policy, academia and business), thereby also spreading the narratives.
- The potential for resonance of the positive narratives within the actor-network increases when the narratives are embedded in the cultural values of the society.
- The ensuing collaboration can be eulogised for aligning, performing and spreading the narratives.
- Efforts to acknowledge and not ignore the negative narratives, and at the same time to emphasise the positive narratives can be helpful .

As discussed in 7.1, the cultural and institutional context influences the reception of a success/winning narrative – and whether success narratives will resonate or not.

Project/Policy is realized - Traces of the work that went into the narrative are removed - story can be used - people reflect on policy story

Understanding of the use and confirmation of the narratives was deepened by organising a new interview round in which actors could reflect on the narrative competition and its development. The participant observation method also enabled learning about this phase.

Winning story not necessarily endorsed in entire actor-network

In particular the Swedish case confirms that the window that made the realisation of the project possible does not mean that the winning narrative (the one supporting the project) has entirely defeated its opposing narrative. In other words, there can still be a narrative competition going on after the realisation of a project. This confirms the assertion in chapter 2 (2.4) that decision-making rounds (the Rounds model) and pilot project phases (the pilot project model of Vreugdenhil, 2010) do not necessarily coincide with the stages in the narrative competition.

In both cases, but for the Sand Engine in particular, the implementation of a pilot project provides at least two means to manage and spread a success story. First of all, the realisation implies that the appointed project team can dedicate time, effort and budget to manage and spread the story. They can fulfil a central role in the actor-network. Secondly, the place where the pilot project is realised, can be used as a stage for these people to spread success stories. The form of the Sand Engine project, its location at the beach and the presence of beach pavilions, provided an attractive beach

environment for 'outdoor storytelling'. The empirical research demonstrates that narratives were present, and that in particular in the Sand Engine case, the narratives were compelling and were being used, affirmed and developed further.

7.3.2 Studying policy (change) processes with the help of the model

We have distinguished the development of two narrative competitions based on the experiences of actors involved in two pilot projects. First we discuss what the narrative competitions in our two case studies can tell us about pilot project effects at the policy level. Then we discuss the extent to which the 'narrative model of the development of pilot projects' can be used as a 'narrative model of policy processes'.

The reach of the pilot project effects

What is the reach of the pilot project narratives of our case studies within their coastal management fields? And do the narrative competitions tell us something about (potential) policy change in these fields? These are not easy questions to answer.

The composition of actors in both coastal management fields in our case studies was not strictly demarcated. In Sweden, there was no clear coastal management field, and the Dutch coastal management field is so large that it is also not easy to oversee. Since both pilot projects are considered as exemplars in the coastal management context, the narratives at least cover a significant part of the discussions in the coastal management field. So, they contain insights on 'how things work' in the coastal management community. The experiences of the actors involved in the pilot project will also influence the actor network in the sector.

A next level window?

In the Dutch case, the interviewees discussed the relationship of the Sand Engine to new sandy initiatives. Although it is difficult to assess the extent to which the Sand Engine itself is an outcome of several processes that also inspire the new initiatives or the extent to which the Sand Engine is the inspiration, interviewees emphasise the similarities, also in the communication and the underlying (positive) narratives. The positive narratives around the Sand Engine play a role in longer term coastal policy discussion, potentially contributing to policy windows at the level of integrated coastal management. The impact and reach of the narratives of the Sand Engine, therefore, exceed the pilot project level.

A new project window?

In the Swedish case, however, we did not encounter signals of the opening of policy windows at the policy level. Because of the present deadlocks, the next project involving sand nourishment is expected to run into a similar narrative competition. A comparable discussion – at project level – will be initiated, potentially leading only to a project window for a new nourishment project.

As assumed in 2.4, analysing the narratives not only deepened our understanding about the pilot project itself, but also indicated the effect(s) at the policy level – the effect(s) on the broader policy processes in coastal management. It is far more likely that the

narratives of the Sand Engine instigate policy change than that Ystad's narratives do this.

Scania's coastal policy discussions as advocacy coalition struggle

Ystad's sand nourishment project is an illustration of a decade-long struggle between groups of actors. Sabatier's Advocacy Coalition Framework provides a useful conceptualisation to understand such struggles (2.2.3). The ACF stresses the different belief systems of the diverse advocacy coalitions. Narratives are carriers of beliefs and values, so revealing and interpreting the narratives can deepen the insights in (the role of) the different policy beliefs in the long-term struggle between the advocacy coalitions (Figure 7-5). One point for discussion is how to study the development of the narrative competition over time? In this case study, we decided to focus on two time-intervals – before and after realisation. To optimise the methods for investigating a(n other) long-term struggle between advocacy coalitions, other choices can be made.

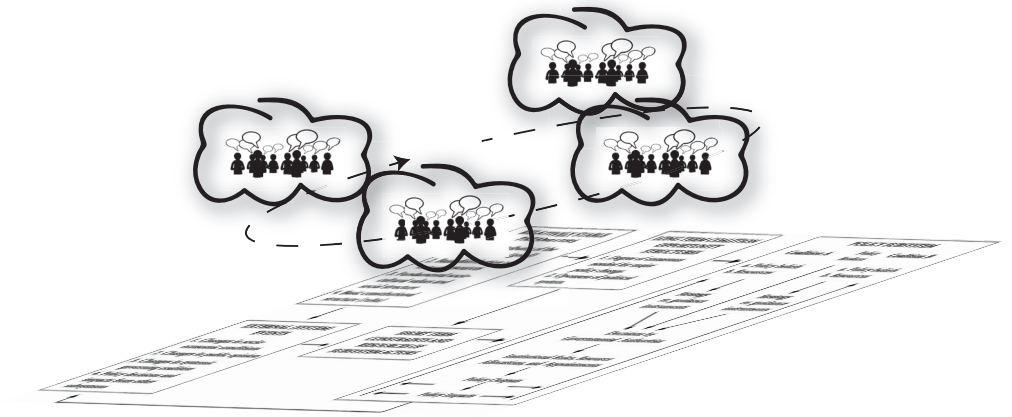


Figure 7-5. The narrative competition portray the discussions among the advocacy coalitions in the policy subsystem (ACF). The underlying, flattened figure symbolise the ACF from Sabatier and Weible (2007, p.191).

7.3.3 Linking with coastal management literature

Pilot projects serve as instruments for learning, facilitating innovation, and inducing change and are embedded in the practice of integrated coastal management. Their popularity in coastal management is indicated by the emphasis that the European Commission put on 'pilots' and 'demonstrations' (Shipman and Stojanovic, 2007). However, Shipman and Stojanovic also warn that such a project-based approach may fail to realise long-term objectives. Highlighting the narrative competition around innovations within a (diverse) coastal policy community can indicate whether an initiative resonates with the ideas of the people involved in coastal management. When the positive narratives dominate in such a narrative competition (as was the case in the Sand Engine project) coastal innovations are likely to persist and be sustained (cf

Tobey and Volk, 2002). So, the long term effects of pilot projects are enhanced through narrative success.

This is coherent with recent understanding of the resource and actor cycles (the dual adaptive cycles) of Taljaard et al. (2013) who emphasise that the implementation of ICM is driven by actors organised in networks. The institutional structures within the actor-networks form the "anchoring element" in Taljaard's actor cycle. Pilot projects are considered to be learning instruments for coastal management. This thesis shows that they function not only as instruments for learning about the (bio)physical system (Huizer et al., 2016, Luijendijk et al., 2017, Pit et al., 2017, Van Puijenbroek et al., 2017, Nolet et al., 2014, Post et al., 2017, Radermacher et al., 2017, Rutten et al., 2017), but as instruments where actor-based learning is storified and success can be claimed and institutionally anchored.

Pilot projects storify actor-based learning

7.3.4 Summary and conclusion

After interpreting the outcomes of the deductive narrative method, the narrative model provided guidance for the further design of the research. The narrative model also served as a framework for interpreting the empirical findings. The deductive method, particularly, analyses of how people view the start of the pilot project, provided insights regarding the early 'development of the narratives'. The inductive method proved useful in deepening the understanding of the 'narrative competition' and the development of the competing narratives in the 'use and confirmation' stage.

The empirical studies reveal some strategies that can potentially contribute to the emergence of a winning story and so help in opening (new) project windows. These include collectively identifying, creating, aligning, performing and spreading narratives that fit the values and ideas within the actor-network and society.

But the two cases also clearly show that spreading (success) stories about pilot projects also depends strongly on the receptivity of the cultural and institutional context. In a close community with prior discourses which the pilot project narratives fit, performativity of the success stories can take place, making the project bigger than it is. We observed this in the case of the Sand Engine. We also conclude that the narratives distinguished in the Sand Engine, play a role in the broader discussion about coastal management, potentially contributing to the opening of windows at (integrated) policy level. The expectation is that the narratives distinguished around Ystad sand nourishment project will continue to play a role in a narrative competition around the next nourishment project, potentially contributing to a new project window. The Swedish narrative competition has not yet moved beyond the project level.

From a social science perspective, studying pilot projects and their effects using the narrative model fits the discourse perspective; the narrative competition portrays the argumentative game between actors. The 'narrative competition' also has the potential to deepen insights in policy discussions in combination with other

policy analytical lenses. In a long-term actor-coalition struggle, as encountered in the Swedish case, the narrative competition can portray beliefs systems and/or the learning process in line with the Advocacy Coalition Framework of Sabatier.

From a coastal management perspective, studying pilot projects and their effects using the narrative model shows that pilot projects function not only as learning instruments for understanding the(bio)physical system, but also as instruments where actor-based learning is storified and success can be claimed and institutionally anchored.

8.
The developments of pilot projects – conclusions and reflection

Our general objective is to deepen the understanding of the development of coastal pilot projects and their effects within their actor-networks.

In this final chapter, we return to the research questions, indicating where they are addressed and summarising the insights garnered on the development of pilot projects and their effects in their actor-networks using the narrative perspective adopted in this research (8.1). Section 8.2 is dedicated to the insights for practice. Finally, we reflect on the value of the narrative perspective adopted in this research (8.3).

8.1 Addressing the research questions

Several research questions were formulated. The first research question is theoretical:

RQ1: What is the current understanding of narratives in policy processes?

As discussed in chapter 2, mainly in section 2.3, narratives contain diverse ways of reasoning and can appeal to emotions. Using narratives in policy making can, therefore, be helpful for policy entrepreneurs. The use of narratives also addresses the plea of scholars for a communicative turn in planning and policy-making. Narratives can then be used to democratise the planning processes. However, the use of narratives may also experience resistance in a policy environment in which strict instrumental-technical reasoning is the standard.

The persuasiveness of narratives lies partly in their nature, because they are "inviting the audience to believe in the whole" (Kvernbekk, 2003). Narratives become more persuasive if they link problems and solutions together in a way that makes sense to the

discourses about what is meaningful, moral and relevant (Ivory, 2013 cf Van Hulst, 2012). Their persuasiveness also depends on the qualities and characteristics of the narrator and how he or she uses these qualities. The narrator needs to have perseverance, because narratives "need to be fought for, defended, and sustained" (Stone, 2002). And, the persuasiveness of narratives is influenced by the receptiveness of the audience, in which the underlying discourses of that audience play an important role.

The second research question functions as a bridge to the third, methodological question:

RQ2: How can the concept of narrative be used to study the development of coastal pilot projects and their effects within their actor-networks?

In chapter 2, in particular in section 2.4, the existing theory on pilot projects, policy processes and narratives is integrated into 'a narrative model of the development of pilot projects in their actor-networks '.

Narratives are often collective creations (Wagenaar, 2011, Zilber, 2009) that include thoughts, beliefs and values ('discursive materials' cf Van Assche et al., 2014). So, the narratives in this model reflect the thoughts, beliefs and values regarding the pilot project within its actor-networks. The 'narrative model' conceptualises the development of pilot projects as a dynamic narrative competition within their actor-networks in which winning stories can emerge.

A realised pilot project, however, does not mean that its 'winning narrative' is endorsed within the entire actor-network. This model functioned as a conceptual lens to study the development of pilot projects in their actor-network, as it provided guidance to the research process and served as a framework for interpreting the empirical findings (7.3.3).

In addition to a guiding framework or model, an appropriate research strategy and methods need to be designed. The third research question is therefore a methodological one:

RQ3: Which research strategy and methods are appropriate for studying the development of coastal pilot projects and their effects within their actor-networks from a narrative perspective and how can we apply these methods in empirical case studies?

This question is answered in chapter 3 in which the case study strategy was designed. After exploring the 'continuum of narrative methods', a deductive narrative method and an inductive narrative method were designed in answer to this research question. These methods are applied in two cases, two specific coastal pilot projects (chapter 4 to 6).
The deductive method involves the analysis of interview transcripts according to a predetermined coding scheme, based on narrative characteristics, such as orientation, time-span, events and problem-solution structures. Application of this method on a pilot project reveals biographies that contain multiple views on the realisation of

the pilot project. These biographies were validated by a survey in the coastal research and policy community, in which people rated their recognition of, and affinity with, the biographies.
The inductive method consists of an inductive analysis of the interview transcripts in which pilot project narratives emerge out of the data by contrasting and structuring narrative elements. These narratives are presented to a new set of interviewees who discuss and reflect upon the role and development of the narratives during the realisation and evolution of the pilot projects. The inductive method is complemented with participant observation, in which different events related to the pilot projects are visited and observed. These events take place after the realisation of the pilot projects, so the observations are used to learn from the development of the pilot project in the 'use and confirmation phase' of the narrative model.

The fourth research question is empirical and is answered by applying the methods in the case studies and interpreting the outcomes.

RQ4: What do we learn about the development of pilot projects and their effects within their actor-networks using a narrative perspective?

This question is most directly related to the general objective of this thesis and the answer is spread across the case-study-chapters (4 to 6) and the chapter with the comparisons (7). Using the narrative perspective reveals that pilot projects function not only as instruments for learning about the biophysical system, but also as instruments where actor-based learning is storified and success can be claimed and institutionally anchored.

In particular, we have learnt:

- about the development of the two specific pilot projects (box 8-1 and 8-2);
- about the development of coastal pilot projects in general (highlighted in table 8-1);

and this leads to insights for people involved in (coastal pilot) projects and policy (next section, 8.2).

Box 8-1 Insights in the development of the Sand Engine and its effects within the actor-network

From the deductive analysis:
Application of this method on a pilot project reveals biographies that contain multiple views on the realisation of the pilot project.

Most of the actors that experience the Sand Engine as 'an unknown present coming from on-high' looked back on the process with satisfaction. For them, the unknown present provides opportunities for the region. Most of the initiators consider the Sand Engine as 'an iconic departure'. This biography has many variations, teaching us that the Sand Engine project comprises so many ingredients that there is something in it for everybody. Yet, it retains binding key-elements, such as coastal safety, which is undisputed in the Netherlands.
'An unknown present coming from on high' takes place at a local scale whereas

the biography 'an iconic departure' views the Sand Engine from a higher scale. This scale difference indicates a potential gap between the initiators and opponents from the region who felt uncomfortable with such a large project in their region. Yet they could not prevent realisation, meaning that the gap did not become crucial during the decision-making process. The people working for the initiating organisations on the implementation, however, needed to communicate effectively and devote effort to reduce the gap.

Whereas the pilot project initiators, people close to the realisation process, are inclined to relate their experiences with enthusiasm and contribute to the 'iconic nature' of the project, the more nuanced biography that considers the Sand Engine pilot project as 'an incremental stage in the development of coastal management' enjoyed more support among the visitors to the coastal conference where the validation survey was conducted. This biography fits the perspective of sandy strategies in coastal management as established technological paradigm (Kuusi and Meyer, 2002) in which the Sand Engine can be considered as a realised target, not using innovative techniques, but inspiring further developments within the same technological paradigm.

The multi-faceted nature of the Sand Engine allows actors to select and couple diverse narrative-elements into their own biography of the pilot project. The narrative-elements that emerged in many personal stories reflect the resonance of positive narrative-elements in the coastal community (in line with Van der Stoep, 2014, Benford and Snow, 2000).

From the inductive analysis:
The narrative competition as identified around the development of the Sand Engine involves three positive narratives that act to strengthen one another: 'A new hero in conquering the sea', 'An innovation for NL Inc.' and 'A benefactor for everyone'. The variations of the narrative that emphasise the risks, 'the potentially dangerous unknown', was actively managed and lost influence after realisation when serious incidents didn't occur. As identified by the interviewees, two additional narratives are actively developed after realisation: the Sand Engine for knowledge development' and 'the Sand Engine as cultural phenomenon. The positive narratives are presented on multiple stages, acting as 'performances of success' (cf Van Assche et al, 2012).

In addition to such performances of success (cf Van Assche et al., 2012), there are also processes of performativity that explain the experienced success of the Sand Engine within the coastal community and broader Dutch society. Performativity of success can occur when "things become accepted as true and real as a result of prior discourse" (p.569 cf Butler, 1997, MacKenzie et al., 2007). In this case study, it means that the experienced success of the Sand Engine is strengthened by the underlying discourses in the Dutch coastal community - for instance the idea of the Netherlands as successful coastal engineering frontrunner. This makes the community 'receptive' to, and 'enthusiastic' in, experiencing success and spreading success stories. The Sand Engine concept developed into an accepted and important exemplar (cf Molle, 2008) with the realised Sand Engine as icon that is "routinely showcased to officials and foreign visitors". In the meantime, all kinds of institutions have been established that "will carry the message forward and develop it". So, in the Dutch context, the positive narratives could make a grand gesture, enhancing the impact of the pilot project, also at the policy-level.

Box 8-2 Insights in the development of Ystad's sand nourishment project and its effects within the actor-network

The narrative competition around Ystad's sand nourishment projects reflects two conflicts. One is a conflict about the size of the problem and about who needs to take responsibility for the problem. The other is a conflict about the sand nourishment method, whether it is a flexible and environmental friendly method or a method harmful to the (marine) environment. The latter conflict revolves around a value fundamental to Swedish society and policy circles: the precautionary approach to the environment.

The competition takes place between different administrative levels, with the national level reluctant to take more responsibility as requested by the local level. The strongest feelings about the potential danger of the method are located within the regional governmental organisations, particularly in the Country Administrative Board of Scania.

People close to the municipality of Ystad initiated many activities to get both the problem and the sand nourishment method acknowledged. Using climate change as theme in the narratives served to scale up the problem from a 'narrow' perspective on coastal erosion – seeing it as a problem specific to the municipality that is losing its beach – to a perspective in which coastal erosion is part of the national agenda.

In the case of Ystad's nourishment, the winning narrative emerged during a long judicial process, providing a policy window for the municipality to realise their project. After the first nourishment rounds of Ystad's sand nourishment scheme, the project functioned as exemplar for its supporters, who could give 'performances of successes'. The discussions about the importance of coastal protection, the responsibility issue, and the suitability of the method, however, continue, revealing that a realised project does not mean that its 'winning narrative' is endorsed within the entire actor-network.

The narrative competition in the Swedish case study also revealed the deadlocks in the Scanian coastal management discussion and thereby explains the present stagnation of policy change.

Table 8-1 summarises insights on the development of pilot projects and their effects within their actor-networks that were highlighted using the narrative perspective in this thesis.

Table 8-1 Insights on the development of pilot projects

Applying a narrative method on the case studies showed:	**See also:**
- that the attractiveness of claiming and taking responsibility for (erosion) issues differs per governance context.	7.1
- the dilemmas between the risks and opportunities of a pilot projects. The nature of these dilemmas depends on the perceptions of risks (cf Slimak and Dietz, 2006) and opportunities which is influenced by the different values in the actor-network and governance context.	7.1
- the potential emancipation processes of a policy field, or a policy issue.	7.1.1
- the embedding of the pilot project in its actor-network.	5.3/6.3
- that if a narrative competition stays in a similar impasse after realisation of a pilot project, it may indicate a long-term struggle between advocacy coalitions that have different core-beliefs (cf Sabatier, 1988, see 2.2.3).	7.3.2
- whether institutions are established to develop and spread the message of the pilot project.	7.1.2
- that resonance of positive narrative-elements in the actor-network, indicates effective storytelling (cf Van der Stoep, 2014).	4.4.1/7.3.1
About pilot projects, we now know that:	**See also:**
- a multi-faceted nature of a pilot project allows actors to select and couple diverse narrative-elements into their own biography of the project, which is helpful in the' continuous swing' of the actors (Van Buuren and Loorbach, 2009), from inwards (the pilot project team) back outwards, to their own base, to ensure that the idea can count on support in the crucial parts of the actor-network.	4.4.1
- a combined action of performance of success (all kind of presentations about the project) and performativity (growth of success because of existing discourses in the community) (cf Van Assche et al., 2012) enhances the chance that a pilot project becomes an established exemplar (cf Molle, 2008).	7.1.1
- the realisation of a pilot project is not a guarantee that its accompanying narratives are endorsed in the whole actor-network.	7.3.1

8.2 Insights for people involved in (coastal pilot) projects and policy

Awareness and knowledge about the role of narratives or about how different people experience the development of new projects is useful to those involved in coastal projects and policy making. This thesis provides insights for both storytelling and listening in management practice.

Advocates and opponents of (ideas for) pilot projects or new policy can profit from the characteristics of narratives as

For the narrators…

highlighted in this thesis. Awareness of the 'invitation-to-believe-the whole'-characteristic of narratives, for example, is essential, because it also highlights the potential for listeners to refuse or to accept the 'invitation'. Awareness of the uniqueness of the context is also very important. This thesis highlights the uniqueness of the Dutch coastal policy context by contrasting it with the Swedish situation. For instance people having the ambition to communicate coastal projects that are considered a success in the Netherlands to other countries, need to know that that 'selling' will be very different (and probably more difficult) in a non-Dutch context. More specifically for those enthusiasts intent on realising the Sand Engine (and other) concept(s) abroad: the fertile ground in the Netherlands for spreading success stories about sandy solutions may not exist elsewhere.

In addition to awareness of the context and narrative-related processes in an actor context, it is also relevant to gain insight in the characteristics of a project. In the case of the Sand Engine, for instance, the multi-faceted nature of the Sand Engine allowed actors to select and couple diverse narrative-elements into their stories about the project. In 4.4.1, we suggest actively managing the multi-faceted nature of a project. In essence, initiators need to know the (potential) qualities of a project, so that they can make use of them in their communication.

Awareness of the latent discourses in a policy community and the different characteristics of a project makes it possible for an actor (initiator, opponent etc.) to use these discourses strategically, trying to enhance resonance of their narrative. Activities that may contribute to the emergence of a winning narrative include identifying, creating, aligning, performing and spreading narratives.

… for listeners

In our view, good storytelling and related strategic activities, are inextricably interwoven with listening attentively to the experiences of others. The biographies and narratives summarise different yet coherent ways in which the people involved have experienced the realisation of the pilot projects. For people working on such projects (for example the project team after realisation), these multiple coherent narratives can improve their understanding of the views of different stakeholders and so can be used as inputs to the stakeholder management strategy. Practitioners involved in the continuation of a pilot project after its realisation can also use (parts of) the research methods by actively visiting stakeholders and asking them how they experienced the realisation of pilot project (listening for their stories), in order to get a feeling for the perceptions and experiences within the actor-network.

Understanding the development of pilot projects within their actor-network is useful in design processes, to ask and discuss questions such as:

- Does the idea of a pilot project (and the accompanying effort of trying to realise one) fit with the (potential) actors in the actor network? Are there enthusiastic actors that can convince others to be

Use in process and project design

enthusiastic too? Are there actors who can bring people together?
- Can we make use of latent narratives in the actor-network for generating enthusiasm and bringing people together in the design of the project? Is there a coastal community at all?
- How can the latent narratives within the community best be taken into account in the communication? How can we make use of these narratives (if positive)? How can the project re-align with narratives that are potentially negative?

8.3 Narrative perspectives: living up to expectations?

The third part of this chapter is dedicated to reflections on the value of the narrative perspective adopted in this research, focussing on the method choices (8.3.1), on the contribution of the narrative methods (8.3.2) and on the contribution of the narrative model (8.3.3).

8.3.1 Reflection on method choices

This research employs a case study methodology in order to learn from actor narratives to deepen the understanding about the development of coastal pilot projects. An interest in the experiences of actors, which cannot be simulated in experiments and which are not easily found in historical archives, means that studying real cases is necessary (cf Yin, 2003). Case studies provide opportunities for listening to the experiences of the actors involved in open, conversational settings.

However, as discussed in 3.3, other choices regarding the style of interviewing and methods of analysis could have been made. How did the choices made influence the learning and understanding?

This research focussed on the experiences of actors. Interviewees can relate their experiences best in an interview-setting that is as open as possible, without interruption and with minimal steering from the interviewer. So, for collecting experiences during the first interview round in this research, open interviews was a valid style choice. A consequence of this choice was that the interviews and the methods to analyse them did not facilitate a precise reconstruction of the decision-making on the pilot projects.

For the Swedish case study, we could collaborate with ir. Zilin Wang who conducted semi-structured exploratory interviews that were available for us as first round of interviews (3.2.2). The collaboration with Wang was a unique chance that delivered a master-thesis (Wang, 2015), common discussions and collaborative writing (Bontje et al., 2016, Bontje et al., under review). The semi-structured nature of the interviews, however, made it difficult to apply the deductive analysis method. In a semi-structured interview, the interviewee is not 'free' to talk about his/her experiences whenever he/she would like to start.

After listening to the explorative interviews of Wang, we assessed the freedom provided to the interviewees as sufficient

for application of the inductive method, rather than the deductive method. By nature, inductive analysis methods are not prescriptive. Therefore the degree of proscription in the interview conversation supplied by the semi-structured approach could be coupled with the loose nature of the inductive analysis method. The transcripts comprised sufficient story-elements that could be surfaced and categorized using the analysis techniques from the inductive method (3.5.1). In order to thoroughly check the potential narrative candidates within the actor-network, we conducted extra reflective interviews (more than in the Dutch case). Although the interviewees recognised the identified narratives strongly, it is of course not guaranteed that the narratives would have been exactly the same as those that could have been generated via completely open interviews in the first round.

Open vs semi-structured interviewing

The actor experiences as captured in the interview data could have been analysed using several methods: from more quantitative content analysis to several interpretative text analysis techniques such as frame or framing analysis, discourse analysis, semiotics, hermeneutics or conversation analysis (see 3.2 for references). To reflect on our choice to use narrative analysis, we compare with the work of Aukes et al. (2017) who also conducted an interpretative case study on the Sand Engine pilot project. They used the lens of interactional framing (cf Dewulf and Bouwen, 2012) to reflect on the realisation of the pilot project and conducted semi-structured, in-depth interviews, focussing on decisive moments in the decision-making processes on the realisation of the Sand Engine. These interview-transcripts were analysed on interaction settings and on the information that interviewees provided about the actors involved in the interaction, the initiator and the type of framing mechanism. The interaction settings were linked to a project timeline. The analysis identified framing events and revealed the Province as interpretive policy entrepreneur; a policy entrepreneur that contributes not only by investing its resources, but also by 'extensive meaning-making work' during the decision-making process. Meaning-making is comparable with 'making sense of the world' (see 3.1 in this thesis). And, Aukes' 'extensive meaning-making work' refers to the action component of meaning-making, the efforts of actors trying to influence the meaning-making of others. The interactional framing analysis of Aukes et al. focusses on the 'action part' of meaning-making within the actor-network in the decision-making process. The narrative analysis in this thesis takes the outcomes of the sense-making of individual actors – in the form of their personal story – as entry point, resulting in narratives that can be considered as products of the meaning-making processes in the actor-network. The narrative competitions as outcomes of this thesis and Aukes et al.'s insights in the process of meaning-making, therefore, are complementary to one other. Seen through the lens of our narrative model of pilot projects, the work of Aukes et al. provides a way of deepening the understanding of the interaction

Narrative vs framing analysis…

… complementary outcomes

in the actor-network during the narrative competition (Aukes and Bontje, in progress).

In addition to the method applied by Aukes et al. (2017), there are many other means of interpretive analysis. These methods have all proven helpful in understanding policy processes (see 3.2 for references), which is an indication that all of them – when applied correctly – could have contributed to the understanding of the development of coastal pilot projects within their actor-networks. However, the focus on narratives brings something different. Narratives contribute to identification (2.3.1), so studying narratives in a coastal management field is therefore like studying the glue that binds the coastal community. The narratives are part of the identity of the coastal community, they mean something to the people involved. I experienced this during the empirical component of the research. During the second round of interviews, for instance, people reacted spontaneously to the narratives; they automatically related their experiences to the narratives. Experiences and narratives are indeed, in line with the theories of Polkinghorne (1988), Gee (1985) and Bruner (1991), a special and intertwined combination. As American literary scholar Gottschall (2012) and communication scholar Fisher (1989) already explained – humans are storytellers. By considering the people involved in pilot projects as storytellers and their experiences as stories, this research approach became a very personal one, touching upon emotions that other approaches would not have accessed. The narrative approach, with its unique emotive aspect, turned out to be very useful in understanding experiences within the actor-networks, both the success experiences (Sand Engine case) and the experiences of deadlocks (Ystad's sand nourishment case).

Uniqueness of a narrative approach

Of course, there is room for improvement in the methods. The observational part of the research for instance could be improved. In this thesis, the outcomes of this component of the research were discussed and validated informally with people in the coastal community. The method could be improved by using a team of at least two people observing at the same meetings and comparing their results. Another idea is to discuss the outcomes (traces of the narratives) with attendees at the meetings as well.

Suggestions for improvement and extension

In 4.4.1, the inherent methodological bias towards experiences of the actors that are involved in the processes is discussed. This bias ensured that the most prominent narratives are revealed and understood. It is expected that selection of actors located at the perimeter of the actor-network would have revealed more critical, but less crucial narratives. This means that if there is a need for insights into these more 'peripheral narratives', this method can also contribute.

A further method for studying the phase after realisation is to analyse the 'final story' as written down in all official publications. Such a detailed document analysis will reveal how the initiators and others confirm (or reject) the narratives about the project once it

is realised. Such an approach is likely to focus on the confirmation by the initiators, because, documents of the opponents, who often discontinue their protests when projects are realised, are not always available and may not even exist.

8.3.2 The contribution and use of the narrative methods

Different methods, different narrative products, different insights

Using the two narrative methods to analyse actor experiences led to different narrative products which produce complementary insights into the projects in our case studies. Applying the deductive narrative method led to historical accounts that deepened the understanding of how the pilot project was perceived by different groups of involved actors. Applying the inductive method revealed the (competing) narratives that portray the discussions around the decision making about the pilot projects.

The two examples of narrative methods can be helpful for researchers in finding their way in the "continuum of narrative approaches". Most applications of narrative methods focus on deadlocks (for instance Van Eeten, 1999) and situations characterised by conflicts, attempting to use narratives to resolve such situations (cf the method of Roe, 1994). In addition to a deadlock (Sweden), this research explored the development of an iconic pilot project, showing how similarities and overlaps between actor narratives contributed to the success experience of a pilot project.

Use of methods

The inductive method may also be used for argument mapping. It forms a complementary addition to existing approaches in which rational arguments are mapped. These generally highlight how instrumental-technical reasoning is used in policy processes (often based on Toulmin's model). Gasper and George (1998) argue for complementing these with methods that highlight moral reasoning and emotional-aesthetic reasoning (cf Habermas' ways of reasoning, see 2.3.3). The inductive method has the potential to be used as such a complementary method.

Too time consuming for policy practice?

Further, it could be interesting to use a version of the narrative methods as a tool to learn about the discourses in policy communities or communities in general in the early phases of the development of a project. This could provide input into the design phase (see for instance the design-questions in 8.2.4). The focus on experiences and elaborate interviewing, which is intrinsic to the methods, is time consuming. In consultancy practice time is strongly connected to budgets. When the time available for interviewing is reduced for budget purposes, the distinctive features of the methods come under pressure. This time-budget constraint may make it difficult to use the narrative methods in preparation processes for new projects commercially.

8.3.3 The contribution and use of the narrative model

In addition to the narrative methods developed in this thesis, a narrative model of the development of pilot projects is formulated. In this narrative model, the development of a pilot project is portrayed

The model as a lens

as an evolving narrative competition. This lens has increased the understanding of the development of two pilot projects by explaining the present deadlocks in Sweden and the grand gesture of the Sand Engine.

We alluded to the distinction between the project and policy levels in 2.4. The empirical findings confirm the existence of the two layers of the model. The case studies reveal that the narratives about the pilot projects (project level) reflect (part of) the discussions at the policy level, that is within the broader coastal management field.

The case studies also highlight the different arenas in which subsets of actors share narratives and make decisions. A winning narrative in crucial arenas such as the municipal or regional parliament or court can be sufficient for realising the pilot project, but does not necessarily mean that this winning narrative is endorsed by the entire actor-network. Nor does it mean that it completely defeated the opposing narratives. The extent to which the narratives penetrate into other activities or policy discussions varies. So, it is important for the conceptual understanding of this model to emphasise the 'ongoing nature' of the narrative competition and its fuzzy boundaries.

The narrative model fulfilled a guiding role in this research (discussed in 7.2). The narrative model may fulfil a similar role in future research and education. For example as source of inspiration for:

The narrative model and further research

- Further work on how winning stories emerge, maybe by observing storytelling during decision-making processes (instead of in observing the follow-up storytelling as done in this thesis)
- Deepening the insight into the use and confirmation phase and its 'polished policy narrative', by narrative analysis of official documents.
- Studying the use of video's within the narrative competition: Analysing the content and role of videos made by stakeholders.

The lens itself can be elaborated within academic circles. In particular, the conceptualisation of 'narrative competition' may function as a useful concept in combination with other lenses (as suggested in 7.3.1 and 7.3.2), because narratives can reflect belief systems (useful for studying AFC) and can act as carriers for institutions (useful for studying institutional work (Bontje et al., under review)).

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Appendices

Appendix A. Organisations Sand Engine pilot project

Table Ap-1. List of names of organisations related to the Sand Engine case study.

English name (used in Thesis)	Dutch name	Abbreviations
Delta Committee	Deltacommissie	
Delta commissioner	Deltacommissaris	
Deltares - institute for applied research in the field of water and subsurface (in which the former RIKZ, WL/Delft Hydraulics and others have been merged)	Deltares – instituut voor toegepaste onderzoek op het gebied van water en ondergrond	
Member of Provincial Executive (each member has responsibility for a specific area of policy)	Gedeputeerde (lid van de provinciale uitvoerende macht)	
Dike Warden/ Dike Reeve (chair of a Dutch Water Board)	Dijkgraaf (hoofd van een waterschap)	
Environmental Foundation South Holland (ngo)	Milieufederatie Zuid-Holland	
(Former) ministry of Transport, Public works and Water Management	(Voormalig) ministerie van Verkeer en Waterstaat	V&W
Ministry of Infrastructure and the Environment	Ministerie van Infrastructuur en milieu	I&E
Municipality	Gemeente	
Province	Provincie	
Rijkswaterstaat (Dutch) (executive department of Ministry of Infrastructure and Environment)	Rijkswaterstaat	RWS
Second Delta Committee	Tweede Deltacommissie/Nieuwe Deltacommissie/Commissie Veerman	
Water Board	Waterschap/Hoogheemraadschap	
Provincial commission for the coast	Provinciaal Overlegorgaan voor de kust	POK

Appendix B. Respondents Sand Engine pilot project

Table Ap-2. Respondents Sand Engine pilot project.

Respondents	Position	Date of Interview	Interview type 1	Interview type 2	Other
Respondent A	(Former) member of Provincial council	6th of January 2014	x		
Respondent B	Provincial director	13th of January 2014	x		
Respondent C	Environmental consultant	3rd of February 2014	x		
Respondent D	Member of surfers association	29th of January 2014	x		
Respondent E	Spatial planner from the municipality	5th of February 2014	x		
Respondent F	Resident in the village (former member residents' association)	13th of February 2014	x		
Respondent G	Policy officer safety from the municipality	13th of March 2014	x		
Respondent H	Manager in dredger business	17th of March 2014	x		
Respondent I	Professor in engineering science	3rd of April 2014	x		
Respondent J	Officer in the regional water board	30th of April 2014	x		
Respondent K Respondent L	Officers from Rijkswaterstaat	1st of May 2014	x		
Respondent M	Ecologist from a nature development organization	21th of July 2014	x		
Respondent N Respondent O	Employees from drinking water company	27th of July 2014	x		
Respondent P Respondent Q	Artists/curators from artists collective	26th of November 2014			x
Respondent R	Environmental consultant	29th of September 2015		x	
Respondent S	Communication advisor	26th of October 2015		x	
Respondent T	A (former) Provincial Executive	30th of November 2015			x
Respondent U	A (former) engineer from water board from other region	28th of June 2016		x	
Respondent V	Professor in engineering science and (former) chair of business collaboration	19th of July 2016		x	
Respondent W	Project leader Rijkswaterstaat	20th of July 2016		x	

Appendix C. Documents Sand Engine pilot project

As described in 3.3.2, several policy and related documents were used to interpret and position the actor experiences within their context. This appendix provides a list of these documents for the Sand Engine study.
Documents from government organisations (such as visions, information, plans, decisions, reports commissioned by government organisations):

1. Abma, R. & Berkers, R.F.A., 2006. Tekorten aan recreatieruimte in de Zuidvleugel - Input voor programma's voor uitbreiding Delflandse kust [Deficiencies in recreational space in the Southern Wing - input for programs of expansion of the coast of Delfland]. Stichting Recreatie, Kennis en Innovatie. The Hague.

2. Balkenende, J.P., 2008. Toespraak minister-president bij de conferentie Winnen met Water [Speech prime ministor at the conference 'winning with water'. In Dutch]. Innovatieplatform, Algemene Zaken. 4th of February 2008 ed. The Hague.

3. Berendsen, E., Cleveringa, J., Damsma, P., De Grave, P., De Kok, J. & Mulder, J., 2005. Rapportage Verkenningsfase Project Zand en Ze(e)ker. De 'Zandmotor' bij Ter Heijde. [Report on exploratory phase: The 'Sand Engine' at Ter Heijde. Commissioned by RWS/WINN. The Hague.

4. Bosch, F.a.J.V.D. & Veerman, C.P., 1984. Het plan-Waterman. Enkele macro-economische implicaties. [The Waterman plan. Several macro-economical implications]. Erasmus Research Institute of Management. Rotterdam.

5. Bruens, A., 2007. Globaal voorontwerp zandmotor: innovatieve kustontwikkeling Delfland. WL/Delft Hydraulics commissioned by RWS/RIKZ.

6. Bucx, T., De Sonneville, B., Bruens, A.W., Erftemeijer, P. & Kuijper, M., 2007. Basisdocument Kustvisie. Kustveiligheid, natuur en milieu. [Basis document Coastal Vision. Coastal safety, nature and environment]. WL/Delft Hydraulics commissioned by RWS/RIKZ.

7. Buitenkamp, M., Van Den Brink, C. & Van Mastrigt, A., 2016. De Zandmotor is van iedereen. Beleidsevaluatie 2016. [The Sand Engine is from everyone. Policy evaluation 2016]. Anantis/RoyalHaskoningDHV commissioned by RWS.

8. Commissie Mer, 2010. Zandmotor Delflandse Kust - Toetsingsadvies over het milieueffectrapport [Verification/advise on the Environmental Assessment Report]. Commissie voor Milieueffectrapportage . Utrecht.

9. De Ronde, J.G., 2008. Toekomstige langjarige suppletiebehoefte [Nourishment needs in the future]. Deltares commissioned by RWS.

10. De Zandmotor, n.d. Project website from Sand Engine [Question and Answer section] [online]. http://www.dezandmotor.nl [Accessed Access Date

11. Dulfer, W., Van Gelder, C., Marx, S. & De Wilde, C., 2014. Hoe bruikbaar is de Zandmotor?: Eerste tussentijdse verkenning naar de haalbaarheid en bruikbaarheid van de pilot Zandmotor 2011-2013 [To what extent is the Sand Engine usable?: a first exploration of the feasability and usability of the Sand Engine pilot project?].

12. Dunea, Province of South-Holland, Rijkswaterstaat & Hoogheemraadschap Delfland, 2010. Convenant Pilot Project Zandmotor - Solleveld. 12th of November 2010.

13. Dwarshuis Van Beek, H.M.C., 2009. GWM2009-161 Memo over de kust. [Memo on the Coast from the Deputy for Green, water and environment].

14. Dwarshuis Van Beek, H.M.C., 2011. Brief naar de Stuugroep 'Beeïndiging stuurgroep' [Letter for the Steering Committee: 'Ending the Steering Committee'] The Hague.

15. Ebbens, E., 2013. Evaluatie strand- en zwemveiligheid Pilot Zandmotor. Strandseizoen 2012 en najaar 2012. [Evaluation beach and swimmersafety Sand Engine pilot. Beach season and autumn 2012. RoyalHaskoningDHV commissioned by Province of South-

Holland.

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Appendix D. Conversational guide open interviews

Originally in Dutch. This is a translated version.

Introduction
- Thanks for welcoming me.
- Would like to know your story or stories about the decision-making and realisation of the Sand Engine.
- What makes the realisation of the Sand Engine happen?
- Personal, open interview, your story, maybe some questions for clarifying
- After your story I like to ask some final questions
- Sound-recording for 'having my hands free' to listen to what you will tell and to re-listen later
- Sending written results for permission use in my research

Main questions
Can you tell about your experiences within the decision-making about the realisation of the Sand Engine? (As a start, can you tell about your role during this decision-making?)
How do you experience the Sand Engine now it's realized/implemented?

Checklist/check words
- Role within organisation and Sand Engine network
- Role during the process/ within different situations
- Perception role of others
- Important moments (and roles)
- Importance of arguments - For whom? For whom not?
- Arguments and stories on other levels/in other settings
- Disappeared arguments and stories

Final questions (content-related)
- What can we learn from this process?
- Which personal lessons you are bringing along to other projects/work?
- What do you take with you from this project as most beautiful personal memory?

Final questions (not-content-related)
- Suggestions other interviewees
- Suggestions other cases
- Contact by any further questions

Final remarks
- Agreement results
- Summary of conversation and agreements
- Thanks

Appendix E. Deductive narrative coding scheme

Table Ap-3. Deductive narrative coding scheme.

Code	Criteria
I	Indexical segments, including phases and events
NonI	Non-indexical segments
NonI_argument	Non-indexical segments involving arguments
NonI_descr	Non-indexical segments involving descriptions
Start	Marking the start of the narration

The indexical segments are used to construct the trajectories/sequences of events. The descriptive segments are used to portray the orientation of these trajectories. See Appendix F for the analytical table following from this coding.
The non-indexical segments also include the problem-solution reasoning of the interviewees (for forming Table 4-1).

Appendix F. Analytical table deductive analysis

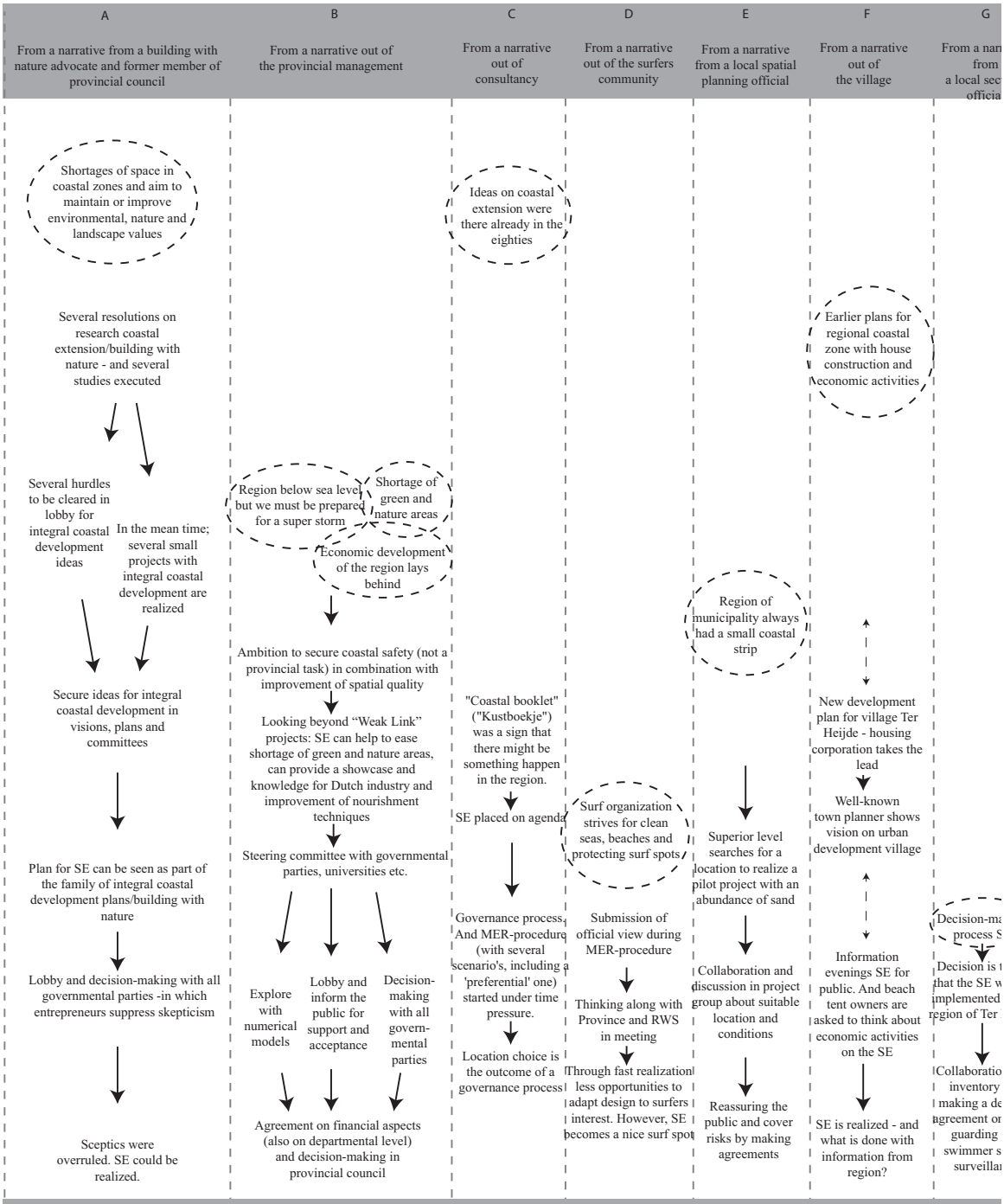
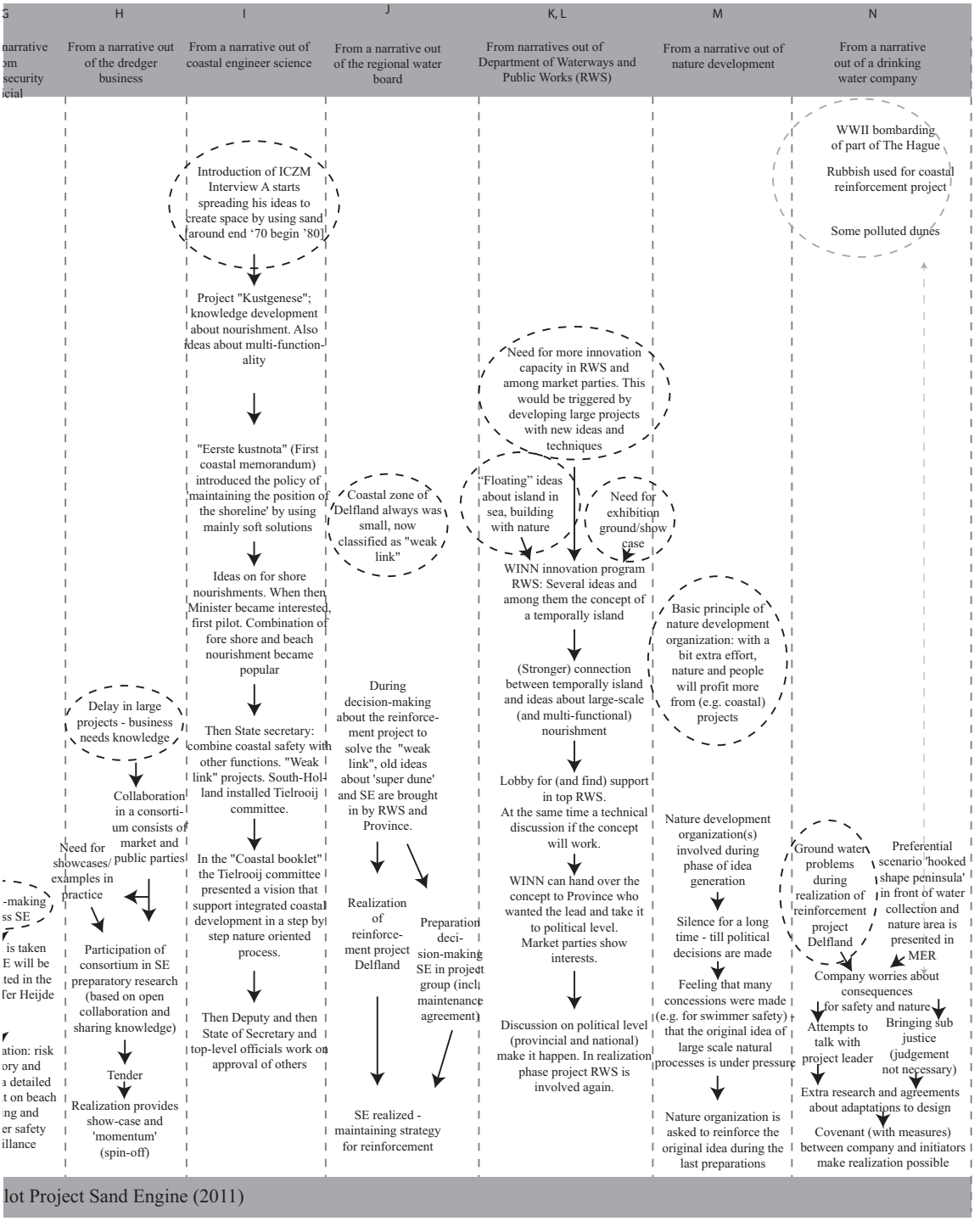


Figure Ap-1. An analytical table which outlined 13 sequences of events and their orientation (dotted lines) distilled from the personal narratives.


G
narrative om security icial
H
From a narrative out of the dredger business
I
From a narrative out of coastal engineer science
J
From a narrative out of the regional water board
K, L
From narratives out of Department of Waterways and Public Works (RWS)
M
From a narrative out of nature development
N
From a narrative out of a drinking water company
WWII bombarding of part of The Hague
Rubbish used for coastal reinforcement project
Some polluted dunes
Introduction of ICZM Interview A starts spreading his ideas to create space by using sand around end '70 begin '80
Project "Kustgenese"; knowledge development about nourishment. Also ideas about multi-function-ality
"Eerste kustnota" (First coastal memorandum) introduced the policy of maintaining the position of the shoreline' by using mainly soft solutions
Ideas on for shore nourishments. When then Minister became interested, first pilot. Combination of fore shore and beach nourishment became popular
Then State secretary: combine coastal safety with other functions. "Weak link" projects. South-Holland installed Tielrooij committee.
In the "Coastal booklet" the Tielrooij committee presented a vision that support integrated coastal development in a step by step nature oriented process.
Then Deputy and then State of Secretary and top-level officials work on approval of others
Coastal zone of Delfland always was small, now classified as "weak link"
During decision-making about the reinforce-ment project to solve the "weak link", old ideas about 'super dune' and SE are brought in by RWS and Province.
Realization of reinforce-ment project Delfland
Preparation deci-sion-making SE in project group (incl maintenance agreement)
SE realized - maintaining strategy for reinforcement
Need for more innovation capacity in RWS and among market parties. This would be triggered by developing large projects with new ideas and techniques
"Floating" ideas about island in sea, building with nature
Need for exhibition ground/show case
WINN innovation program RWS: Several ideas and among them the concept of a temporally island
(Stronger) connection between temporally island and ideas about large-scale (and multi-functional) nourishment
Lobby for (and find) support in top RWS.
At the same time a technical discussion if the concept will work.
WINN can hand over the concept to Province who wanted the lead and take it to political level.
Market parties show interests.
Discussion on political level (provincial and national) make it happen. In realization phase project RWS is involved again.
Basic principle of nature development organization: with a bit extra effort, nature and people will profit more from (e.g. coastal) projects
Nature development organization(s) involved during phase of idea generation
Silence for a long time - till political decisions are made
Feeling that many concessions were made (e.g. for swimmer safety) that the original idea of large scale natural processes is under pressure
Nature organization is asked to reinforce the original idea during the last preparations
Delay in large projects - business needs knowledge
Collaboration in a consorti-um consists of market and public parties
Need for showcases/ examples in practice
Participation of consortium in SE preparatory research (based on open collaboration and sharing knowledge)
Tender
Realization provides show-case and 'momentum' (spin-off)
-making ss SE
is taken E will be ted in the fer Heijde
ation: risk ory and a detailed t on beach ng and er safety illance
Ground water problems during realization of reinforcement project Delfland
Preferential scenario 'hooked shape peninsula' in front of water collection and nature area is presented in MER
Company worries about consequences for safety and nature
Attempts to talk with project leader
Bringing sub justice (judgement not necessary)
Extra research and agreements about adaptations to design
Covenant (with measures) between company and initiators make realization possible
lot Project Sand Engine (2011)

Appendix G. Validation survey deductive analysis

First, summaries of the biographies are presented/read aloud in front of the audience. Then, the audience was asked to answer the questions on the form.
- in Dutch –

"Een deel van mijn Governance onderzoek heeft een drietal biografieën van de Zandmotor opgeleverd. Drie meta-verhalen waarvan ik jullie nu een samenvatting wil voorleggen om te kijken in hoeverre jullie deze verhalen herkennen.
Dit om de drie biografieën te valideren. Mochten jullie de verhalen niet herkennen, kruis ze dan ook aub niet aan. Vanmiddag in het eerste deel van de Governance – sessie, zal ik meer over de verhalen vertellen, ook welke inzichten ze opleveren. Wees welkom! Maar voor nu wil ik jullie vragen om naar de drie globale biografieën te luisteren en op het gele A5je, je naam te schrijven en je antwoorden op de 2 vragen aan te kruisen. Jullie namen heb ik nodig om te vergelijken welk type persoon welke biografiën herkend, maar ik ga natuurlijk verder jullie namen niet gebruiken of antwoorden verspreiden, voel je vrij om eerlijk te antwoorden.

1. De Zandmotor als een onbekend cadeau van hoger hand.
Het plan om de Zandmotor hier, tussen Ter Heijde en Kijkduin, te realiseren was een plan van buiten, van hogerhand. Realisatie zou het landschap in de regio veranderen. De veranderingen en alle onzekerheden, baarden deels zorgen. Maar er waren ook positieve verwachtingen voor de regio; de Zandmotor zou tot iets bijzonders in de regio kunnen uitgroeien. Na een paar jaar onderzoek en besluitvorming, waarin zo veel mogelijk, maar niet alle, onzekerheden werden weggenomen, werd de Zandmotor gerealiseerd.

2. Innovatieve icoon met lange voorgeschiedenis
De Zandmotor is innovatieve stap in het denken over kustverdediging technieken, over suppletietechnieken en het aandacht hebben voor ruimtelijke kwaliteit en integrale kustontwikkeling. Het concept Zandmotor komt voort uit decennia lange ontwikkelingen binnen deze verschillende kusttradities en biedt mogelijkheden om verschillende (zandige) kustgebieden toekomstbestendig te maken.

3. De Zandmotor als project in doorgaand proces van kustontwikkeling
Er zijn altijd ontwikkelingen binnen kusttradities en er worden al decennia lang plannen voor de kustregio gemaakt. De suppletietechnieken die gebruikt zijn binnen het Zandmotorproject zijn niet nieuw, maar het concept brengt wel potentiele verbeteringen in het kustonderhoud met zich mee. Het is de vraag of het gerealiseerde Zandmotorproject de basis is voor meer grootschalige zandige oplossingen in Nederland of dat het bij een enkel een uitstapje in het suppletiebeleid blijft.

Vul je antwoorden in en hartelijk dank!
Ik ga bij de deur staan om de A5jes in ontvangst te nemen en om evt. vragen te beantwoorden."

Table Ap-4. Validation survey deductive analysis (in Dutch)

Biografieën van de Zandmotor 3 meta-verhalen over de totstandkoming van het pilotproject VALIDATIE tijdens NatureCoast gebruikersdag op 12 November 2014
A. Uw naam:
B. Welke van de drie meta-verhalen zijn herkenbaar voor u? (bv. uit uw omgeving, uit gesprekken die u met anderen over de Zandmotor Pilot heeft gevoerd) Kruis de meta-verhalen aan die u herkent: **0 1. Een onbekend 'cadeau' van hogerhand** **0 2. Innovatieve icoon met lange voorgeschiedenis** **0 3. Project in doorgaand proces van kustontwikkeling**
C. Met welke van de drie meta-verhalen voelt u zich persoonlijk het meest verbonden? Kruis het meta-verhaal aan waar u zich persoonlijk het meest verbonden mee voelt. **0 1. Een onbekend 'cadeau' van hogerhand** **0 2. Innovatieve icoon met lange voorgeschiedenis** **0 3. Project in doorgaand proces van kustontwikkeling** **0 Geen van deze, een ander: _____** **_____**

Appendix H. Initial inductive narrative coding Sand Engine pilot project

During the first phase of the inductive analysis, the interview transcripts (from block 1, see Appendix B and the method section 3.5.1) are coded. The codes and the quotations are analysed on variations, contrasts and similarities, leading to several narrative categories. Table 5-1 present the summary of this recursive movement: the four narratives and per narrative the amount of narrative-elements and initial codes that underlie the narrative. This appendix shows a snapshot from the recursive movement: the codes associated with the narrative categories. Later, they would be structured around the orientation, complication and solution, forming the narratives themselves.

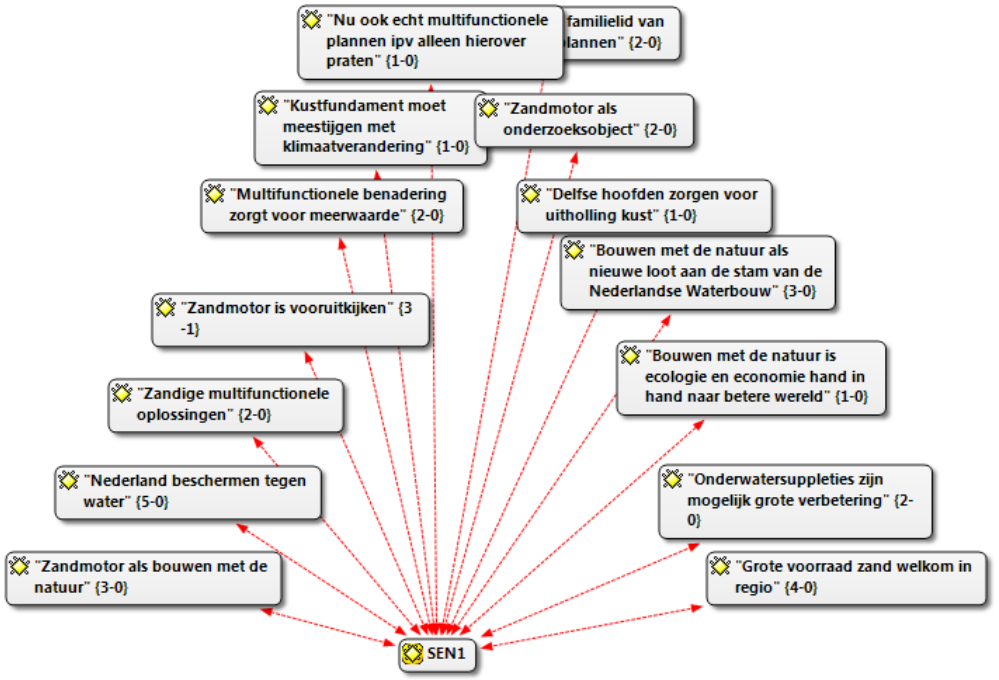


Figure Ap-2. These quotations together form a narrative category: the roots of SEN1 'A new hero in conquering the sea'.

Potential 'narrative-elements' get a label with a 'first impression phrase' (initial coding), as showed here in the boxes. The boxes also show the amount of quotations labelled with this code.

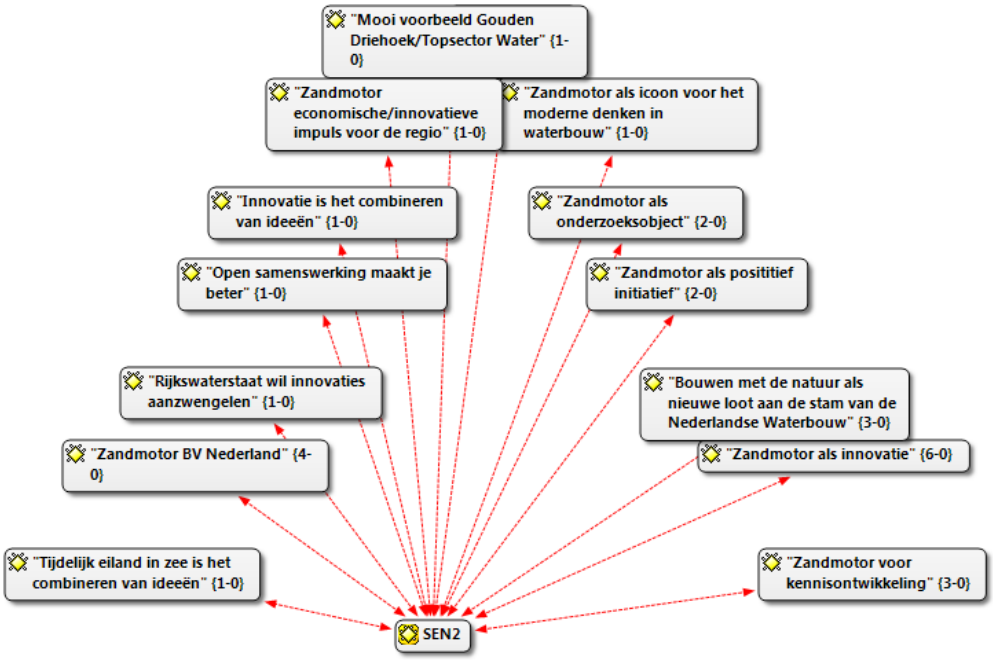


Figure Ap-3. These quotations together form a narrative category: the roots of SEN2 'An innovation important for NL Inc.'.

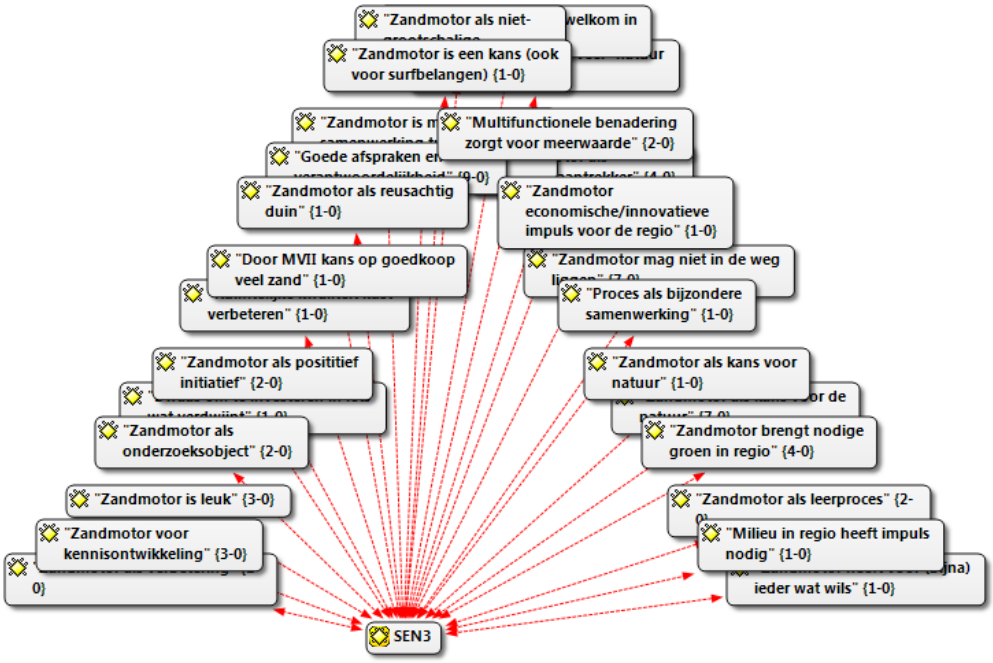


Figure Ap-4. These quotations together form a narrative category: the roots of SEN3 'A benefactor for everyone'.

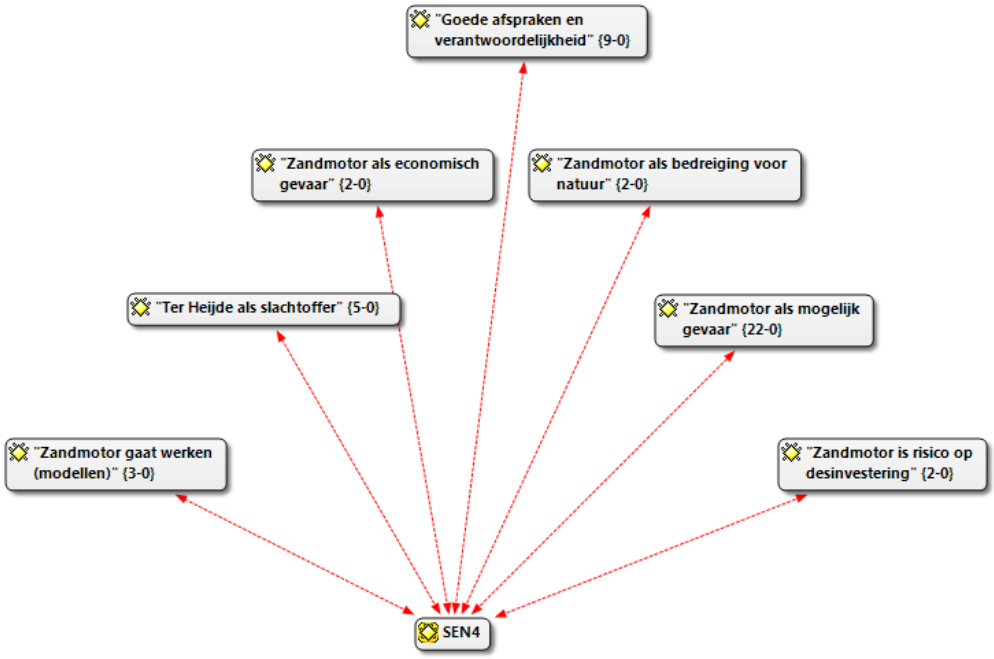


Figure Ap-5. These quotations together form a narrative category: the roots of SEN4 'A potentially dangerous unknown'.

Appendix I. Interview protocol reflective interviews inductive analysis

This is the English version, as used in the Sweden case. In the Dutch case, a Dutch version of this interview protocol was used.

Introduction

- Thank you for welcoming me/for making some time to meet with me.
- We will have a conversational interview about coastal issues for which a few narratives (stories) function as input. It's likely that this structure is a bit different from what you expect in an interview, but don't worry. Relax and just react to the narratives. These are narratives that possibly played an important role in the realization of the Ystad nourishment project. And, possibly in the present discussions. I will tell you more about these narratives in a few seconds.
- I need to record all interviews, I hope that you will allow this. I will of course handle the interview material very carefully. I have to store it, because it is qualitative input for my research, but it is not accessible to people other than me, my supervisor Jill Slinger and a post-doc researcher in our program who want to assess governance contexts in different countries.
- Do you have any questions before we start?

Let's start with a bit of introduction. Can you please tell me a bit about yourself? About your work and your involvement in discussions about coastal erosion and sand nourishment in Southern Sweden?
[..]
Now, I would like to generally introduce my research topic, and we can than go to the more specific questions.
In decision-making about new projects or new policy, the people involved use narratives and story-elements. So within heterogeneous groups of people, narratives about new projects or other policy initiatives are told and spread, intentionally or not. I am researching the role of these stories. Do narratives contribute to the realization of ideas? Or to ideas not being realized? And how do they do that?
For this case study, I analysed earlier interview material collected by a master student (A.J. Wang) who interviewed 14 people around a year ago. I distinguished 4 potential narratives in the Ystad decision-making. These narratives were not articulated word-for-word by people, but emerged between the lines. Now, I am asking people with different types of involvement, to reflect on these narratives. You […] In a while, you may take one of these card and have a look. I will tell you the narrative related to the card. On the back of the card, there is a summary of the narratives with key words. Each story has a particular orientation, a complication and a possible solution. When we have talked through all 4 of the stories, I would like to ask you some reflective questions.
Do you have any further questions?
Well, then let's go to the narratives.

- **Reading aloud the 4 narratives** (see chapters 5 and 6) in the order on which the interviewee decided upon. In the few instances that the interviewees did not spontaneous give their first reaction, they were asked to do so –

The narratives have been presented and you gave a first reaction. Now, I want to ask you some more specific questions.

Questions, guideline

Recognition and interaction

- Do you recognize the narratives from your experiences within the decision-making around the beach nourishment in Ystad?
  - If yes, to which stakeholders do they belong, in your opinion?
- Why did you choose that narrative first?
- Would you like to add anything more?
  - E.g. narratives that play a role in the decision making?
  - Or add story-elements to one of these narratives?

(I can ask this question again in the end).

Feeling towards the narratives

- Do you feel personally attached to these narratives in any way?
  - Can you explain this?
- Do you know of others who are personally attached to a narrative?

Role in processes of the Ystad project

- I am interested in how these ideas came to the attention of the people who make decisions. Did these narratives play a role in that process?
  - E.g. were there people using the stories to get the ideas on the agenda or keep them from the agenda?
- Can you tell me something about the possible interaction between these narratives?
- Did you notice any competition between these stories?
  - What did you notice that makes you giving this answer?
- Which one has won that competition, in your eyes? How did that happen?
- When did that become clear for you? What did you notice?
- I am also interested in the decisions that are made after a topic is on the agenda, when people actually decide on things. Did these narratives play a role in that processes?
- So, the narratives function, in your view, is this way… (give summary back to the interviewee). Is this correct?
- Would you like to add anything further?

Present discussions

- I am also interested in the development of the narratives after implementation of the Ystad project.
- Do you recognize these narratives in discussions about present or upcoming initiatives?
- Would you say that some of the narratives are confirmed nowadays? Or contradicted?
- Are they the same narratives, or have they changed? In what ways have they changed?
- Do you notice any competition between these stories (or others) in the present discussion?
  - What do you notice that makes you giving this answer?
- Which one is winning in this competition, in your eyes? How, why is this happening?
- When did that become clear for you? What do you notice?

Give back summary to the interviewee. Check if they have linked them to important moments.

- Are there some other relevant points that we missed in this conversation?

Closing

Thank you very much. You have helped me in my study of the relations between narratives and decision-making. My expectation is that narratives can bind people and ideas. That binding can provide opportunities for a policy initiative or counter an initiative. I will inform you of my research outcomes, and I hope the insights will be useful to you in your work as well.

I will transcribe and analyse it, always presenting the material in an anonymous way. I will also send you the transcript for checking. I foresee an article on the functioning of narratives in a Swedish and a Dutch case in a scientific journal. And in my thesis, an extensive chapter about the Swedish case. I may work with CF on an article for a water-related journal in Sweden, to reflect on the project in Ystad. And I may work with a colleague in the NatureCoast research program to assess the Swedish governance context for the potential of sandy strategies for countering coastal erosion, as well as that of other countries. And if I at any stage want to mention your name during the writing of my thesis, I will specifically ask your permission.

If you have any concerns about my research or about the use or storage of data, please contact my supervisor. [handing over contact details].

Appendix J. Code list second round of interviews (Sand Engine)

Table Ap-5. Code list second round of interviews (Sand Engine).

Code	Criteria
To connect the quote to the specific narratives	
SEN1	A new hero in conquering the sea
SEN2	An innovation important for NL Inc.
SEN3	Benefactor for everyone
SEN4	The (potentially) dangerous unknown
ALLN	All narratives, in combination with recognition
NoneN	None of the narratives
Respondents reaction on recognition question	
R1	Recognition disaffirmed
R2	A very vague reaction on recognition
R3	A neutral reaction, recognitizing parts of it, but not full
R4	A clear reaction of recognition
R5	A very enthusiastic reaction of recognition
PA	Feeling personal attached to one of the narratives
Attributing the narrative to..	
LI_xxx	The characters LI_ followed by a name of organisation/person, for example LI_RWS
The narrative competition	
COMPETITION	Piece of text in which respondent tells about the competition between the narratives
CHANGES	Piece of text in which respondent tells about the changes in the competition
ACTIONS	Piece of text in which respondent describes action of people in the competition
BY_xx	The characters BY_ followed by the name of organisation/person that undertaken this action
SAME	Piece of text in which respondent states that he/she does not observe change in the competition

With Atlas.ti, all co-occuring codes can be sorted out. This list was exported to Excel. Within Excel, different calculations were done and tables and graphs were created. A selection of the list with co-occurring codes is presented at the right. The example below shows to which organisation the respondents allocate the narrative 'An innovation important for NL Inc.', 2 respondents link them to the business company, 2 to the contractors, and 2 to the Topsector. See also the example in Appendix P.

SEN2 [12-0] [8]
LI_BusinessCommunity [2-0] [2]
2:9 "Dit [innovatie] is topsector .. (140:140):
4:6 Nou ja, dit zijn natuurlijk be.. (95:95):
LI_Contractors [2-0] [2]
3:8 En dit [BV Nederland] is de aa.. (129:129):
4:6 Nou ja, dit zijn natuurlijk be.. (95:95):
LI_Topsector [3-0] [3]
2:9 "Dit [innovatie] is topsector .. (140:140):
5:7 maar je ziet wel dat de Topsec.. (48:48):
5:9 En aan wie koppelde jij deze? .. (54:54):

Appendix K. Participant observation Sand Engine pilot project

Table Ap-6

Eventnr. (own involv*)	Date and place	Name of event	Type of event	Stage and audience **	Traces of 'original' narratives			
					SEN1 - Hero	SEN2 - NL Inc.	SEN3 - Benefactor	SEN4 - Danger
E01 (3)	9-9-2013 Monster	Presentation of key-figure from Sand Engine project on teambuilding day NatureCoast/Nemo	Meeting among researchers	- informal setting - presentation in small group	X	X	X	X
E02 (2)	10-9-2013 Delft	Presentations during Workshop Argusdata - part 1	Instruction for researchers	- presentation in small group				
E03 (1)	16-9-2013 Oostende, Belgium	SUSCOD conference 'making waves'	Conference Coastal Community BE and NL	- presentations in large group	X	X	X	
E04 (3)	2-10-2013 Utrecht	NatureCoast User Conference	Small conference for research community and the 'users'	- presentations in medium group - presentations in small group				
E05 (3)	16-10-2013 Utrecht	Meeting with RWS about 'feasability' evaluation	Meeting	- conversation	X		X	
E06 (3)	11-12-2013 Delft	Workshop Argusdata - part 2	Instruction for researchers	- plenairy instructions and exercises				

Traces of 'add' narr.		Accompanying reports, visual aids and Videos	Recognition of narratives and interpretation of the way they are used
SEN? - Knowledge	SEN? - Cultural		
		PPT: "Sand Motor" : Background, Design and Realisation	Presenter reflects on the process in which all four narratives (and their role) are recognizable
X		PPT's: The Argus video technique Data management in Naturecoast Analysis of current patterns in coastal areas using x-band radar images	Presenters about how Sand Engine data should be stored in order to realize a modern, open datamanagement system - Knowledge
		Report: Verslag van Making waves: over Vlaamse baaien en Nederlandse Deltas (Report on Making Waves: about Flemish bays and Dutch Deltas) PPT's: The Dutch Coastal Vision: a long-term integrated appraoch Integrated coastal management and maritime spatial planning The Sand Motor on the move Shoreface nourishments as maintenance measure: a pilot experiment for a future strategy	In speeches about Flanders, narratives can be recognized in broader perspective: - Benefactor for all (ambition integrated management) - Vlaamse Baaien as 'show piece' initiated by market parties - broader version of NL Inc. - Masterplan for coast of flander 'soft where possible, hard where needed' - broader version of Hero About NL policy: - Dutch adaptive concepts are exported - broader version of NL Inc. About EU policy: - Pillars of EU MSP: Ecology/Environment, Social, and Economy - A version of Benefactor for all About Sand Engine: - Presenter reflects on the process in which Hero, NL Inc. and Benefacor for all is recognizable About Belgium pilot: - Shore nourishment can be an improvement for Flanders - reduced and modest version of hero
X		PPT: NatureCoast- User Conference October 2nd 2013, Utrecht	Working on establishing the research community (data collection, research plans) - Knowledge
			Discussion about evaluation of 'feasability', also related to maintanance; is it a benefactor for all and a hero?
X			Excercises on the modern, open datamanagment system

E07 (3)	21-2-2014 Yerseke	Preparation Mega-pex fieldwork weeks	Meeting among researchers	- presentations in medium group - brainstorms in small group				
E08 (1) (4)	31-3-2014 Kijkduin	Sand Engine Conference	Conference Coastal Community	- presentations in large group - informative walk in small group - meetings in medium groups	X	X	X	X
E09 (3)	25-6-2014 Utrecht	PhD-day NatureCoast	Meeting among researchers	- presentations in small groups - conversations				
E10 (4)	25-9-2014 Kijkduin	Public Excursion during Mega-Pex	Excursion	- informative walk in small/ medium groups			X	
E11 (4)	3-10-2014 Monster	Beach conversations (during Mega-pex)	Conversations at the beach				X	X
E12 (2)	29-10-2014 Delft	Workshop Nature Coast about Jamaica Case	Meeting among researchers and 'users'	- presentations in small groups - conversations		X	X	
E13 (1)	9-11-2014 Kijkduin	Expeditie Zandmotor#1: Sand Drift – By Satellietgroep	Excursion	- presentations in medium group - cultural walk in medium group	X			
E14 (3)	12-11-2014 Wage-ningen	NatureCoast User Conference	Small conference for research community and the 'users'	- presentations in medium group - presentations in small group				
E15 (4)	29-12-2014 Kijkduin	Excursion with Indonisian visiting trainees	Excursion	- informative walk in small group				

X		PPT: NatureCoast - Opportunities for Interdisciplinary Research	Researchers brainstorm about multi and interdisciplinairy research during a large fieldwork expiriment in Autumn of 2014
X		Videos: De Zandmotor - Gepassioneerde wetenschap (The Sand Motor - Passionate science) Sfeerverslag Zandmotor conferentie (Video report on the Sand Engine conference) PPT's: Meten om te weten - 2,5 jaar Zandmotor (Measuring for knowing - 2,5 years Sand Engine) Zandmotor: kwaliteiten te kust en te keur (Sand Engine, many qualities, Dutch word play) Zand: motor van de export (Sand: driving force behind export) Report: terugkoppeling (report on) workshops	- Video De Zandmotor is interesting, because it names the pilot explicitly 'scientific field experiment' - knowledge narrative - Presenter of RWS emphasizes the importance of Sand Engine for innovation-image of RWS - Variation on Inc. NL. - Other presenter of RWS reflects on process is which Hero, NL Inc. and Benefactor are recognizable, and empasizes the knowledge-aspects - Presenter of Province emphasizes Benefactor for all aspects - Presenter of Ecoshape: NL Inc. ánd knowledge aspects - Presenter of WWF made a remark about a side-effect of Benefactor for all (disturbing of nature) - (on the beach) A person from the region complains about the project 'you can see it's not working' - Related to 'Dangerous'
X			- Conversations about research: open data management system, interdisciplairy fieldexperiments
X		Leaflet: MegaPEX 2014 - Internationale meetcampagne aan de Zandmotor (International measurment campaign on the Sand Engine) Video: MegaPEX Field Experiment Sand Motor	- Participants of the excursion were telling about how the area is appreciated by people from region - Benefactor for all - The exposure (incl. film) of the MegaPex Experiment emphasizes the importance of Knowledge
			- One beach visitor emphasizes that the beach is like a 'desert', 'Argus tower' is ugly - another perspective on Benefactor for all - Another beach visitor says that the 'Argus tower' is there, because of the 'Dangerous' situations
		Minutes: Workshop Jamaica – Negril 7-Mile Beach	- The request of Jamaican hotel-owners to help came after they had seen a picture of the Sand Engine - NL Inc. - People emphasize the need for 'integrated solutions' that serves more functions - connection with Benefactor for all
	X	Report: Expeditie Zandmotor#1: Sand Drift (Expedition Sand Engine #1: Sand Drift)	- A researcher told about the idea behind Sand Engine, from coastal engineering perspective - Hero - There were presentations and an excursion focussing on the Sand Engine as inspiration source for art and cultural activities - Sand Engine as cultural phenomenon
	X	PPT: Nature Coast User Meeting Wageningen Video: Nature Coast Film	- Presenters about the research progress and the Megapex field experiment - Knowledge

E16 (3)	25-3-2015 Kijkduin	Excursion with safety students	Excursion	- presentation in medium group - informative walk in medium group				X
E17 (4)	9-5-2015 Kijkduin	Excursion with Indonisian visiting trainees and visiting colleagues	Excursion	- informative walk in small group		X	X	
E18 (3)	20-5-2015 Leiden	NatureCoast User Conference	Small conference for research community and the 'users'	- presentations in medium group - presentations in small group			X	
E19 (3)	1-7-2015 Kijkduin	Excursion Young professsionals IAHR Conference	Excursion	- informative walks in medium groups		X		
E20 (4)	21-8-2015 Kijkduin	Excursion "Experimenting with new technologies in society" Conference	Excursion	- informative walk in medium group				
E21 (4)	3-10-2015 Kijkduin	Excursion with Indonesian visiting trainees and visiting colleagues	Excursion	- informative walk in small group				
E22 (2)	8-10-2015 Den Haag	Meeting presentation of Zandgast ('Sand guest') Designs - ideas to develop a visitors centre and artist residence	Meeting 'prize contest'	- presentations in medium group - discussions	X	X	X	
E23 (3)	9-10-2015 Kijkduin	PhD days NatureCoast	Meeting among researchers	- presentations in small groups - conversations				
E24 (2)	5-11-2015 Dordrecht	Raamwerk Sandy Strategies – workshop met ZM 2.0 casus	Working session	- presentation and instructions in small group - conversations		X	X	
E25 (1)	11-11-2015 Utrecht	Ecoshape Conference / building the future	Conference for BwN community	- presentations in large group - discussions/ conver-sations in medium groups	X	X	X	

		Report on excursions in newsletter: Zandmotor update July 2015	- Many conversations about risks and safety issues regarding the project - Dangerous and Hero
		Report on excursions in newsletter: Zandmotor update July 2015	- Participant made remarks about what will be the next innovation on coastal protection after the Sand Engine - NL Inc and Hero
X	X	PPT: Nature Coast User meeting Leiden	- Presenter reflects on the 'innovative drive' that helped in realizing the project - BV Inc. - Much focus on knowledge-building and "telling the research story", e.g. the MegaPex movie - Knowledge - Presenter tells about the framework for Sandy Strategies - NL Inc.
X		Report on excursions in newsletter: Zandmotor update July 2015	- Focus on research on the Sand Engine - Knowledge - Focus on Dutch coastal defense (Maaslandkering and Sand Engine) - Hero
X	X		- Province and Artists collective together want to realize a place for artists and visitors on the Sand Engine - Benefactor for all and Cultural - Inspiration of one of the designers to use a new 'sandy stone' came from innovative spirit of the place and the coastal defense theme - NL Inc and Hero. - One of the designers considers the Sand Engine as a laboratorium - Knowledge
X		Report in newsletter: NatureCoast Newsletter December 2015	- Knowledge exchange - A 'new' Sand Engine design based on multi-disciplinairy research insights - Knowledge
X		Report: A framework for sandy strategy development - With a quick scan for (co-) financing potential	- In conversation, one of the participants tells about involvement in a British workshop on Sandscaping - NL Inc - Presentation and discussion framework Sandy Strategies - NL Inc - Discussion about multi-functional = multi-fundable - Combination of Benefactor for all and NL Inc. - Participants reflect on the importance of 'innovation' in the Sand Engine business case - NL Inc.
X		Invitation: Ecoshape Building with Nature Congres 2015	From the Ecoshape chair: - Remark about MOOC BwN, a way to dissimenate BwN knowledge - Remark about Ecosystem Services in US Law to emphasize that BwN is indeed a broadly 'accpeted' hero.

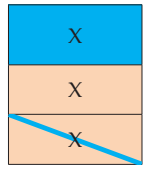
E26 (3)	11-12-2015 Delft	NatureCoast User Conference	Small conference for research community and the 'users'	- presentations in medium group - presentations in small group		X		
E27 (1)	28-1-2016 Delft	Delta's and Ports of the Future - DIMI Congres	Conference organized by research collaboration (DIMI) TU Delft	- presentations in large group	X	X	X	
E28 (2)	18-2-2016 Den Haag	Policy evaluation meeting Sand Engine (organized by evaluation team) - part 1	Presentation of (preliminary) findings	- presentation in medium group		X	X	X
E29 (2)	8-3-2016 Den Haag	Policy evaluation meeting Sand Engine (organized by evaluation team) - part 2	Working session	- plenary instructions - conversations in small groups		X		

			(Continuation) In RWS presentation: - Reflection on the history of Dutch water safety, with all kind of hero's. - It is nowadays more than 'water safety only' - Benefactor for all - Dutch approach also abroad - NL Inc. In Ecoshape presentation: - Project was collaboration of many parties, and let to many different expert in the future - Variation of Benefactor for all/Knowledge - Ecoshape now works on international BwN projects - Broader version of NL Inc. Presentations about sustainable ports in Wadden Sea: - These projects can be multifunctional as well - Broader version of Benefactor for all About Dutch involvement US: - Rebuild by design, after Sandy - Broader version of NL Inc. From Top Sector Water: - Golden triangle becomes golden circle, more participants - Variation of NL Inc.
X		PPT: NatureCoast User Conference Delft	- Presenters about the research progress - Knowledge - Remarks about the Sand Engine as icon in Dutch stand on the Climate Summit - NL Inc.
		Videos: Introducing DIMI Collegarama Conference Deltas and Ports of the future E-magazine: Deltas and Ports of the future	In the video about DIMI three narratives can be recognized in broader sense: - Deltas about the world are developing, how we did it in NL is an example - Hero, NL Inc. Plenairy program: - Chair stated that flooding of 1916 marked the start of modern development of NL -Intens version of Hero - Presenter emphasized the need to develop new, integrated and smart solutions for the delta-areas of tomorrow - NL Inc., Benefactor - Other Presenter also sketches the development of NL - Hero and the need for integrated solutions and involvement of stakeholders - Addition to Benefactor - Other presentator talks about same topics - Hero, NL Inc. - By refering to Cruquius, he also emphasizes that looking to other countries can be helpful in development as well - twist on NL Inc. - Other Presenter reflects on Dutch contribution in US - Nuanced version of NL Inc.
X		Report: De Zandmotor is van iedereen - Beleidsevaluatie 2016 (The Sand Engine is from everyone - Policy evaluation 2016)	Reflection on processes after realizaton: - About realisation objectives - Benefactor, NL Inc. and knowledge - About the 'unforeseen' use of kite surfers - Benefactor - About the high natural dynamics, disappointing biodiversity/unique species and about tension between nature and recreation - twist on Benefactor - Reflection on the role of the 'Danger' narratives in the process: it causes an extra focus on pilot and innovastion
		Report: De Zandmotor is van iedereen - Beleidsevaluatie 2016 (The Sand Engine is from everyone - Policy evaluation 2016)	- One participant argues that it is a missed opportunity that there don't seem to be follow-ups - Twist on NL Inc.

E30 (4)	12-3-2016 Kijkduin	Excursion visiting architects (students and professors) from New York colleagues	Excursion	- informative walk in small group				
E31 (4)	31-3-2016 Kijkduin	Excursions with PhD-candidates TPM	Excursion	- informative walks in small/ medium group				
E32 (1)	14-9-2016 Scheve-ningen	5 Year Sand Engine Conference – day 1	Conference Coastal community (international, but mainly Dutch)	- presentations in large group - presentations in medium groups	X	X	X	X
E33 (4)	15-9-2016 Kijkduin	5 Year Sand Engine Conference – day 2	Excursion	- informative walks in small/ medium groups			X	X
Total recognition in 33 meetings within 3 years (and 1 week):					11	14	14	7

*Classification of own involvement in events

1 = only observing
2 = mainly observing
3 = participating
4 = active/steering



Narratives are used to reflect on the process that happened

Narratives are used in present or future situations

Narratives are used in present and future situations

** Classification of audience size:

small audience < 20 people
medium audience 20-40 people
large audience > 40 people

X	X	Videos: The Sand Motor - Five year Building with Nature Clips Sand Motor NatureCoast Phd's on 5 themes Reports: Verslag 14 September (Report of 14th of September) The Sand Motor - driver of innovative coast maintenance PPT's: The Sand Motor - Five year Building with Nature Results after 3 years of research The Sand Motor has become bigger than itself - Developing space for nature and leisure The Sand Motor - A cultural phenomenon Engineering with Nature in the United States The Sand Motor Reach - Potential for worldwide sandy strategies Sandscaping - A Sand Motor in the UK? Negril, Jamaica - A brief history of the area and the issue of beach erosion Nature-based experiences in Venice at a glance Video about the Conference made by province	- Chair of the day introduces the project and why she is interested (Hero, NL Inc.) and emphasizes the international audience (NL Inc.) - High ranked official of ministry talks about 'hero' and 'NL Inc.' related to the whole Dutch coastal management and, in combination with nature, leisure area and knowledge development - Benefactor - Regional minister and later a provincial director emphasize the impuls for the region- Benefactor, NL Inc. - Project leader reflects on the process in which Hero, NL Inc. and Benefacor is recognizable but also on the learning and knowledge development regarding swimmersafety - Danger and Knowledge - The professor together with the PhD candidates in short clips reflect on the knowledge development - Representative from artist collective reflects on Sand Engine as cultural phenomenon - Cultural - Presenter of US reflects on the hero's after floodings in US and recent BwN developments - Broader version of hero - Presenter of Ecoshape sketches Sand Engine as hero in Dutch context, and that the concept (but no copy-past) can be usefull elsewhere - Hero and NL Inc. - Next presenter makes statement that for UK, multifunctional means multifundable - twist on Benefactor - In one of the parallel-sessions, Sand Engine is seen as only 'a prelude' of furter coastal development - twist on Benefactor
X			
18	4		

Appendix L. Organisations Ystad's nourishment project

Table Ap-7. List of names of organisations related to Ystad's sand nourishment case study.

English name (used in Thesis)	Swedish Name	Abbreviations
Climate Cooperation Scania	Klimatsamverkan Skåne	
County Administrative Board	Länsstyrelsen	CAB
County Administrative Board of Scania	Länsstyrelsen Skåne	CAB of Scania
Delegation for shore protection	Strandskyddsdelegationen	
Erosion Damage Centre	Erosionsskadecentrum	EDC
Geological Survey of Sweden	Sveriges geologiska undersökning	SGU
Government Offices (Government ministries and offices)	Regeringskansliet	
Governor (head of CAB)	Landshövding	
Land and Environmental Court	Mark- och miljödomstolen	
Ministry of Environment (now: Ministry of Environment and Energy)	Miljödepartementet (now: Miljö- och energidepartementet)	
Municipality	Kommun	
Municipal environmental committee	Miljönämnd	
National Board of Housing, building and planning	Boverket	
Region Scania	Region Skåne	
Scanian Association of Local Authorities	Kommunförbundet Skåne	
Svea Court of Appeal (Land and Environment Court of Appeal)	Svea hovrätt	
Swedish Agency for Marine and Water Management	Havs och Vatten myndigheten	SwAM/HAVS
Swedish Commission on Climate and Vulnerability	Klimat- och sårbarhetsutredningen	
Swedish Civil Contingencies Agency	Myndigheten för samhällsskydd och beredskap	MSB
Swedish Environmental Protection Agency	Naturvärdsverket	EPA
Swedish Geotechnical Institute	Statens Geotekniska Institut	SGI
Swedish Meteorological and Hydrological Institute	Sveriges meteorologiska och hydrologiska institut	SMHI

Appendix M. Respondents Ystad's nourishment project

Table Ap-8. Respondents Ystad's nourishment project.

Respondents	Position	Interview type	
		Block 1 Nov – Dec 2014	Block 2 Nov 2015
Respondent A	Project manager from a consultancy firm	x	x
Respondent B	Governmental official at national geotechnical institute	x	
Respondent C	Regional politician for Scania region, former local politician in Ystad	x	x
Respondent D	Local official at municipality of Ystad	x	x
Respondent E	Regional official at Scania region	x	
Respondent F	Regional official at county administrative board	x	
Respondent G	Project manager at national geological survey		x
Respondent H	Regional administrator (political) for Scania region	x	
Respondent I	Marine biologist from consultancy firm	x	
Respondent J	Marine biologist from consultancy firm		
Respondent K	Regional official at county administrative board	x	
Respondent L	Regional official at county administrative board		
Respondent M	(Former) local official, director at municipality of Ystad, (former) advisor of Land and Environmental court	x	
Respondent N	Professor in engineering science	x	x
Respondent O	Local official at municipality of Ystad		x
Respondent P	Governmental advisor at national agency for marine and water management		x*
Respondent Q	Researcher at institute for the marine environment		x
Respondent R	Local official at municipality of Ängelholm		x
Respondent S	Researcher at national geological survey		x
Respondent T	Official at county administrative board		x
Respondent U	Project leader at Scania´s Association of Local Authorities		
Respondent V	Official at Scania region		
Respondent W	(Former) director at national geotechnical institute		x

* Open interview instead of semi-structured reflective interview

Appendix N. Documents Ystad's nourishment project

As described in 3.3.2, several policy and related documents were used to interpret and position the actor experiences within their context. This appendix provides a list of these documents for the Ystad study.

Documents from government organisations (such as visions, information, plans, decisions, reports commissioned by government organisations):

1. Almström, B. & Hanson, H., 2013. Strandfodringen i Ystad 2011 - bakgrund, uppföljning, framtid [Beach nourishment in Ystad 2011 - background, monitoring, future]. Malmo: Sweco Environment AB Kust och Vattendrag.

2. County Administrative Board of Scania. 2010. Länsstyrelsen begär statligt stöd för att motverka kusterosion [CAB requested state aid to counteract coastal erosion], 2010-12-03.

3. County Administrative Board of Scania, 2011. Klimatanpassningsatlas för Skåne [Climate Adaptation Atlas for Scania]. Kristianstad/Malmö.

4. County Administrative Board of Scania, 2012. Handbok för klimatanpassad vattenplanering i Skåne [Manual for climate friendly water planning in Scania]. 2012:8 ed. Kristianstad/Malmö.

5. County Administrative Board of Scania, 2014. Regional handlingsplan för klimatanpassning för Skåne 2014 – Insatser för att stärka Skånes väg mot ett robust samhälle [Regional Action Plan Climate Adaptation Scania]. Kristianstad/Malmö.

6. Delegation of Shore Protection, 2014. Strandskyddets delegation - Background [online]. http://www.strandskyddsdelegationen.se/in-english/background/ [Accessed Access Date 2016].

7. Government Offices, 2009. Regeringen beslutar proposition 2008/09:162 En sammanhållen klimatoch energipolitik [A joint politics for climate and energy]. In M.O. Environment (ed.) Stockholm.

8. Hanson, H., Rydell, B. & Andersson, M., 2006. Strandfodring-Skydd av kuster mot erosion och översvämning [Beach nourishment-Coastal protection against erosion and flooding]. Linköping: SGI VARIA [Swedish geotechnical institute].

9. Johansson, B. & Mobjörk, M., 2009. Climate adaptation in Sweden. Organisation and experience. .

10. Kingdom of Sweden, 1966. Act no. 314 of 3 june 1966 concerning the continental shelf. In N.I. Board (ed.): DOALOS/OLA - United Nations.

11. Kingdom of Sweden, 1966. Proclamation (1966/315) of 1 July 1966 Concerning the Application of the Act (1966/314) on the Continental Shelf. In N.I. Board (ed.): DOALOS/OLA - United Nations.

12. Land and Environmental Court, 2001. DOM 102-99 [judgment]. Växjö, Sweden.

13. Land and Environmental Court, 2013. DOM M 2034-13 [judgment]. Växjö, Sweden.

14. Malmberg Persson, K., Nyberg, J., Ising, J. & Persson, M., 2014. Skånes känsliga stränder – ett geologiskt underlag för kustzonsplanering och erosionsbedömning [Skåne sensitive beaches - a geological basis for coastal management and erosion assessment].

15. Ministry of Environment, 2000. English translation of: Swedish Environmental Code. In M.O.E. Swedish Government (ed.).

16. Municipality of Ängelholm, 2013. Policy för långsiktig och hållbar förvaltning av Ängelholms stränder [Policy for sustainable long-term management of Ängelholm beaches].

17. Municipality of Ystad, 2008a. Policy för förvaltning och skydd av kusten [Policy for the management and protection of the coast]. Ystad.

18. Municipality of Ystad, 2008b. Bakgrundsmaterial – Policy för förvaltning och skydd

av kusten [Background material - Policy for the management and protection of the coast]. Ystad.

19. Municipality of Ystad, 2014. Strandfodring i Ystad [Beach nourishment in Ystad] [online]. [15th of October 2015].

20. National Board of Housing, B.a.P.B., 2009. Bygg för morgondagens klimat. Anpassning av planering och byggande [Build for the climate of tomorrow]. Karlskrona.

21. National Board of Housing, B.a.P.B., 2010. Klimatanpassning i byggande och planering– analys, åtgärder och exempel [climate adaptation in planning and building]. Karlskrona.

22. Persson, G., Sjökvist, E., Åström, S., Eklund, D., Andréasson, J., Johnell, A., Asp, M., Olsson, J. & Nerheim, S., 2011. Klimatanalys för Skåne län [Climate analysis for Scania].

23. Policy Research Cooperation, 2009. Country overview and assessment 20. Sweden. The economics of climate change adaptation in EU coastal areas. For the attention of European Commission - Directorate-General for Maritime Affairs and Fisheries.

24. Rydell, B. & Lundström, K., 2013. Erosion vid kuster och vattendrag. Probleminventering och kunskapsbehov [Coastal and river erosion. Problem identification and knowledge needs]. Linköping.

25. Swedish Agency for Marine and Water Management, 2013. About the Agency [online]. https://www.havochvatten.se/en/swam/our-organization/about-swam.html [Accessed Access Date 2016].

26. Swedish Agency for Marine and Water Management, 2015. Proposal for the Direction of the Marine Spatial Planning and the Scope of the Environmental Assessment - Ref. no. 3779-14. In C.D.F.T.S.a.F.M.a.W. Management (ed.) Göteborg.

27. Swedish Civil Contingencies Agency (Msb), 2013. Swedish National Platform for Disaster Risk Reduction. Action plan 2013-2015. . In S.C.C.a.M.A. Oters (ed.) Karlstad.

28. Swedish Commission on Climate and Vulnerability, 2007. Sweden facing climate change– threats and opportunities. Stockholm.

29. Swedish Geological Survey, 2011. Ansökan om tillstånd enligt lagen (1966:314) om kontinentalsockeln för uttag av bottenmaterial vid Sandhammarbank [Application for a license under the Act (1966: 314) on the continental shelf for the abstraction of ground material at Sandhammar Bank].

30. Swedish Geological Survey, 2014. Kartvisare Skanestrand [Map viewer Scanian beaches].

31. Swedish Geotechnical Institute, n.d. Coordination responsibility coastal erosion [online]. http://www.swedgeo.se/en/vagledning--verktyg/stranderosion/ [Accessed Access Date 2016].

Political discussions:

1. Swedish Parliament [Riksdagen], 2013. Motion till riksdagen 2013/14:C300 - Stranderosion [beach erosion]. Anders Hansson.

Communication of other parties and newspaper articles:

1. Åkerlundh, C. 2012. Stora värden hotas av ökande stranderosion [Large values are threatened by increasing beach erosion] Helsingborgs Dagblad, 23rd of June 2012.

2. Anonymous. 2013. Den skånska stranderosionen kartlagd [Coastal Erosion in Scania mapped] Helsingsborgs Dagblad, 2nd of January 2013.

3. Anonymous. 2014. Protest mot sandsugning i Öresund [Protest against sand extraction in the Öresund] Helsingborgs Dagblad, 28th of March 2014.

4. Anonymous. 2014. Stranden återskapad [The beach recreated] Skånska Dagblad, 16th

of May 2014.

5. Anonymous. 2015. NCC får fortsätta sandsugning i Öresund [NCC allowed to continue sand extraction in Öresund] Helsingborgs Dagblad, 5th of December 2015.

6. Billgren, C. 2014. Hans Hanson har fått ge namn åt badbryggan [Swimming pier named after Hans Hanson] Ystad Allehanda, 6th of August 2014.

7. Billgren, C. 2014. Strandfodringen ifrågasätts [Beach nourishment questioned] Ystad Allehanda, 24th of September 2014.

8. Billgren, C. 2014. Ystad tar strid för sanden och Sandskogen [Ystad fights for sand and Sandskogen] Ystad Allehanda, 26th of September 2014.

9. Billgren, C. 2015. Sandtrio får kungens medalj [Sand trio received royal medal] Ystad Allehanda, 5th of June 2015.

10. Björk, J. 2014. Svensk-dansk protest mot sandsugning [Swedish-Danish protests against sand extraction] Helsinborgs Dagblad, 20th of August 2014.

11. Bryggare, L. 2012. Trelleborgs stränder en dold guldgruva [Trelleborg's beaches a hidden gold mine] Trelleborgs Allehanda, 21st of April 2012.

12. Hanson, H., Bendz, K., Mårtensson, K., Lindberg, P. & Axelsson, C. 2014. "Möjligheten att strandfodra behövs inför klimatförändringarna" ["Nourishing the coastal line needed because of climate change"] Opinion article in Ystad Allehanda 1st of October 2014.

13. Joelsson, J. 2014. Hård kamp mot hungrigt hav [Tough battle against hungry sea] Naturvetarna [trade union for university graduates in natural sciences], 14th of September 2014.

14. Johansson, Y. 2016. Sökes: 65 miljoner för att rädda stränderna [Wanted: 65 million for saving the beaches] Helsingborgs Dagblad, 14th of June 2016.

15. Kd. 2011. Framsteg mot stranderosion i Löderup [Progress against beach erosion in Löderup] Sveriges Radio.

16. Kocken, P. 2015. Länsstyrelsen utlovade hjälp mot havet [CAB promised to help the sea] Helsingborgs Dagblad, 10th of April 2015.

17. Kocken, P. & Wieland, A. 2015. Motstridiga uppgifter om hotet från havet [conflicting information about the threat from the sea] Helsingborgs Dagblad, 15th of April 2015.

18. Larsson, S. 2014. Ny metod att skydda kusten mot erosion väcker kritik [New method to protect the coast received criticism] Sverige Radio, 23rd of September 2014.

19. Lundin, L.-C., 2000. 13. The Swedish Environmental Code. River Basin Management. Uppsala: Uppsala University.

20. Lindgärde, K. 2014. Sand istället för sten motar kusterosion [Sand instead of rock counteract coastal erosion] Lunds universiteits magasin, 19th of September 2014.

21. Lindgren, H. 2014. Jakten på sand hotar livet i havet [Raiders of sand threatens sea life] Helsingborgs Dagblad, 29th of March 2014.

22. Lindgren, H. 2014. Marint liv kan hotas av sandsugning [Marine life can be threatened by sand extraction] Helsingborgs Dagblad, 27th of January 2014.

23. Lindgren, H. 2014. "Ni suger livet ur oss" ["You suck the life out of us"] Helsingborgs Dagblad, 28th of March 2014.

24. Lundin, L.-C., 2000. 13. The Swedish Environmental Code. River Basin Management. Uppsala: Uppsala University.

25. Muvany, P. 2014. Miljöminister öppnar för att förbjuda sandsugning i Öresund [Minister of Environment opens to prohibit sand extraction in the Öresund] Helsingborgs Dagblad, 6th of October 2014.

26. Nilsson, P. 2011. Ystad tar sand från Sandhammaren [Ystad takes sand from the Sandhammaren] SYDSVENSKAN, 24th May 2011.

27. Persson, P., 2015. Skånes stränder krymper när havet stiger - Reträtt kan vara rätt

[Scania's beaches will shrink when the sea rises. Retreat may is right]. Västerhavet 2015 - Aktuellt om miljön i Skagerrak,Kattegatt & Öresund. Havsmiljöinstitutet.

28. Redaktionen Miljöaktuellt. 2014. Strandfodring hot mot skånska sandbottnar [Beach nourishment threats Scania's sandy bottoms] MiljöAktueltt, 23rd of September 2014.

29. Thelandersson, A.S. 2015. Stranden – guldkust eller pengar i sjön? [Beaches: Gold coast or money down the drain?] Helsingsborgs Dagbald, 10th of April 2015.

30. Tt. 2015. Havet slukar den skånska kusten [The sea devours the coast of Scania] Göteborgs-Posten, 26th of April 2015.

31. Tt. 2016. Miljarder till miljö och klimat [billions for environment and climate] Helsingsborgs Dagblad, 6th of September 2016.

32. Van Der Stad, S. 2014. Döpte brygga efter stranderosionsexpert [Naming the bridge after erosion expert] Norra Skåne, 5th of August 2014.

33. Wieland, A. 215. Fodra stranden med sand – eller lämna åt naturen? [Filling the beaches with sand - or leave it to nature?] Helsingborgs Dagblad, 17th of April 2015.

34. Ystad, M.O., 2014. Välkommen till dop av "Professor Hans Hanssons brygga" [Welcome at the ceremony of naming of the "Professor Hans Hanson Pier"].

Videos:

18. Beach erosion 2005. Directed by Municipality of Ystad & Erosion Damage Center.

Appendix O. Initial inductive narrative coding Ystad's nourishment project

During the first phase of the inductive analysis, the interview transcripts (from block 1, see Appendix M and the method section 3.5.1) are coded. The codes and the quotations are analysed on variations, contrasts and similarities, leading to several narrative categories. Table 6-1 showed the summary of this recursive movement: the four narratives and per narrative the amount of narrative-elements and initial codes that underlie the narrative. This appendix presents a snapshot from the recursive movement: the codes associated with the narrative categories. Later, they would be structured around the orientation, complication and solution, forming the narratives themselves.

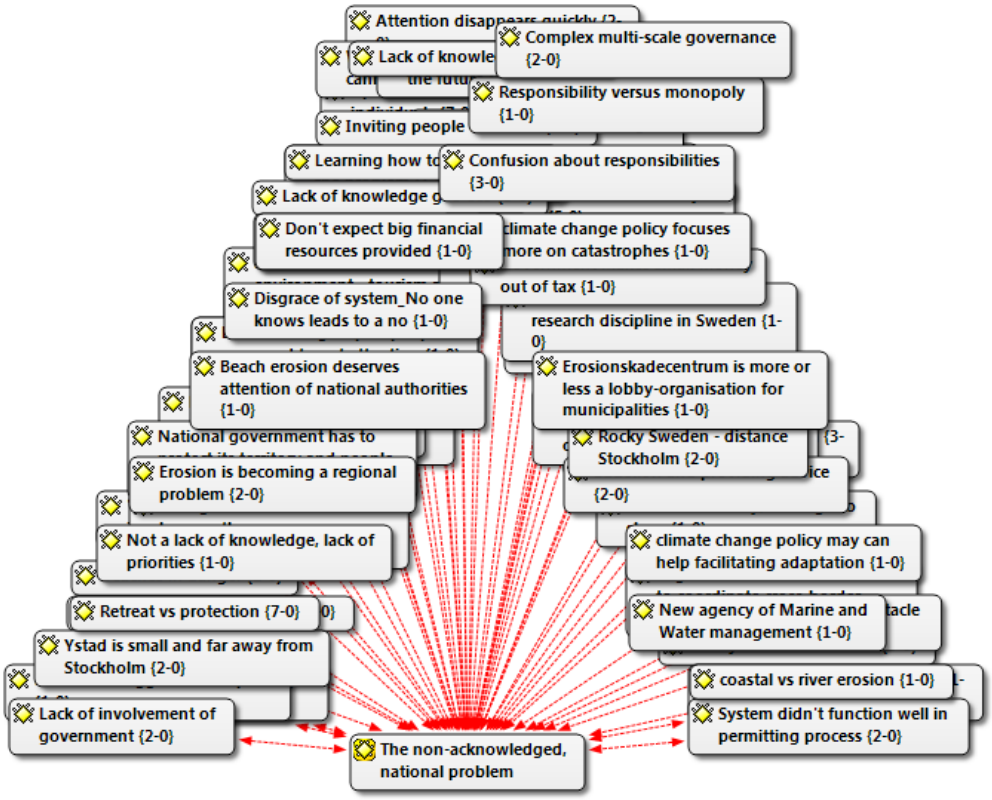


Figure Ap-6. These quotations together form a narrative category: the roots of YNN1 'A non-acknowledged national problem'.

Potential 'narrative-elements' get a label with a 'first impression phrase' (initial coding), as showed here in the boxes. The boxes also show the amount of quotations labelled with this code.

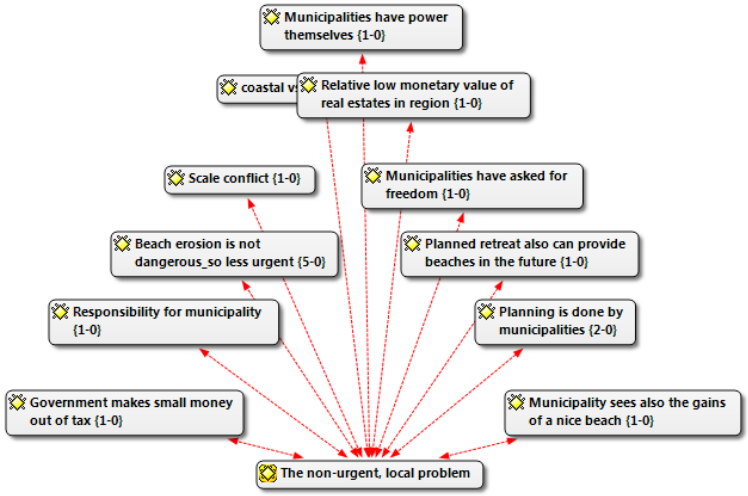


Figure Ap-7. These quotations together form a narrative category: the roots of YNN2 'A non-urgent, local problem'.

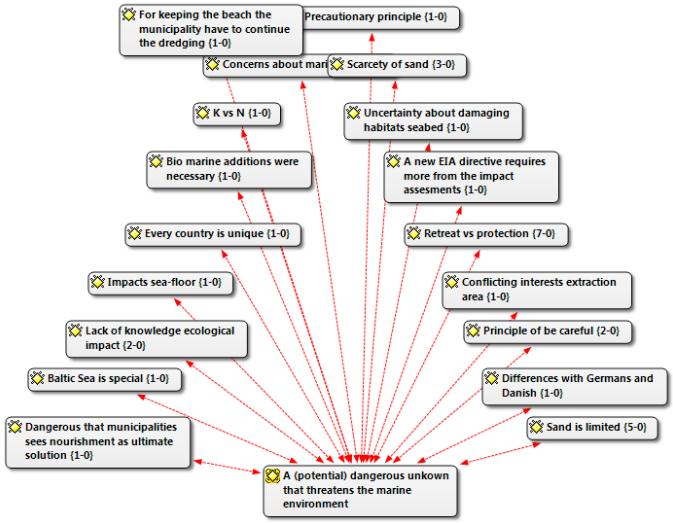


Figure Ap-8. These quotations together form a narrative category: the roots of YNN3 'A (potentially) dangerous unknown'.

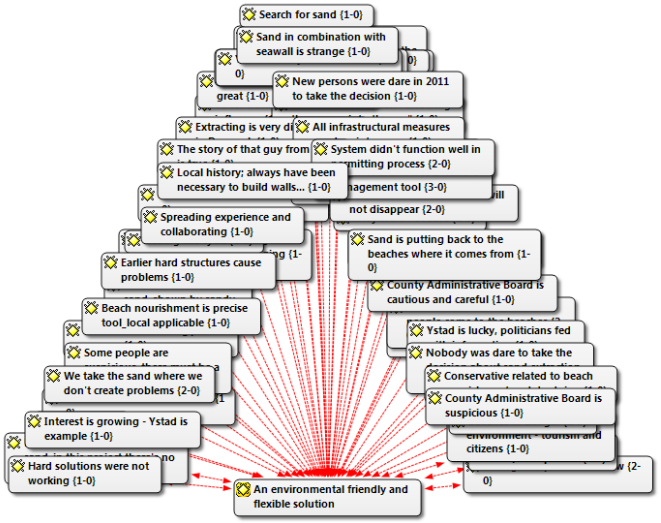


Figure Ap-9. These quotations together form a narrative category: the roots of YNN4 'An environmental friendly and flexible solution'.

Appendix P. Code list second round of interviews (Ystad's nourishment)

Table Ap-9. Code list second round of interviews (Ystad's sand nourishment project).

Code	Criteria
To connect the quote to the specific narratives	
YNN1	Ystad's beach nourishment narrative 1: The non-acknowledged national problem
YNN2	Ystad's beach nourishment narrative 2: The non-urgent local problem
YNN3	Ystad's beach nourishment narrative 3: A (potential) harmful unknown that threatens the marine environment
YNN4	Ystad's beach nourishment narrative 4: A nature friendly and flexible solution
ALLN	All narratives, in combination with recognition
NoneN	None of the narratives
Respondents reaction on recognition question	
R1	Recognition disaffirmed
R2	A very vague reaction on recognition
R3	A neutral reaction, recognitizing parts of it, but not full
R4	A clear reaction of recognition
R5	A very enthusiastic reaction of recognition
PA	Feeling personal attached to one of the narratives
Attributing the narrative to..	
LI_xxx	The characters LI_ followed by a name of organisation/person, for example LI_Scanianmunicipalities
The narrative competition	
COMPETITION	Piece of text in which respondent tells about the competition between the narratives
CHANGES	Piece of text in which respondent tells about the changes in the competition
ACTIONS	Piece of text in which respondent describes action of people in the competition
BY_xx	The characters BY_ followed by the name of organisation/person that undertaken this action
SAME	Piece of text in which respondent states that he/she does not observe change in the competition

With Atlas.ti, all co-occuring codes can be sorted out. This list was exported to Excel. Within Excel, different calculations were done and tables and graphs were created. A selection of the list with co-occurring codes is presented at the right. The example below shows how the quotes in which the respondents react to which extent they recognize narrative YNN1, 'the non-acknowledged national problem'. See also the example in Appendix E.

YNN1 [27-0] [23]
R2 [3-0] [1]
12:3 [laughter] "Probably not!" "No.. (112:118):
R3 [9-0] [2]
4:1 I think I heard something simi.. (25:29):
11:4 okay. Well, it is certainly tr.. (103:103):
R4 [29-0] [5]
1:3 "Yeah, we touched upon that. A.. (75:75):
2:2 "Yes. That is true. I mean, we.. (48:48):
3:3 Mmm. I have seen that this is .. (59:59):
7:4 Yes, also this interesting (53:53):
13:2 I know this description from t.. (106:106):
R5 [12-0] [2]
5:3 Hmm, yes. What can I add to th.. (92:92):
10:1 "Yeah, I think, it is a good d.. (79:79):

Appendix Q. Participant observation Ystad's nourishment project

Table Ap-10

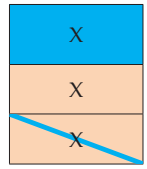
Eventnr. (own involv*)	Date and place	Name of event	Type of event	Stage and audience **	Traces of 'original' narratives			
					YNN 1 - non-ackn.	YNN 2 - local	YNN 3 - danger	YNN 4 - friendly
E01 (3)	5-6-2014, Delft, Nether-lands	Introduction meeting Swedish collaboration	Introduction meeting Swedish collaboration	- conversation in small group	X			
E02 (2)	30-9-2014 Kristian-stad	Kustmöte - Coastal Conference 2014 - day 1	Conference coastal community Sweden	- presentations in large group	(x)	X	X	X
E03 (2)	1-10-2014 Kristian-stad, Åhus	Kustmöte - Coastal Conference 2014 - day 2, incl. excursion	Conference coastal community Sweden	- presentations in large group - informative walk in medium group	X	X	X	X
E04 (3)	17-11-2015 Malmo	Dinner with coastal engineers	Meeting among researchers	- informal conversations in small group	X			X

Traces of 'add' narr.		Accompanying reports, visual aids and Videos	Recognition of narratives and interpretation of the way they are used
Knowledge			
			- No discussion about coastal erosion on national level- Non-acknowledge - Concept of nourishment is new in the head of people- Knowledge
X			
		Total recognition in 6 meetings: - Klimatanpassning i kustområden (Adaptation to climate change in coastal areas) - Ett interaktivt verktyg för integrerad kustförvaltning (an interactive tool for integrated coastal management) - Mätning på Grunda Vatten (Measurement of shallow waters) - SGUs projekt Skånestrand – jordarter och maringeologi längs Skånes stränder (SGU projects Skåne Beach - soils and marine geology along Scanian beaches) - Sårbarhetskartering (Vulnerability mapping)	- Presentation about Polish coastal management showed that there is an 'inplay' between national and local level - (non) acknowledged problem - And that nourishments are an accepted and preferred method in Poland - friendly - CAB explains the responsibilities of municipality and state - local - CAB explains uncertainties of beach nourishment- danger - HAVS explains vulnerability of shallow coasts and the dangers of sand extraction - danger - Climate change including extreme weather will have impact on whole Swedish coast (most Scania) - non-acknowledged - Several institutes emphasized the importance of knowledge - knowledge - The SGU talks about the research on the geology of coast of Scania and the vulnarability of Löderup - quite neutral, so a bit between non-ackn and local
X			
		PPT's: - Coastal Erosion and Protection, Examples from Poland - Strandskyd delegation (delegation for shore protection) - Erosionsproblem i Portugal (Erosion problems in Portugal) - Markområden i förvandling till vattenområden (Transition of land in water area) - PartiSEApate: Multi-Level-Governance in Maritime Spatial Planning - Översiktlig planering för kust och hav - Kristianstad Kommun (Comprehensive Planning for coast and sea - Municipality of Kristianstad)	- In Poland, they prefer sandy solutions, but there are some critics (fresh sand threatens grey dunes) - friendly ánd danger - The Strandskydddelegationen works on improving proper application of the shoreland protection regulations - related to danger - Presenters talk about Portugese coastal managements and ask how Sweden can use this – friendly, knowledge - Official from Ystad municipality provides information about Erosion Damage Centrum – non-ackn - A nourished beach for beach hand ball in Ahus is a local intervention - local
X			
			- within conversation: appointment of national erosion coordinator didn't completely solve the gap between national-local - non-acknowledged - reflect on plea for nourishment: it took 20 years before politicians in municipality were convinced about nourishment ideas - friendly

E05 (1)	18-11-2015 Lund	Swedish Marine Science Conference	Research conference	- presentations in large group	(x)	(x)	(x)	X
E06 (2)	21-11-2015 Löderup, Ystad	Excursion Coastal Engineering - visiting coastal erosion spots	Student excursion	- informative walks in medium group				X
Total recognition in 6 meetings:					5	3	3	5

*Classification of own involvement in events

1 = only observing
2 = mainly observing
3 = participating
4 = active/steering



Narratives are used to reflect on the process that happened

Narratives are used in present or future situations

Narratives are used in present and future situations

** Classification of audience size:

small audience < 20 people
medium audience 20-40 people
large audience > 40 people

			- Presenter talks about coastal processes, erosion and strategies to counter erosions - friendly - By explaining the sand extraction process, he indirectly refers to the critics on nourishments - danger - Another presenter explains the different risk perceptions that make climate change more difficult to manage - indirectly non-acknowlegded, local
			- Coastal processes and strategies to counter erosion are discussed/examined (friendly)
3			

About the author

Lotte Bontje was born on December 31st, 1983 in Woerden, The Netherlands. After receiving her BSc degree in 2005, she went on to obtain her MSc degree in Spatial Planning from Wageningen University (The Netherlands). Her thesis topic focussed on policy concepts and strategies for open spaces in urbanised areas. She subsequently obtained a MA degree in Geography Education (Utrecht University, The Netherlands, 2009).

In 2013, Lotte joined the Policy Analysis section of the Faculty of Technology, Policy and Management of the Delft University of Technology as a PhD candidate in the multidisciplinary research programme NatureCoast. Prior to joining TU Delft, she taught geography and worked as a consultant at Oranjewoud (Antea Group). During her four years at TU Delft, Lotte has worked on four research papers, has presented her work on four international conferences and has undertaken multiple dissemination activities within and on behalf of the NatureCoast research programme.

In addition to her research activities at TU Delft, Lotte has enjoyed teaching in the Bachelor programme 'Technische bestuurskunde', guiding excursions and organising events for the Policy Analysis section. She also served a member of the PhD Council and the Graduate School Board of the Faculty of Technology Policy and Management.

Lotte will continue her career as an advisor on waste policy at the Municipality of Lansingerland, in the province of South Holland.

Overview of dissemination

Journal articles

- Bontje, L.E., Fredriksson, C., Wang, Z., Slinger, J.H., 2016. Coastal erosion and beach nourishment in Scania as issues in Swedish coastal policy. VATTEN – Journal of Water Management and Research 72:103–115. Lund 2016.

- Bontje, L.E. & Slinger, J.H., 2017. A narrative method for learning from innovative coastal projects – Biographies of the Sand Engine. Ocean & Coastal Management, 142, 186-197.

- Bontje, L.E., Gomes, S.L., Wang, Z., Slinger, J.H., in review. A narrative perspective on institutional work in environmental governance. Insights from discussions about a Swedish beach nourishment programme. Journal of Environmental Planning and Management. Special issue: 'Institutional work in environmental governance'.

- Van Oudenhoven, A., Aukes, E.J., Bontje, L.E., Van Bodegem, P., Slinger, J.H., in review. Are ecosystem services used in strategic decision making? A case in Dutch coastal management. Environmental Science & Policy.

Invited as speaker

- Bontje, L.E., 2016. Studying innovative coastal projects from a narrative perspective. Guest lecture in the course Reflections on Planning and Design Practices. Land Use Planning Group. 28 September 2016. Wageningen, the Netherlands.

- Bontje, L.E., 2017. A narrative perspective on coastal pilot projects – learning from actor experiences. Coastal Conference organized by Water Association and Region Scania. 29 March 2017. Malmö, Sweden.

International conferences

- Bontje, L.E. and Slinger, J.H., 2014. Stories and storytelling in the pre-realization phases of the Sand Engine. Analysis of personal narratives from pilot project stakeholders (including paper). 9th International Conference in Interpretative Policy Analysis. 3-5 July 2014, Wageningen, The Netherlands.

- Bontje, L.E. and Slinger, J.H., 2015. Boundary spanning and the formation of a (successful) policy story (poster presentation). Poster session Complexity, Planning and Fuzzy Responsibilities. AESOP Conference 13-16 July 2015, Prague, Czech Republic.

- Bontje, L.E., Gomes, S.L., Wang, Z., Slinger, J.H., 2017. A narrative method for exploring institutional work in environmental governance? The development of a Swedish beach nourishment project as a case study. Panel session: Institutional work in Environmental Governance. Symposium on Learning and Innovations in Resilient Systems. Open University. 23-24 March 2017. Heerlen, The Netherlands.

NatureCoast presentations

- Mega-nourishments and compelling stories. A (meta) conceptual framework and preliminary research questions. 2 October 2015. Utrecht, The Netherlands.

- Stories and storytelling in coastal management (poster presentation). Zandmotor Conference 31 March 2014. Kijkduin, the Netherlands.

- Storytelling in pilot projects and their diffusion. 12 November 2014. Wageningen, The Netherlands.

- Biographies of a pilot project. And the Ystad nourishment project. 20 May 2015. Leiden, The Netherlands.

- Coastal erosion and sandy solutions in the Swedish Governance context (poster together with Zilin Wang). 10 December 2015. Delft, The Netherlands.

- Sand Motor Naturecoast Movie, part PhD's on Governance. Together with Ewert Aukes. https://www.youtube.com/watch?v=_inT_Ln4NIs

- A Sandy Strategy for Ystad's beaches. A narrative perspective on discussions in the Scanian coastal community. In: Applications of Sandy Strategies. NatureCoast Symposium 9th of May 2017. Delft, The Netherlands.

Guided excursions Sand Engine (Kijkduin/Monster, The Netherlands)

- Governance processes on the Sand Engine. Zandmotor Conference. 31 March 2014.

- Megapex Public Excursion. Excursion with around 80 participants (people from the region, teachers, other people interested). 25 September 2014.

- Sand Engine excursions in Exchange Program young professionals Jakarta, Rotterdam and Water Board Delfland. 29 December 2014, 9 May 2015, 3 October 2015.

- Sand Engine excursion for students 'integrated safety'. 25 March 2015.

- Excursion Young professionals IAHR Conference. 1 July 2015.

- Excursion 'Experimenting with new technologies in society Conference'. 21 August 2015.

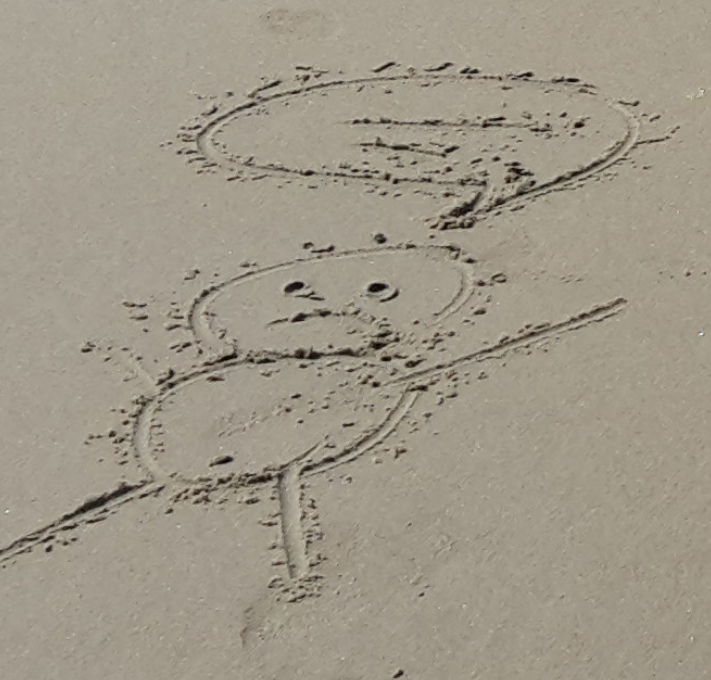
- Excursion visiting architects New York. 12 March 2016.

- Sand Engine excursion at the 5 Year Sand Engine Conference. 15 September 2016.

- Excursion visiting landscape architects Swedish University of Agricultural Sciences Alnarp, Sweden. 10 February 2017.

Pilot projects are favoured instruments for exploring and perhaps realising policy change. The challenges that coastal policy faces, the frequency with which pilot projects are implemented, and the criticisms regarding their efficacy make it interesting and relevant to study pilot projects in this policy field. This dissertation on **'Narrative perspectives on the development of coastal pilot projects'** aims to deepen understanding of the development of pilot projects in their actor-networks. It utilises the concept of narratives both in the conceptualisation of the development of pilot projects and in the design of a research strategy, choosing to learn from the experiences of actors involved in coastal pilot projects.

The Sand Engine in the Netherlands and Ystad's sand nourishment project in Scania, Sweden, are the two coastal pilot projects from which empirical data are drawn. Retrospective biographies of the Sand Engine pilot project, and the narrative competitions active in both the Sand Engine and Ystad cases were identified using deductive and inductive narrative analysis methods. This thesis highlights that pilot projects function not only as learning instruments for understanding the (bio)physical system, but also as instruments where actor-based learning is storified and success can be claimed and institutionally anchored.



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