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Connecting the dots:

Towards coordination between circular economy, climate adaptation and energy transition policies in relation to water management within the Southwest Delta of the Netherlands

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"*The secret of change is to focus all of your energy, not on fighting the old, but on building the new*" – Socrates

Colophon

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SWECO

Rijkswaterstaat
Ministerie van Infrastructuur en Waterstaat

Preface

This Master Thesis is written to complete my Master's degree Environment and Society Studies at the Radboud University Nijmegen. The final product is the result of six months of dedicated research on policy coordination between the circular economy, climate adaptation and the energy transition in relation to water management within the Southwest Delta. To me, the value of this report reflects the process of my academic studying period in which I spent four years on learning about environmental problems and how they affect societies.

It is not surprising that I have chosen a subject related to water management, since this has my interest ever since I started studying. Circular economy is a policy theme for which I already performed research before the Master's programme started. Moreover, my Bachelor's thesis was written about climate adaptation related to water safety. All in all, it is not startling that these three themes are connected to each other, and are related to water policies during my research.

This study is performed with the aim for policy makers to cope with the three environmental themes and combine them in their policies. For them, it is important to make policies in which the themes are not contradicting to each other. In this way, the policy documents are improved with better solutions to deal with consequences of climate change.

I executed this research during internships at Sweco and Rijkswaterstaat. I would sincerely like to thank my colleagues at these organisations. In particular, my supervisors Nikéh Booister, Conny Buijs and Leo Adriaanse for their continuous support and help during this period. It really eased me to have monthly conversations in which the thesis' progress was discussed. You supplied with me constructive feedback and confidence, which I needed to finalise my thesis.

Furthermore, I would like to express my gratitude towards my supervisor at the Radboud University, Maria Kaufmann. I could not have wished for a better supervisor during this stressful period. Your feedback was elaborated and valuable to further proceed with my thesis. Our conversations stimulated me to have faith in the process I was going through.

I also would like to thank all the respondents for their participation during this research process. Without you, I could not have completed this thesis. Thank you for your amiability and openness during the interviews and focus group.

Last but not least, I would like to thank my boyfriend, parents, sister, family and friends for their un-conditional mental support during this turbulent period. I have experienced their trust, love, advice and encouragement as important to finish this chapter in my life.

I hope you enjoy reading this thesis.

Desley Sulkers
Middelburg, July 2019

Executive summary

Worldwide, but surely within the Netherlands, three concepts are used to either prevent climate change or adapt societies to climate change. These three concepts are: the circular economy (CE), climate adaptation (CA) and the energy transition (ET). As these concepts differ in their aim, all three are incorporated in current policies. The content and organisation describing these policies is called 'a policy arrangement' within this study. Climate change is becoming more and more "wicked" because of its complexity and uncertainty, leading to uncoordinated problems. Consequently, the three policy arrangements are becoming more complicated too, leading to fragmentation both within and between the policy arrangements. To reduce these problems, it is required to seek for coordination between the CE, CA and ET policy arrangements.

The Preferential Strategy for the Southwest Delta, part of the Dutch Delta Programme, is currently being restructured. This strategy aims for an integral approach of the three climate policies to eventually ensure a safer, climate-proof, economically vital and ecologically resilient area. Coordination between CE, CA and ET is therefore needed, specifically in relation to freshwater supply, flood risk management and spatial adaptation. This is the responsibility of the Southwest Delta organisation, which is the research's main case study. The Programmatic Approach to the Eastern Scheldt Barrier (PA ESB) is examined as an embedded case study during the research to make a comparison between policy coordination of CE, CA and ET on a strategic level with policy coordination of CE, CA and ET on a programmatic level.

The first aim of this study has been to map the current policy arrangements of CE, CA and ET separately. Thereafter, barriers and conditions were found for policy coordination between the three policy arrangements, which is also done for the embedded case study. All these barriers and conditions fit within the dimensions of the Policy Arrangement Approach, which is applied during the research: discourses, actors, resources/power and rules of the game. The research is executed by means of qualitative research methods. A combination of document studies, observations and in-depth interviews is used for the main case study. Furthermore, a focus group is carried out with respondents involved in the PA ESB to compare results between the two cases. All in all, the following main research question is used as a guide line: *How can the policy arrangements of circular economy, climate adaptation and energy transition be coordinated within the Southwest Delta by which conditions are enabled and barriers are reduced?*

The study resulted in some important barriers and conditions for policy coordination between CE, CA and ET, which are comparable to those found in literature studies for general (climate) policy coordination. That is to say, within the discourses dimension; shared problem definitions, shared belief systems and shared objectives need to be accomplished, supplemented with the development of common approaches. Within the actors dimension; a varying actor constellation, coordinated interaction patterns, more co-operation and strong leadership roles are crucial. Furthermore, sufficient financial, knowledge, technological, personal and authoritative capacity are needed within the resources/power dimension. Also, willingness to develop knowledge, knowledge exchange, political and decision-making power, loss of autonomy and a shared distribution of responsibilities are needed. Lastly, within the 'rules of the game' dimension; formal institutional arrangements, common procedures and a united political culture are necessary.

By comparing the current situations of the CE, CA and ET policy arrangements, it became clear that the current level of coordination between CE, CA and ET is low within the Southwest Delta. The conditions, presented above, are therefore on the contrary found as barriers for policy coordination between CE, CA and ET within the Southwest Delta. Solely some coalitions, interaction patterns, knowledge exchange and procedures are currently shared between the policy arrangements. So, for intended policy coordination between CE, CA and ET within the Southwest Delta, it is of importance to reduce as much barriers as possible. The recommendations suggest this is possible by use of intermediaries and a project-based approach.

Contents

1. Introduction

This first chapter explains the three concepts that are currently used by policy makers to cope with climate change, which are the circular economy, climate adaptation and the energy transition. Furthermore, it explains the approaches to achieve coordination between these policy arrangements. To apply such an approach, it is necessary to first map the current situation of the policy arrangements, therefore another approach is described. The chapter is further elaborated by stating the research questions used in this study, and the scientific and societal relevance. The chapter finishes with a reading guide.

1.1. Three approaches to cope with climate change

Human-induced climate change is affecting our ecosystems and societies. Future climate change predictions are based on scenarios that are subject to high uncertainty and long term perspectives (O'Neill, 2017). Organisations on different scales have developed various concepts that either prevent to climate change or steer societal adaptation to climate change. The United Nations Framework Convention on Climate Change (UNFCCC) discusses two alternatives to address climate change: mitigation and adaptation. Part of climate mitigation is the transition towards greener energy use, which is reaching different actors on various governmental levels (Kern & Smith, 2008; Loorbach, Van der Brugge, & Taanman, 2008). Besides mitigation and adaptation, another concept is gaining more attention among industry, policy makers and scholars, which is the circular economy (CE) (Geissdoerfer, Savaget, Bocken & Hultink, 2017).

The three concepts set different objectives, but all aim to decrease global climate change risks for humanity. CE has a preliminary economical goal (Kirchherr, Reike, & Hekkert, 2017), but also seeks for solutions to deal with scarcity of raw materials (Mathieux et al., 2017). Climate change challenges the planet's ability to support current production and consumption. The growing global population will increase the demand for food, which will have a high impact on water and energy. At the same time climate change could reduce productivity of agriculture by more drought periods and temperature irregularities, which will increase the demand for energy and water (National Intelligence Council, 2013). CE offers an approach to reduce the shortage of energy and water. In this study the CE is defined as "*a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling*" (Geissdoerfer et al., 2017, p. 6).

At the same time the transition towards more sustainable energy systems provides solutions to cope with the pressing global demand on energy use as well (International Energy Agency, 2017). The transition towards renewable energy phases out fossil fuels, which create human-induced global warming and thereby changes the climate on Earth (GLA Just Energy Transition Team, 2016). The transition towards renewable energies is a form of mitigating towards climate change, since it reduces carbon emissions, and thereby prevents the planet from climate change (UN Environment, n.d.). In this study, the energy transition (ET) is referred to as "*a fundamental structural change in the energy sector of a certain country, like the increasing share of renewable energies and the promotion of energy efficiency combined with phasing out fossil energies*" (Hauff, Bode, Neumann & Haslauer, 2014, p. 3)

Lastly, climate adaptation aims to increase the resilience of social and ecological systems (Adger, Arnell & Tompkins, 2005). In contradiction to mitigating measures, adaptation to climate change adapts to effects of increased climate changes. Through climate change the possibility on superfluous water, floods, drought and heat stress increases (Ministerie van Infrastructuur en Waterstaat [MIW], Ministerie van Landbouw, Natuur en Voedselkwaliteit [MLNV] & Ministerie van Binnenlandse Zaken en Koninkrijksrelaties [MBZK], 2018). Therefore, in general, these four pillars are embedded in climate adaptation policies (Ruimtelijke Adaptatie, 2019). The following definition of climate adaptation (CA) is used in this study: "*Adjustments in natural or human systems in response to actual*

or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (Intergovernmental Panel on Climate Change, 2001, p. 365).

1.2. Climate concepts embedded in policies

Circular economy, climate adaptation and energy transition are concepts currently used by policy makers to reduce climate change risks. These three concepts are, for instance, anchored in Dutch national policy programmes, like 'A Circular Economy in the Netherlands by 2050' (Ministerie van Infrastructuur en Milieu [MIM], Ministerie van Economische Zaken [MEZ], Ministerie van Buitenlandse Zaken [MBZ] & MBZK, 2016), the concept of the Dutch climate agreement (Sociaal-Economische Raad [SER], 2018) and the 'National climate adaptation strategy 2016' (MIM, 2016). Besides, the concepts are also embedded in policy programmes like the Delta Programme which aims to ensure flood risk management, freshwater supply, and climate-proof and water-resilient spatial planning by 2050 (MIM & MEZ, 2017).

As these policy programmes are set up by governmental agencies, this also entails these concepts are enclosed in the arrangements policy makers are working in. However, these concepts are often dispersed between different organisational structures within a governmental agency. There is also a difference in distribution of responsibilities between governmental scales. To illustrate, climate adaptation is embedded in different ministries like the Ministry of Economic Affairs & Climate Policy as well as the Ministry of Infrastructure and Water Management (MIM et al., 2016). Also, the energy transition is more and more becoming the responsibility of decentralised institutions by the Regional Energy Strategy (RES), whereas the circular economy is still embedded in a governmental-wide programme without setting objectives for decentralised institutions yet (MIM et al., 2016; Ministerie van Economische Zaken & Klimaat [MEZK], 2018).

1.3. The need for coordination between policies

Consequently, the knowledge within these policy arrangements have become fragmented through policy actors that keep specialized knowledge within their domains or departments, and thereby are defying such divisions (Dovers & Hezri, 2010). Fragmentation also increases the complexity of decision-making processes, because the current trend of fragmentation of decision-making opposes other trends like globalisation (Meijers & Stead, 2004). Complexity in decision-making processes consequently leads to unclearness of divisions of responsibilities for certain problems, and thereby problems are uncoordinated or inadequately solved (Bauer & Rametsteiner, 2006; Dovers & Hezri, 2010). Uncoordinated problems are increasingly recognised as reasons for inefficiency and ineffectuality of policies (Bauer & Rametsteiner, 2006). Zürn & Faude (2013) describe fragmentation of decision-making in policy arrangements not as the problem itself, but the lack of coordination of this fragmentation as the main issue. Therefore, more coordination of fragmentation is required.

Besides, climate change problems have become "wicked", because of their complicatedness. Underdal (2010) states three characteristics of the complexity of climate change. First, the time-lags between actions human take and the effects on the environment are very long. Secondly, "wicked" problems are embedded in deeply complex systems which are not adequately understood by humans. Thirdly, "wicked" problems engage global collective goods, which can therefore not be solved by one single organisation. Therefore, these "wicked" problems require increased coordination between more than one organisation and reaches more levels of government (Peters, 2018).

Coordinated (or even integrated) polices can have useful outcomes since a coherent policy shares the same set of aims or ideas, which creates win-win situations and synergy effects (Mickwitz et al., 2009). It also reduces lacunae, redundancy and contradictions both within and between policies (Peters, 1998). To come to such a coordinated approach of these climate concepts, the following question arises: how to coordinate among these different policy arrangements?

The discussion on thinking about the relationships and connections between sectoral policies and their organisations, and seeking for a more holistic approach, goes back to the 1950s (Visseren-Hamakers, 2015). Terminologies as integrated management, meta-governance, policy mixes, mainstreaming, coordination, environmental policy integration and regime complexes have crossed the literature in the past years (Jones, 2002; Howlett & Rayner, 2007; Lafferty & Hovden, 2003; Nilsson et al., 2012; Runhaar, Driessen & Uittenbroek, 2014; Visseren-Hamakers, 2015). Out of this sequence of terminologies, this study will apply the theory of policy coordination. Policy coordination is used as it is the lowest degree of policy integration, and therefore the first step to create a more integrated approach between policies regarding the CE, CA and ET (Bauer & Rametsteiner, 2006). Through policy coordination, this study aims to adjust policies regarding CE, CA and ET in order to compose them mutually enforcing and consistent (Meijers & Stead, 2004).

To seek for ways to coordinate between the different policy arrangements, it is useful to take a closer look at the policy arrangements themselves. For this aim, the Policy Arrangement Approach (PAA) will be used. In comparison to other approaches useful to analyse policy arrangements, PAA is able to map more conditions of a policy arrangement and the interaction between policies. A policy arrangement is in this study referred to as "*the temporary stabilization of the content and organization of a particular policy domain*" (Van Tatenhove, Arts & Leroy, 2013, p. 54). The approach analyses four dimensions of a policy arrangement, which are the actors, resources/power, rules of the game and discourses (Leroy & Arts, 2006).

1.4. Problem statement

There are already some examples of organisations that have been looking for ways to coordinate climate policies. To illustrate, a report about combining CE and AC, called 'Towards Adaptive Circular Cities' has been published by a group of research organisations in cooperation with the Dutch Ministry of Economic Affairs. The report seeks for innovative solutions for future city tasks through combining knowledge, models and instruments (Deltares et al., 2015). Also the Delta Programme, which is in general about protecting the Netherlands to flooding, discusses an integral way of dealing with climate change (MIM & MEZ, 2017).

In particular within this last example this step causes practical issues. Part of the Delta Programme is the Preferential Strategy for the Southwest Delta (PSSD), which is a strategy that aims to protect the delta area of the Netherlands to ensure flood risk management, freshwater supply and spatial adaptation. This strategy is currently being restructured by the Southwest Delta organisation, which consists of policy makers, politicians, interest groups and others. During this process, possibilities for an integral approach of CE, CA and ET are examined. The aim of this integral approach is to create a safe, climate-proof, ecologically resilient and economically vital Southwest Delta (MIM & MEZ, 2017).

However, among policy makers currently involved with the restructuring of the strategy, the question is asked whether this will be possible within the existing institutional structure (S. Brasser, personal communication, December 5, 2018). Also literature studies show coordination between policies is a hard task because organisational structures and institutional settings are not designed for synergy effects or integration (Dovers & Hezri, 2010). Besides, little attention is yet given to the institutional and/or organisational aspects of policy coordination, and how it relates to other policy theories, such as PAA (Geerlings & Stead, 2003). Therefore, this study will research the institutional setting and structure of the organisation of the Southwest Delta by analysing policy arrangements in order to assess whether the organisation has the right structure to coordinate policies regarding CE, CA and ET.

This study zooms in on the Southwest Delta organisation as the main case study by focussing on CE, CA and ET in relation to water management, particularly, within the context of delta management. The organisation is responsible for the area that includes the province of Zeeland as well as parts of North-Brabant and South-Holland (see Figure 1). A subproject of the Southwest Delta is the

Programmatic Approach to the Eastern Scheldt Barrier, which is examined as an embedded case study. For more detailed information on the cases, see the methods section 3.4.

Figure 1: Map of Southwest Delta area in the Netherlands. Source: adapted from Zuidwestelijke Delta, 2014, p. 8

1.5. Research aim and research questions

This study will be executed by means of qualitative research methods. That is to say; policy documents, observations, in-depth interviews and a focus group. To analyse the organisational structure of the Southwest Delta organisation and what is needed for a future coordinated approach between the policy arrangements, four research aims have been set of which the former three are mostly scientifically relevant, whereas the last one is relevant to policy makers:

1. By applying the PAA, this study will map the current situation of both national and regional policies regarding CE, CA and ET in the Southwest Delta region. In this way a comparison can be made between the three policy arrangements. Thereby this study also contributes to empirical research studies about PAA.
2. By mapping the current policy arrangements barriers will be examined that could stand in the way for a future coordinated approach between policies of CE, CA and ET in the Southwest Delta. Furthermore, this study will seek for conditions which may enable coordination between policies of CE, CA and ET in the Southwest Delta. These conditions will be linked to literature studies about policy coordination, by which the conditions are theoretically grounded.
3. Some of these identified barriers and conditions will be furtherly examined during a focus group with participants involved with the Programmatic Approach to the Eastern Scheldt Barrier. This subproject of the Southwest Delta will be researched to compare barriers and conditions found on a strategic level with the ones found on a programmatic level, and to instantiate the identified barriers and conditions within a specific project within the Southwest Delta.
4. These conditions and, in particular, the barriers will be translated into policy recommendations which can be used by policy makers currently working on the restructuring of the PSSD in order to improve the strategy. By improving the process of restructuring, and

thereby the output of the strategy, the aim of ensuring a safe, climate-proof, ecologically resilient and economically vital Southwest Delta will also be rectified.

To obtain these research aims, the following main question and sub-questions are drafted to guide the research:

How can the policy arrangements of circular economy, climate adaptation and energy transition be coordinated within the Southwest Delta by which conditions are enabled and barriers are reduced?

1. *How can the current situation of the policy arrangements of circular economy, climate adaptation and energy transition be described within the Southwest Delta?*
2. *What are barriers and conditions for policy coordination between the policy arrangements of the circular economy, climate adaptation and energy transition within the Southwest Delta?*
3. *How are the identified barriers and conditions for coordination between the policy arrangements of the circular economy, climate adaptation and energy transition visible within a subproject of the Southwest Delta?*
4. *Which policy recommendations can be given to enable coordination between the policy arrangements circular economy, climate adaptation and energy transition within the Southwest Delta?*

To answer these research questions, three research steps are set, which are presented in an overview in the methodology chapter (see 3.3).

1.6. Scientific relevance

This research is relevant for scientific purposes because of four main reasons. First of all, it contributes to the empirical research of *internal* as well as *external* climate policy coordination and integration. Most literature studies concentrate on *external* climate policy integration, like incorporating climate objectives into sectors like transport (Nilsson, 2005; Kivimaa & Mickwitz, 2006; Howden et al., 2007; Persson & Runhaar, 2018). This study elaborates on these literature studies by incorporating different objectives based on *three* climate concepts into the water sector (non-climate sector). Only a few literature studies focus on *internal* climate policy integration, by integrating mitigation and adaptation into climate policies (Klein, Schipper & Dessai, 2005; Kok & De Coninck, 2007; Wilbanks & Sathaye, 2007; Swart & Raes, 2011), but this research extends these studies by also incorporating circular economy policies.

Secondly, it contributes to literature studies which apply PAA in the context of policy coordination. There are no other literatures studies found that already combined these two theories into a theoretical framework. Moreover, PAA is mostly used as a tool to *analyse* current policy arrangements (Immink, 2005; Veenman, Liefferink & Arts, 2009; Ahebwa, Van der Duim, Sandbrook, 2012). The first research question of this study will be answered by applying the PAA in the same manner as most scholars have done previously. However, in this study PAA is also used as a tool to compare policy arrangements and thereby coming up with new barriers and conditions both within and between policy arrangements.

Thirdly, there is a lack of theoretical studies about the circular economy (Yuan & Moriguichi, 2006; Geissdoerfer et al., 2017). Most reports written about this concept are often drafted by policy makers (MIM et al., 2016; SER, 2016). Besides, examples of literature studies of CE often include case studies in China, since this country counts some good examples of how the circular economy could be practiced by institutions (Dajian, 2008; Geng & Doberstein, 2008). This study focuses on a Dutch regional case study, and therefore contributes to literature studies with examples of circular economy policy analysis in another (national) context.

Lastly, most literature studies about policy integration and coordination are written in an international context (Geerlings & Stead, 2003; Hertin & Berkhout, 2003; Nilsson & Persson, 2003; Szyszczak, 2006; Biermann, Davies & Van der Grijp, 2009; Visseren-Hamakers, 2015). This study applies this theory to a regional scale, and thereby elaborates on literature studies by presenting a study that is applied to another geographical scale.

1.7. Societal relevance

The study also contributes to the solution of real life issues. It is recognised that coordination (as a form of integration) of climate (and environmental) policies is a crucial condition of sustainable development (Lafferty & Hovden, 2003; Meijers & Stead, 2004). Therefore, the common goal of CE, CA and ET is to achieve sustainable development. Sustainable development is necessary in order to sustain a certain standard of life for now and also for future generations (Brundtland, Khalid, Agnelli & Al-Athel, 1987). Therefore, coordinating these climate concepts into a programme, like the PSSD, is an important move to sustain current peoples' lives, but also future generations.

Moreover, climate change will affect all Dutch people and, in specific, people living in a delta area. Insights into climate concepts that will ensure a safer Southwest Delta will therefore protect citizens from future climate change effects. Next to that, the circular economy, climate adaptation and energy transition are all proved to be helpful concepts to either prevent or adapt to climate change (United Nations Climate Change, n.d.). Insights into the coordination of these concepts might give more information in how these concepts can help to resolve environmental "wicked" problems in the future. Besides, by presenting policy recommendations that can be used in restructuring the PSSD, the study will contribute to an improved Delta Programme. This programme is meant to protect Dutch citizens from flooding in the future. An improved Delta Programme will therefore ensure a safer environment for Dutch citizens. Thereby it contributes to the aim of the PSSD, which is to ensure a safe, climate-proof, economically vital and ecologically resilient delta.

1.8. Reading guide

The following *second* chapter consists of a literature review resulting in a theoretical framework including a conceptual model and an analytical framework. After that, the methodological choices and steps of this study are explained in the *third* chapter. The *fourth* chapter includes the results of the research. First the current policy arrangements are analysed, answering the first research question. After that, barriers and conditions are identified between the analysed policy arrangements that could be found when creating a coordinated approach; answering the second research question. Thereafter, some barriers and conditions are discussed for the embedded case study; answering the third research question. Chapter *five* finishes the research by drawing some conclusions, discussing and reflecting the results and choices made, and presenting some recommendations for future research efforts. It also includes policy recommendations, which answers the fourth research question. Lastly, a reference list and some additional appendices are included.

2. Literature review and theoretical framework

This chapter starts with a literature review by discussing different approaches within integrative environmental governance. Also, a discussion on approaches to analyse and compare policy arrangements is included in the literature review section. Thereafter, the theories of policy integration and coordination are explained and adjusted to the Southwest Delta context. This is also done for the Policy Arrangement Approach. Then the conceptual framework, combining the two different theories of policy coordination and the Policy Arrangement Approach, is illustrated, which is finally operationalised into an analytical framework with indicators that will be used during the research.

2.1. Literature review

This chapter consists of a discussion of different approaches to deal with complexity and fragmentation in current climate and environmental policies. Out of this discussion, the assembled theories of policy integration, coordination, mainstreaming and coherence are chosen to further discuss, because the theories fit the purpose of this study. Also, a discussion on approaches to analyse and compare climate policies is included in this section.

2.1.1. Integrative environmental governance

As mentioned earlier in the introduction chapter, complexity and fragmentation of policies within the climate and environmental field are problems difficult to resolve (1.3). From this observation of the increasing complexity of policies and decision-making processes, various social scholars have attempted to come up with possible solutions. Consequently, different theoretical concepts have arose that either deal with the problem or even embrace it (Visseren-Hamakers, 2015). The use of these theoretical approaches gives the ability to examine what is needed for an integrated approach of CE, CA and ET within the PSSD, which are therefore discussed below.

Firstly, ‘groups of regimes’ which refer to empirical studies in which scholars concentrate on studying groups of international institutions on a single-issue area. This theory focuses on the entire governance architecture or system in which new regimes are developed. The multiple partially overlapping institutions create complexity, because new regimes are developed within the existing regimes, and are therefore not pure (Raustiala & Victor, 2004; Biermann, Pattberg, Van Asselt, Zelli, 2009). This approach maps the complexity of these regimes in an international context.

Another approach is ‘institutional interaction and management’. Scholars argue that an institution’s effectiveness is partly affected by its relations or interactions with other institutions (Visseren-Hamakers, 2015). Literature studies mostly focus on attempts to improve the relationships between institutions by interplay management. The approach is often applied within environmental governance related studies, since it might enhance synergy effects between social and natural systems (Oberthür, 2009; Oberthür & Gehring, 2011).

The ‘nexus approach’ refers to a method that aims to coordinate among different sectors and policies without favouring one over another to promote coherence (Benson, Gain & Rouillard, 2015; Visseren-Hamakers, 2015). Nexus thinking is promoted by the World Economic Forum and has gained attention among scholars and policy makers, because it can result in reducing trade-offs, increasing resource use efficiency, integrating management and governance across all scales and sectors and building synergies. Overall the approach promotes sustainability and a transition towards a green economy (Hoff, 2011; Benson et al., 2015; Kurian & Ardakanian, 2016). The approach covers the entire governance system, focuses on policies as well as sectors, and on the regional level of governance.

To study the coordination of CE, CA and ET policies (for the Preferential Strategy) for the Southwest Delta, I need an approach that encompasses a regional level of governance, focuses on public as well as private actors, concentrates on policies as a main object of study, and above all; focuses on

integration between policy arrangements. Approach 1, 2 and 3 address some of these issues, however not appropriately enough for the purpose of this study. Approach (1), has a *global* main level of governance , which is therefore not valuable in this study, since it concentrates on a regional area. Approach (2) focuses excessively on *institutional aspects* and neglects substantive issues, which are an important part of policies as well. Also, it mainly focuses on international institutions. Finally, approach (3) seems to suit the study's purpose, however it is too *focused on technical aspects* and therefore difficult to use in the analysis of policy arrangements.

2.1.2. Policy integration, coordination, mainstreaming and coherence

Yet, another assembly of alike approaches, found in literature studies, better suits the purpose of this study, which are 'policy integration, coordination, mainstreaming and coherence'. According to Underdal (1980, p. 162) "*a policy is integrated when the consequences for that policy are recognized as decision premises, aggregated into an overall evaluation and incorporated at all policy levels and into all government agencies involved in its execution*". Underdal (1980) also describes three characteristics that should be met for a policy to be entitled as integrated:

- Comprehensiveness: this criterium is about the input in the policy process, and should include the recognition of a broader scope of policy consequences in terms of space, time, issues and actors;
- Aggregation: is about processing inputs; that is to say, the minimal extent to which policy alternatives are evaluated from an overall perspective, rather than from an actors or sector perspective only;
- Consistency: is about consistency of outputs, which means there is to a minimal extent consistency between policy levels and all governmental agencies

Often a distinction is made between vertical and horizontal policy integration of which the former is about integrating policies by top-down processes. The latter describes the integration of policies in different sectors or departments on the same governmental level (Mickwitz et al., 2009; Zürn & Faude, 2010). Since Underdal first introduced policy integration back in 1980, the definition of it lacks clearness now. Therefore Meijers et al. (2004) present some concepts that are similar to each other; mainstreaming, coordination and coherence, which are briefly discussed to give more background information.

Literature on mainstreaming is limited and fragmented as well. Within the environmental field, mainstreaming is the activity of integrating environmental objectives into non-environmental sectors. It is based on three assumptions: it is a deliberate process (1), there are various routes that can be targeted (2), and it should take place across multiple levels of government which also includes the central government (3) (Nunan, Campbell & Foster, 2012). Secondly, policy coordination searches for synergies or the idea of reciprocity (Jordan & Lenschow, 2010). Policy coordination is the process of achieving mutual consistency and enforcement between policies by linking actors, programmes, organisations and other aspects involved within these policies (Shannon & Schmidt, 2002; Meijers & Stead, 2004). Lastly, the outcome of policy integration is policy coherence (Jones, 2002). Policy coherence analyses the output of the process and implementation of instruments (Nilsson et al., 2012). It is a relative term and is therefore not directly measurable (Mickwitz et al., 2009). This study concentrates on both policy integration and policy coordination, which will be further explained and discussed in section 2.2.

2.1.3. Approaches to analyse and compare policies

As mentioned in the introduction chapter (1.5), the aim of this study is to analyse current policies regarding CE, CA and ET within the Southwest Delta. To analyse and compare different policy arrangements, it is necessary to map the policy arrangements and its including organisations, actors, institutional rules and other aspects that lead to policy making and implementation within that

certain arrangement or area (Shannon & Schmidt, 2002). Other terms for a policy arrangement are found in the literature as well; examples are “policy (sub)systems” and “policy architecture” (Sabatier, 1988). As a consequence, different approaches have been realised that all aim to a certain extent to focus on a specific area of public policy and map the different characteristics or factors involved, and their relationships (Shannon & Schmidt, 2002; Wiering & Arts, 2006).

For the purpose of this study, a framework is needed that outlines as much as possible factors and mechanisms of the policy arrangements of CE, CA and ET, because barriers and conditions still need to be discovered. In order to seek for as much as possible barriers and conditions, I need a framework that gives the most comprehensive view of a policy arrangement. That is to say, it should include aspects of the four crossing dualities in social sciences, which are: agency/actors versus structure, and discourse versus organisation (see Figure 2). The first duality is addressed by Giddens (1984) as a reaction on the attention on agency, and thereby underestimating structure-based aspects. Actors/agency and structure are intertwined, since interaction between them results in stability as well as change (Wiering, Liefferink & Crabbé, 2018). The so-called substance-organisation duality, which is the second duality, is renowned within social sciences too. The duality is about two opposing approaches: idealistic versus materialistic. The former describing social change by looking at the social construction of problems. The latter explaining social changes due to materialistic conditions and variables (Leroy & Arts, 2006). By incorporating these crossing dualities, the study is able to give a comprehensive view of the policy arrangements.

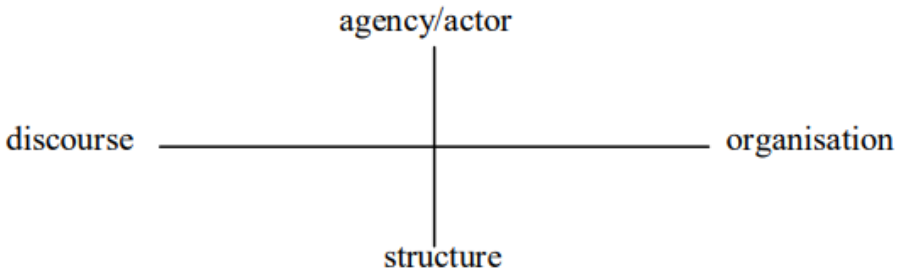

Figure 2: Crossing dualities in social sciences. Source: adapted from Leroy & Arts, 2006, p. 8

Within the literature various frameworks can be found which could fulfil this aim. Examples of such frameworks are the Advocacy Coalitions Framework (1) (Sabatier & Weible, 2007), the discourse analysis (2) (Hajer, 1995), Multiple Streams Framework (3) (Kingdon & Thurber, 1984; Zahariadis, 2007) and the Policy Arrangement Approach (4) (Van Tatenhove et al., 2013; Leroy & Arts, 2006), which will be discussed below.

To start, the Advocacy Coalitions Framework (ACF) is mostly used in situations where policies are depending on contested ideas and conflicts within organisations (Shannon & Schmidt, 2002). Sabatier (1988), who introduced this approach, framed ideas of the advocacy-coalition theory in order to understand policy changes. Advocacy-coalitions are based on causal beliefs and normative commitments of actors, leading to certain policy strategies, which enhance policy objectives (Pressman & Wildavsky, 1973). This theoretical approach is thus agency-based by focussing mainly on actors and their belief systems, and is therefore to a lesser extent concentrated on the structure-based aspects. The Advocacy Coalitions Framework will be left out in this study, since it does not incorporate both agency-based and structure-based aspects.

Secondly, the discourse analysis is a theoretical approach to analyse policies too. The discourse analysis is often used to analyse the social construction of environmental problems by including the institutional context. Instead of an instrumental orientation, rather it is used to describe the alliances of actors coming together around a certain storyline (Hajer, 1995). By means of this heuristic approach researchers try to make sense of how these storylines, ideas and concepts give intention to

policy practices. How policy actors define, see, interpret and attempt to solve (climate) policy problems is also analysed through this approach (Wiering & Arts, 2006). As this theoretical approach also analyses the discursive aspects of a policy arrangements, it falls short in including organisational aspects. Therefore, the discourse analysis does not have a primary role within this study.

Thirdly, the Multiple Streams Framework (MSF), developed by Kingdon & Thurber (1984) describes that policy changes occur after three streams connect at the same time: problems, politics and policies. This causes a 'window of opportunity' in which policy change happens, because new policies get new solutions or attention for their problems. Policy entrepreneurs are therefore important as they make use of these policy windows by connecting problems to solutions and gaining political support. Examples of such policy windows are shock events, like floods. It is an approach used to understand policy making and political agenda setting (Kingdon & Thurber, 1984; Zahariadis, 2007; Wiering et al., 2018). This framework will not be used within this study, because it strongly highlights the role of agency and to a lesser extent the role of structures. Therefore, it is not sufficiently comprehensive.

The last theoretical approach discussed within this literature review, is the Policy Arrangement Approach (PAA). In comparison to the other three discussed frameworks, this one is able to analyse aspects of both the dualities. It takes aspects of agency, structure, substance and organisations into consideration, therefore PAA will be used during this study. The approach is explained in detail in section 2.3.

2.2. Theory I: Policy integration and coordination

This study concentrates on the theory policy integration. As mentioned earlier, literature studies mark there exists no clear definition of policy integration; often similar concepts are used to describe integrated policy-making (Meijers et al., 2004). However, Bauer & Rametsteiner (2006) distinguish three *degrees of integration*, which are clearly illustrated in Figure 3 below. These degrees of integration can be connected to, the earlier described, similar concepts of policy integration (2.1.2). One of these degrees is chosen to further proceed with during this study.

The first degree of policy integration (1) is also called 'policy coordination', which describes policy integration as the process and output of coordination of different policy arrangements . It is "*an activity that links policy actors, organizations, and networks across sector boundaries*" (Shannon & Schmidt, 2002, p. 17). Coordination aims, at least, to reduce conflicts between policy arrangements (Meijers & Stead, 2004).

The second degree of policy integration (2) describes policy integration as the incorporation of the concerns of one policy area into another policy area (Briassoulis, 2004; Kivimaa & Mickwitz, 2006). This degree focuses more on the output of integrating policies rather than the input and process of integration (Briassoulis, 2004). This degree of integration is often associated with external policy integration, and similar to the process of mainstreaming (Nunan et al., 2012).

The last degree of policy integration (3) focuses on the development of joint new policy (Bauer & Rametsteiner, 2006), which can take place on a horizontal manner (on one governmental level between different sectors) or on a vertical manner (between different levels of governance) (Mickwitz et al., 2009; Zürn & Faude, 2010). As a consequence, policy integration demands more resources, and more interaction between actors than policy coordination (Meijers & Stead, 2004). According to Eggenberger & Partidario (2000) this degree of policy integration is about creating a new entity in which new relationships are established.

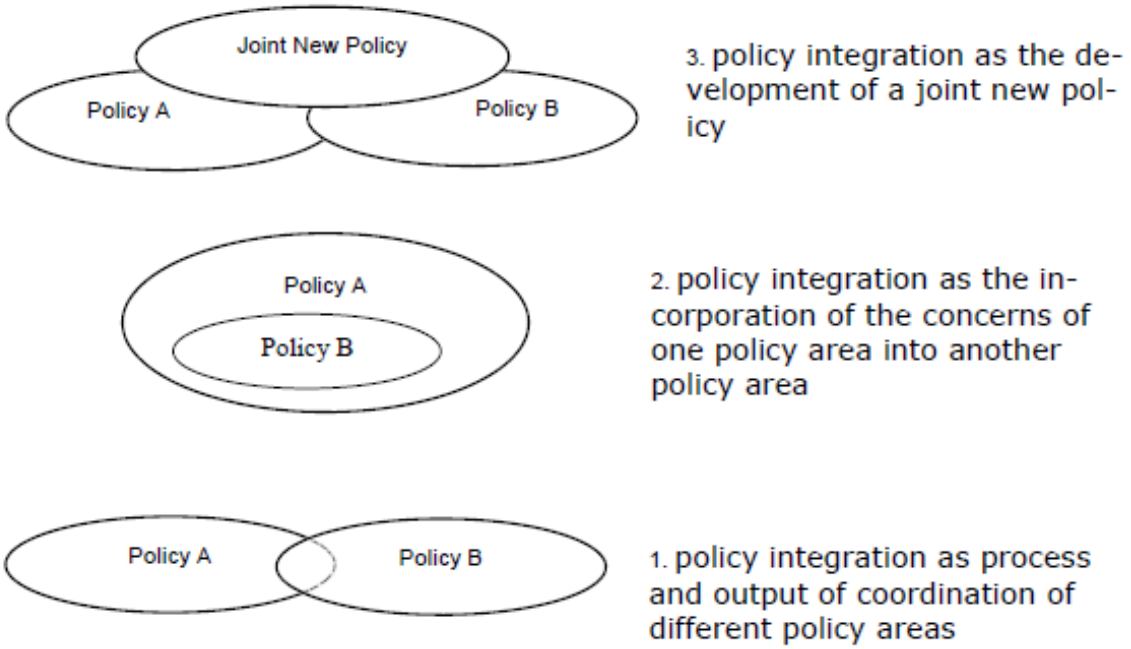

Figure 3: Three understandings of policy integration. Source: adapted from Bauer & Rametsteiner, 2006, p. 34

The best case scenario is to achieve a level of policy integration in which *all* policies that affect one another would be designed in a way that they produce synergies and reduce conflicts. Although this is the aim of the research, the first step is to think about how to *coordinate* policy arrangements (Meijers & Stead, 2004; Peters, 2018). Since it is assumed that no form of policy integration is yet realised within the organisation of the Southwest Delta covering the three policy arrangements, this study concentrates on the first degree of policy integration. Still, this assumption is further examined throughout the research. Regarding the three understandings of policy integration illustrated in Figure 3, this study is thus limited to the lowest degree of integration: coordination (1).

There is a distinction made between *negative coordination* and *positive coordination* of which the former refers to considering decisions made in one program or organisation to those made in others and attempting to avoid any conflict (Peters, 2018). The latter form of coordination goes beyond simply avoiding conflicts and also seeks to find ways in which solutions are found that benefit all organisations involved. Yet another level of coordination is *strategic coordination*, which refers to the coordination of programs around wide-ranging strategic goals of government (Peters, 2018).

This research will seek for a mix of positive and strategic coordination. Besides seeking barriers interfering with the realisation of a coordinated approach between policy arrangements, this study will also seek for ways to connect aspects of policy arrangements. Next to that, the main purpose of the study is to give advice for coordination between CE, CA and ET within the PSSD, which is therefore the primary policy programme that is incorporated. Also other policy programmes are examined through which strategic coordination is meant to be accomplished. National policy programmes are included as well, to understand the context in which the Southwest Delta organisation operates.

The conceptual model that arises from policy coordination looks somehow different than the one illustrated in the previous figure, since it incorporates three different policy arrangements instead of two policy arrangements. The conceptual model used in this study is illustrated below in Figure 4. Each of the three policy arrangements overlap in which the process and output are coordinated.

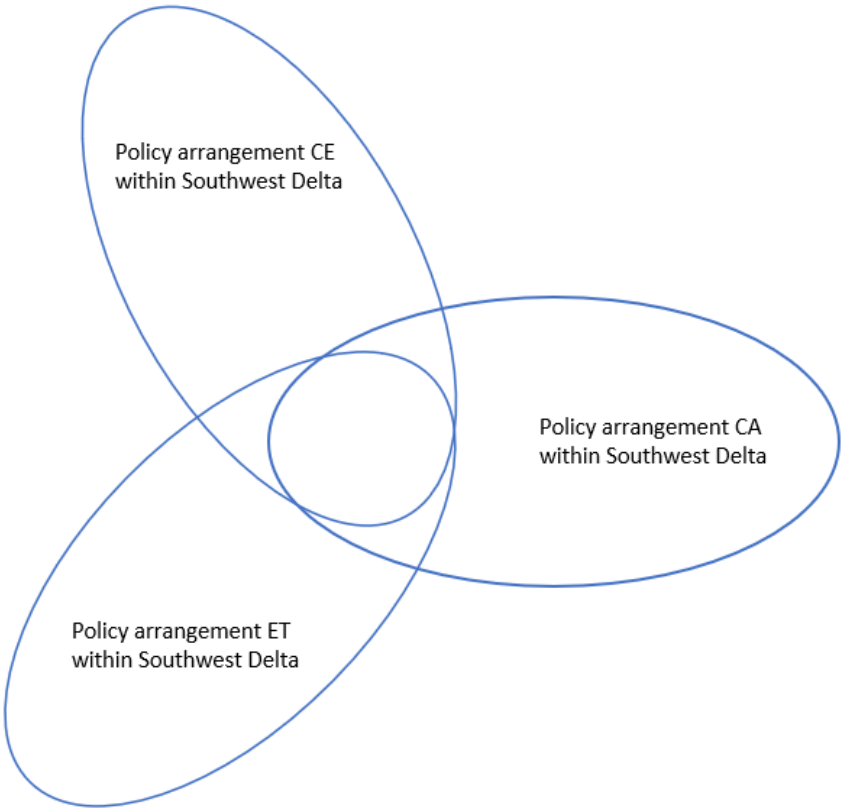

Figure 4: Policy coordination in the context of the Southwest Delta (created by author)

2.3. Theory II: Policy Arrangement Approach

As mentioned earlier in section 2.1.3, there are different approaches to map, analyse and compare policy arrangements. In this study the Policy Arrangement Approach is chosen to use for the reasons explained in that section. This subsection will further proceed on the content of PAA to link this approach to policy coordination, resulting in a conceptual model.

Policy arrangements refer to an institutional concept that aims to analyse institutional patterns of change and stability (Leroy & Arts, 2006). The often cited definition of a policy arrangement of Van Tatenhove et al. (2013, p. 54) will also be used in this study: "*the temporary stabilization of the content and organization of a particular policy domain*". To describe and characterise the arrangements, four dimensions are distinguished: actors, resources/power, rules of the game and discourses. The approach analyses the *policy actors* involved and their *coalitions* as well as *oppositions*. Between these actors there is a division of *resources*, leading to differences in *power* and *influence*. *Rules of the game* refers to informal rules and 'habits' of interactions and formal rules/procedures. The policy *discourses* refer to norms and values, the definitions of problems and to the approaches to solutions of the actors involved (Leroy & Arts, 2006).

Liefferink (2006) stresses that the four dimensions are undoubtedly related, because a dimension rarely stands alone and is influenced by one or more other dimensions. He states that an analysis by this approach only makes sense if the interconnectedness is taken into consideration. This makes it possible to describe the way a dimension has affected another dimension. Since it is important to seize the *dynamics* within a policy arrangement, I also assume in this study that the dimensions relate to each other. The connections between the dimensions in a policy arrangement are shown in Figure 5 below, which is called the *tetrahedron*. Liefferink (2006) also states that the tetrahedron makes it possible to start from one of the four dimensions, depending on the aim of the study.

However, this study aims to find possible barriers and conditions, and therefore has no aim to start from one of the four dimensions, because all dimensions have the same level of importance. It will therefore start with the dimension that turns out to be the most convenient one to begin with after the findings are analysed.

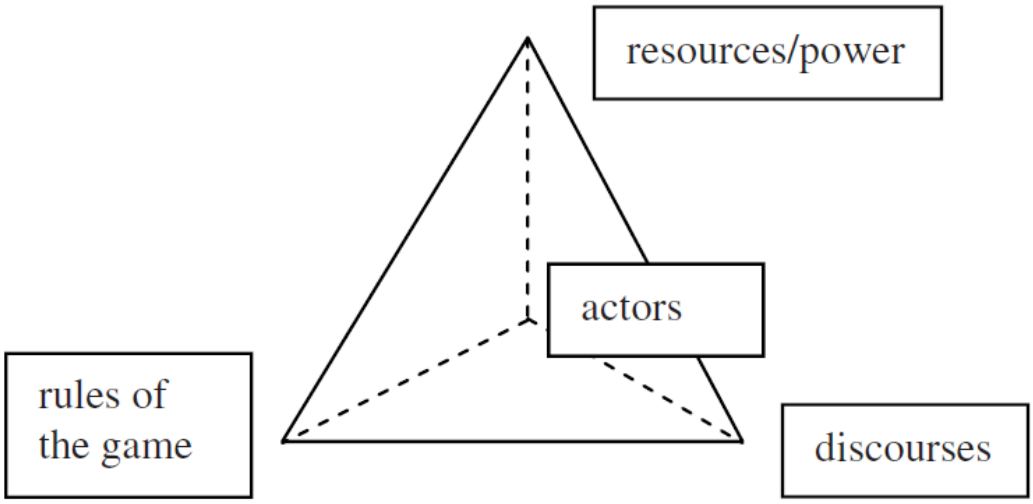

Figure 5: The tetrahedron: illustrating the interconnectedness of the four dimensions within a policy arrangement. Source: adapted from Liefferink, 2006, p. 48

2.4. Conceptual framework

The above described theory section serves as a starting point for this research. The conceptual framework illustrated below (Figure 6) takes the theories into account and presents a *new* conceptual framework that will be used. The policy arrangements of CE, CA and ET are illustrated in the circles. Also, the dimensions of PAA are shown in the circles, which will be used to analyse and compare the arrangements. As can be noticed, the circles overlap with each other. Within this overlap I will seek for barriers and conditions by comparing *all* the analysed policy arrangements and their dimensions.

Three features are crucial within policy coordination: harmonisation of decisions (1), elimination of redundancies, gaps and incoherence (2) and reduction of adverse effects (3) (Bauer & Rametsteiner, 2006). According to the last two features, it is important to identify factors that might limit coordination between CE, CA and ET, and thereby create adverse effects. This is referred to as *barriers* within this study. For the harmonisation of decisions, it is critical to enable *conditions*. In this study, conditions are referred to as ways, or requirements, that enable coordination between CE, CA and ET. Possible barriers and conditions between only two policy arrangements will be consciously left out, since this exceeds the scope of this research. However, in practice it might happen that sometimes two policy arrangements are still compared to each other. Subsequently, the coloured (light blue) overlap part, illustrated in Figure 6, will be analysed by seeking for barriers and conditions.

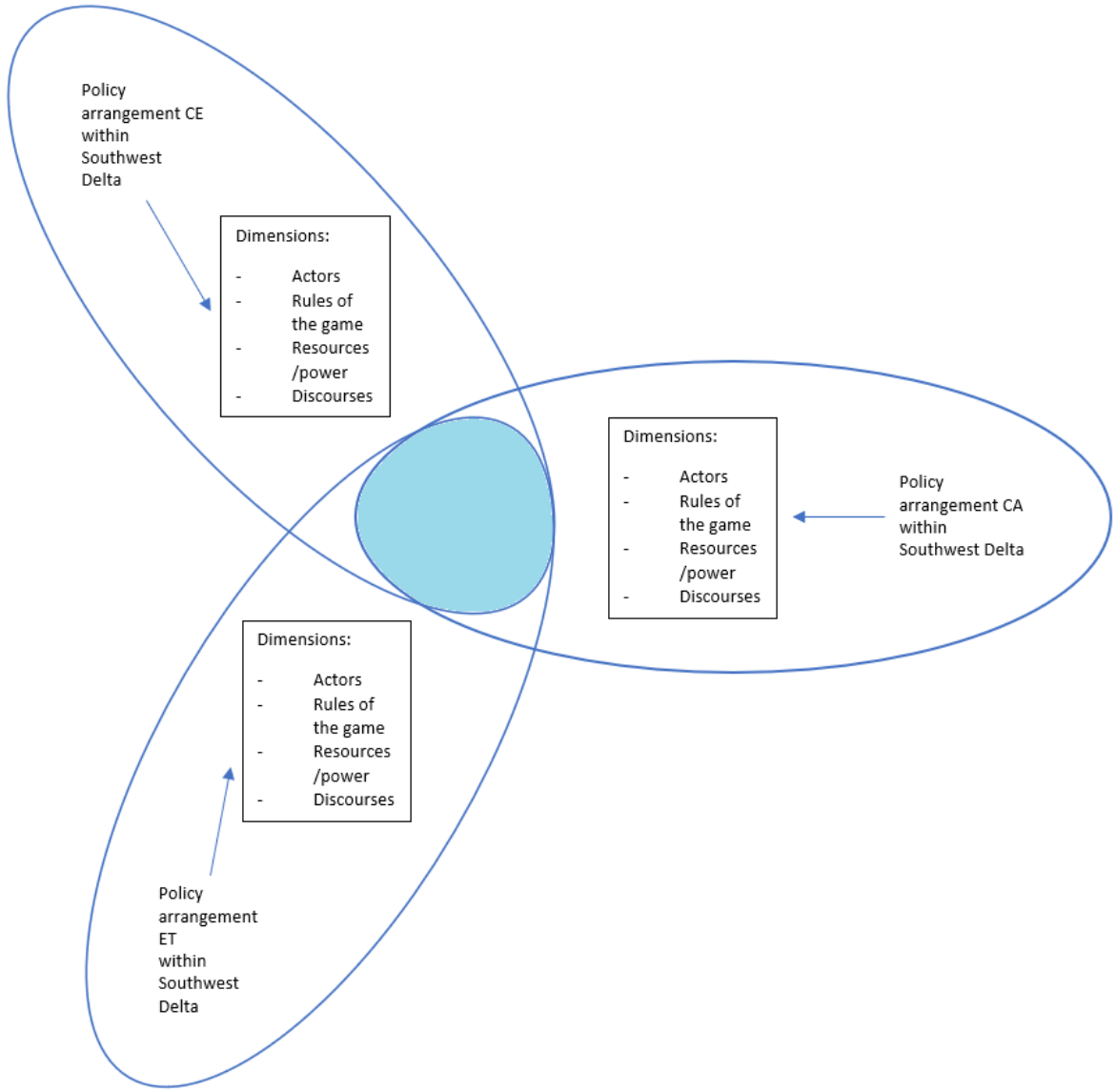

Figure 6: The first part of the conceptual framework (created by author)

Figure 7 illustrates the complete conceptual framework, in which the previous model is extended with boxes called 'barriers for policy coordination between CE, CA and ET within the Southwest Delta', 'conditions for policy coordination between CE, CA and ET within the Southwest Delta' and 'policy recommendation for policy coordination between CE, CA and ET within the Southwest Delta'. From the light blue coloured part, lines are drawn towards these boxes. By comparing the three policy arrangements, the barriers and conditions can be identified. Thereafter, policy recommendations can be generated in order to enable the conditions and reduce the barriers. As a side note, in Figure 7 the 'circles' regarding the policy arrangements are not 'complete' and zoomed out, but they should be regarded as the ones illustrated in Figure 6.

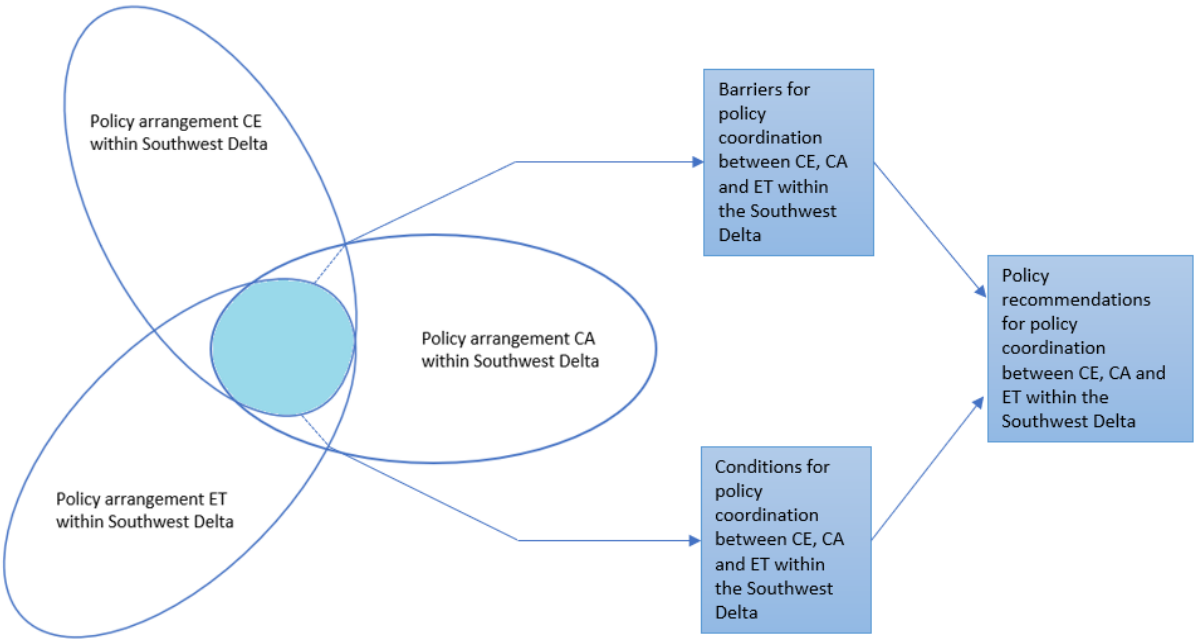

Figure 7: Conceptual framework (created by author)

2.5. Operationalisation

To apply the concepts presented in the previous model, it is useful to operationalise them into concrete indicators, which is an important process of this research (Bryman, 2015). This subsection operationalises the concepts by presenting an analytical framework with indicators (see Table 1). This analytical framework is created on the basis of a deductive approach (see 3.2.2 for more information). The indicators fit within the dimensions of the PAA; actors, resources/power, rules of the game and discourses. The operationalisation is based on the article of Wiering & Arts (2006) and completed with additional indicators of which are believed to be important to use during this research as well. The article of Wiering & Arts (2006) is used because the indicators, again, give the ability to analyse the comprehensiveness of aspects within a policy arrangement. Thereby the indicators connect to the two dualities presented in Figure 2.

Furthermore, insights from policy coordination and integration literature studies are applied to operationalise the dimensions of the PAA. These indicators can easily be linked to the dimensions of PAA. This means a combination of regular indicators of PAA, and indicators connected to policy coordination and integration literature studies, is made for the analytical framework. In this way, the current situation of the policy arrangements can be analysed by the regular indicators. Afterwards, the current state of coordination within the Southwest Delta will be examined by comparing the policy arrangements, based on conditions for general policy coordination and integration. Thereafter the conditions for general policy coordination and integration are used to identify barriers and conditions for coordination, specifically, between CE, CA and ET within the Southwest Delta.

2.5.1. Actors

Firstly, some indicators for *actors* are presented. To start with, the question who is involved is important to answer, because from there on power relations and the institutional context can be analysed (Liefferink, 2006; Wiering & Arts, 2006). Therefore, the first indicator is *actor constellation in policy arrangement*, which relates to the set of (key) policy actors in a given policy arrangement (in this case: circular economy, climate adaptation and energy transition) (Wiering & Arts, 2006). The second indicator for actors is *interaction patterns between policy actors*, since analysing the way the involved actors interact with each other is essential too. For instance, by noticing more co-operation or on the opposite, more conflict (Leroy & Arts, 2006; Wiering & Arts, 2006). In coordinated policy-

making, co-operation and more interaction between actors are crucial parts of the process (Stead & Meijers, 2004). It is therefore useful to analyse the co-operation in a policy arrangement, since existence of co-operation within their policy arrangement could possibly mean that actors are open to further co-operate with other policy arrangements as well. The third indicator is *coalitions and oppositions in policy arrangement*, because the involved actors in a policy arrangement might be part of certain coalitions. Besides, the oppositions of the coalitions are also included in the measurement of this indicator (Leroy & Arts, 2006; Wiering & Arts, 2006).

In the actor dimension a fourth indicator is included, which is *leadership roles of involved actors*. Meijerink & Stiller (2013) stress the role of leadership as an important part of the agency/actor dimension. According to Lenschow (2006) (hierarchical) policy coordination depends on leadership from a central government as well as the enforcement of its power and capacities. Also Persson (2004) identifies political leadership as important for successful policy coordination. Leadership can take on different roles in policy changes. For example, policy entrepreneurs have had important roles in the water sector, because they have advocated policy change and tried to get specific policy solutions adopted. Besides, policy entrepreneurs are able to resolve collective coordination problems (Meijerink & Stiller, 2013). Therefore, it is necessary to identify the role of leadership of the involved actors in a policy arrangement, because if policy entrepreneurs (or other leadership roles) are identified, they might be important in the future to enable policy coordination of CE, CA and ET in the Southwest Delta region.

2.5.2. Resources/power

In the *resources/power* dimension, Wiering & Arts (2006) use the indicator 'resource constellation' to refer to the assets of policy actors to have or use to mobilize through which they can exercise power, which are knowledge, authority, technology and money. Resources are important to analyse, since the involvement of more resources is one of the requirements of policy coordination (Meijers & Stead, 2004). In this study these last four factors are separately analysed, because different literature studies suggest various interpretations of these factors and therefore it is necessary to discuss them individually.

To start with, literature studies stress the importance of analysing knowledge within the resources dimension of a policy arrangement. The use of knowledge and science is a crucial input for policy integration (Hertin & Berkhout, 2003; Persson, 2004; Mickwitz et al., 2009; Persson & Runhaar, 2018). The management of knowledge is thereby essential too (Nilsson et al., 2012) as well as knowledge about policy outcomes (Nilsson & Persson, 2003). The first indicator is therefore *knowledge capacity in policy arrangement*. Knowledge capacity is linked to the know-how and cognition of involved people. It is closely related to the time personnel can spend on policy integration, and the resources they possess (Hertin & Berkhout, 2003; Mickwitz et al., 2009; Russel, Den Uyl, & De Vito, 2018). Therefore, *personal capacity in policy arrangement* is the second indicator, which relates to the capacity that each policy arrangement possesses to hire personnel. Related to knowledge and personal capacity, it is also interesting to analyse the capabilities within policy arrangements to develop new kinds of knowledge. According to Lenschow (2006) coordination in networks is characterised by learning and persuasion. Volkery et al. (2006) also state the importance of learning for the occurrence of policy changes. Therefore, the capabilities and willingness to learn more and thereby acquire more knowledge, are analysed during the research. Thus, the third indicator is *knowledge development capabilities and willingness in policy arrangements*.

The fourth indicator is *financial capacity in policy arrangement*. In this study the budget in each policy arrangement will be analysed. Not in exact amounts but either in terms of shortcomings of budget or having enough budget to achieve the aims that have been established. Thereby conclusions can be drawn about the financial differences between the policy arrangements. The fifth indicator is *technological capacity within policy arrangement* which refers to the capacity within a

policy arrangement to experiment with new technological innovations (Hertin & Berkhout, 2003). The higher the possibility to make use of new technologies, the more resources a policy arrangement contains. *Authoritative capacity in a policy arrangement* refers to actors that can take leadership roles during policy processes. A lack of authoritative capacity might lead to uncoordinated policy processes (Persson, 2004), which can block the possibility for coordination between the policy arrangements within the PSSD.

The seventh indicator, also used in the framework of Wiering & Arts (2006) is *political and decision-making power of policy actors*. Policy coordination needs a high-level of political commitment, which includes clear and strong leadership in order to be successful. The lack of political will is often recognised as a prime barrier for policy coordination (Persson, 2004; Peters, 2005). Within political and decision-making power, a key condition is relative autonomy of an actor in a certain position. However, to attain policy coordination stakeholders should have the ability to give up more autonomy (Meijers & Stead, 2004). Therefore, an important aspect of power to analyse is the *level of autonomy of policy actors* and is thereby the next indicator. The last indicator is the *distribution of responsibilities in policy arrangements*, since this gives a good impression of the power of each policy actor to affect policy-making processes by using certain resources like financing and knowledge (Immink, 2005). According to Verhoest et al. (2005) shared responsibilities between policy actors is an essential condition of coordination between policy arrangements.

2.5.3. Rules of the game

The next dimension *rules of the game* consist of three indicators. The dimension refers to institutional arrangements, which can be both informal and formal. In this study, institutional arrangements are interpreted as (in)formal coalitions and regimes for collective action and inter-agent coordination, which might be the overall policy arrangement, a public-private co-operation or organisational networking (Klijn & Teisman, 2000; Geels, 2004). One of the three indicators has a 'discursive' focus and the others put emphasis on the 'organisational' aspect. The indicators are 'legislation', 'procedures' and 'political culture'.

Legislation in policy arrangement refer to the change of policy discourses into binding laws, and is therefore the discursive indicator (Wiering & Arts, 2006). *Procedures in policy arrangement* is the second indicator and is organisational of nature. Analysing procedures helps to understand how changes in a policy arrangement might lead to different procedures and thus different rules of the game. For instance, shifts in participation of new policy actors in decision-making processes. (Wiering & Arts, 2006). Likewise, common procedures are a key feature of policy coordination (Briassoulis, 2004). To achieve policy coordination more formal institutional arrangements are needed, which means procedures, guidelines and best practice documents might be helpful (Meijers & Stead, 2004; Stead & Meijers, 2004; Nilsson et al., 2012).

Procedures are used to analyse the formal part of rules of the game. The third indicator *political culture in policy arrangement*, is used to describe the informal rules and 'routines' of interaction which are dominant within a policy arrangement (Leroy & Arts, 2006; Wiering & Arts, 2006). An example might be the Dutch 'polder model' as a political negotiation culture (Wiering & Immink, 2006). The organisational culture with its informal rules in the CE policy arrangement might for instance differ from the ET policy arrangement. Besides possible differences between policy arrangements, the political culture within the Southwest Delta might differ from the national culture which might make it hard to include national objectives regarding the CE, CA and ET into the PSSD. However, it should be mentioned that these possible differences in informal rules are not easy to change in the future (Wiering & Arts, 2006).

2.5.4. Discourses

An important indicator of policy coordination is the ensuring of consistency and coherence between certain objectives and elements of a single project or policy (Challis et al., 1988; Meijers & Stead, 2004). Therefore, shared objectives are regarded as a main condition for policy integration and coordination (Nilsson et al., 2012). A distinction can be made between strategic targets and informal goals (Mulders, 1999). In imitation of other empirical studies of the PAA, *objectives in policy arrangement* is set as the first indicator within the *discourses* dimension.

The next indicator is *problem definitions in policy arrangement*. According to Meijers & Stead (2004) a facilitator of organisational coordination is to have common definitions, ideologies, interests or approaches. Therefore, it is interesting to analyse how policy actors define problems and what they think is happening. In this case, the 'world views' of the policy actors is studied (Leroy & Arts, 2006; Wiering & Arts, 2006). This creates certain normative expressions, regarding the norms and values at stake. Policy actors might express their world view within a policy arrangement, which lead to certain 'belief systems' (Sabatier & Jenkins-Smith, 1993). This indicator is about the ideologies, principles, paradigms, concepts of actors within a policy arrangement (Meijers & Stead, 2004; Leroy & Arts, 2006; Wiering & Arts, 2006). Eventually this should lead to shared ideas and concepts, in which mutual trust, interdependence and interest is acknowledged (Verhoest et al., 2005), which create mutual benefits (Collier, 1994). According to Lenschow (2002) the acceptance of ideas (e.g. about sustainable development) and the spread of policy ideas are factors causing successful policy coordination. Altogether, the indicator is defined as *belief systems in policy arrangement*.

Besides the definitions to problems that policy actors have, it is essential to analyse the 'road' towards solutions as well. Therefore, *approach to problem in policy arrangement* is the last indicator of this dimension. Within this last indicator, certain policy programmes will be analysed, as this is a clear way of determining the approaches that are set by policy actors to deal with problems. Also, Wiering & Arts (2006) use policy programmes as an indicator in their analytical framework. To finally achieve win-win situations between policy arrangements, a facilitator might be to have a group-centred approach to problems (Meijers & Stead, 2004). Besides, common instruments (like green budgeting, National Development Strategies or strategic environmental assessment) between policy arrangements is a key condition of achieving policy coordination (Briassoulis, 2004). The PAA will draw conclusions about whether this will be likely in the future.

2.5.5. Analytical framework

In this section the above identified indicators are presented in Table 1 below. The table includes the concept, its aspects, its dimensions and its indicators. The references of the indicators are also added in the table.

Table 1: Analytical framework

Concepts	Aspects	Dimensions	Indicators	References
Policy arrange-ment and policy coordina-tion	Organisation	Actors	Actor constellation in policy arrangement	Liefferink, 2006; Wiering & Arts, 2006
			Interaction patterns between policy actors	Stead & Meijers, 2004; Leroy & Arts, 2006; Wiering & Arts, 2006
			Coalitions and oppositions in policy arrangement	Leroy & Arts, 2006; Wiering & Arts, 2006
			Leadership roles for involved actors	Lenschow, 2006; Meijerink & Stiller, 2013
		Resources/ power	Knowledge capacity in policy arrangement	Hertin & Berkhout, 2003; Nilsson & Persson, 2003; Persson, 2004; Mickwitz et al., 2009; Nilsson et al., 2012; Persson & Runhaar, 2018
			Personal capacity in policy arrangement	Mickwitz et al., 2009
			Knowledge development capabilities and willingness in policy arrangement	Meijers & Stead, 2004; Lenschow, 2006; Wiering & Arts, 2006; Volkery et al., 2006; Janssen, Van Tatenhove, Otter, & Mol, 2015
			Financial capacity in policy arrangement	Meijers & Stead, 2004; Wiering & Arts, 2006
			Technological capacity in policy arrangement	Hertin & Berkhout, 2003; Wiering & Arts, 2006
			Authoritative capacity in policy arrangement	Persson, 2004; Wiering & Arts, 2006
			Political and decision-making power of policy actors	Persson. 2004; Wiering & Arts, 2006
			Level of autonomy of policy actors	Meijers & Stead, 2004
			Distribution of responsibilities in policy arrangement	Immink, 2005; Verhoest et al., 2005
		Rules of the game	Legislation in policy arrangement	Wiering & Arts, 2006
			Procedures in policy arrangement	Briassoulis, 2004; Meijers & Stead, 2004; Stead & Meijers, 2004; Wiering & Arts, 2006; Nilsson et al, 2012
	Substance		Political culture in policy arrangement	Leroy & Arts, 2006; Wiering & Arts, 2006; Wiering & Immink, 2006
		Discourses	Objectives in policy arrangement	Challis et al., 1988; Mulders, 1999; Meijers & Stead, 2004; Nilsson et al., 2012
			Problem definitions in policy arrangement	Meijers & Stead, 2004; Leroy & Arts, 2006; Wiering & Arts, 2006
			Belief systems in policy arrangement	Collier, 1994; Lenschow, 2002; Verhoest et al., 2005; Leroy & Arts, 2006; Sabatier & Jenkins-Smith, 1993; Wiering & Arts, 2006
			Approach to problem in policy arrangement	Briassoulis, 2004; Meijers & Stead 2004; Leroy & Arts, 2006; Wiering & Arts, 2006

3. Methodology

In this chapter, the methodological choices are explained, concerning the research philosophy and strategy, research methods (data collection and analysis), research steps, case study, and the validity, reliability and ethics of the research.

3.1. Research philosophy and strategy

A *research philosophy paradigm* is a set of basic principles based on ontological, epistemological and methodological assumptions (Guba & Lincoln, 1994). Guba & Lincoln (1994) distinguish between four paradigms: positivism, post positivism, Critical Theory and constructivism. The philosophy underpinning this research is constructionist; based on the constructivism philosophy paradigm.

Concerning the *ontology* of constructivism, the researcher takes a relativist view by constructing local and specific realities that are socially and experientially based (Guba & Lincoln, 1994). During this research, this point of view is adopted as well, by which realities are dependent on the respondents interviewed during data collection. Dependent on persons, constructions are not per se ''true or untrue", but rather more or less well thought, and thereby changeable (Guba & Lincoln, 1994; Bryman, 2015). The *epistemology* of constructivism assumes the researcher and respondents are interactively linked with each other, thereby creating knowledge, and thus the findings of this study. This is called transactional and subjectivist (Guba & Lincoln, 1994). During this research, the importance of the conversation and contact between researcher and respondent were emphasized instead of trying to get as much as possible information from the respondent in an objective way.

The *methodology* of constructivism therefore can only be constructed by these interactions between the researcher and respondents. Within this research, results are produced by seeking for consensus, input and reconstruction. Within this approach, a researcher takes the role as a facilitator of reconstruction, which is done by taking interviews and organising a focus group in this case (Guba & Lincoln, 1994). During these interviews, the focus is on change or the potential for action in which the personal experience of the researcher is emphasized. The process of interviewing and focus groups is regarded as a collaboration between the researcher and its respondents; sharing information and reflection (Douglass & Moustakas, 1985; Legard, Keegan & Ward, 2003).

Besides the research philosophy, the *research strategy* is also of importance. Bryman (2015) describes five types of strategies; cross-sectoral design, experimental design, comparative design, case study design and longitudinal design. This study applies a *case study design*. Advantages of this strategy are the possibility to extensively analyse the setting of a certain case; the examination of data within the real-life situation, which helps to describe the complexities of the case; and the ability to use different ways of data analysing, because of the variations in approaches (Zainal, 2007; Bryman, 2015). On the contrary, disadvantages are the often mentioned accusation of a lack of exactness of the case study; the difficulty of conducting the amount of documentation because of the extensiveness of a case study; and the arduousness of generalising the results (Zainal, 2007).

By considering these disadvantages, still this strategy is chosen for this study. Namely, in comparison to the other strategies, this strategy best fits the purpose of the study. In a case study design the emphasis is likely to be on a thorough examination of the setting of one case, which may be a community, person, family or organisation. This study concentrates on the organisation Southwest Delta as well as an embedded case, which is an area within the Southwest Delta (see 3.4 for detailed information about the (embedded) case study). Case study design is typified by an idiographic approach in which the unique characteristics of the Southwest Delta are declared. Within this type of case study often qualitative methods are favoured, because this is helpful in generating detailed information about the case (Stake, 1995; Bryman, 2015).

Also, in this study *qualitative research methods* are applied. Qualitative research methods emphasize words rather than data. Within this type of research methods, the researcher makes knowledge

claims based on personally gathered information and visits in which the context or setting of the respondents is attempted to be understood. Based on a constructivist perspective, the researcher uses open-ended questions to learn about the experiences, history and views of respondents, and how these are influenced by social and material conditions. Consequently, the researcher interprets these findings by their own experiences and perspectives (Creswell, 2009; Bryman, 2015). A further detailed explanation of how qualitative methods are applied during this research is given in the next paragraph (3.2).

3.2. Research methods

In this subsection the research methods are explained by going into detail about the methods of data collection and data analysis during this research.

3.2.1. Data collection

This study thus uses *qualitative research* methods. These methods are based on *data triangulation*, which refers to the use of multiple methods or data sources in qualitative research to expand a thorough understanding of certain phenomena (Carter et al., 2014). An advantage of data triangulation is the increase of validity and reliability (see 3.5). Besides, data triangulation also increases the fullness of the study by providing qualitatively acquired richness. Lastly, data triangulation enlarges belief in the results to the researcher (Jonsen & Jehn, 2009). In this study a combination of, even four ways of collecting data is applied, which are *document studies*, *observations*, *in-depth interviews* and a *focus group*.

Document studies

Document studies are applied in the research by examining literature studies and policy documents. Literature studies are mainly used for the theoretical framework, and to discuss the results with the literature. Undoubtedly policy documents of the organisation Southwest Delta are used. Besides these policy documents also other documents from governmental bodies (municipalities and provinces) in the region Southwest Delta are wielded. Next to that, regional policy is embedded in national policies, like the Delta Programme or the national Circular Economy Programme, which are examined as well.

Observations

The second approach applied to collect data is the use of *observations*. During the research three observations are executed, which are a meeting of the Regional Consultative Body (1), a meeting of the workforce CE Southwest Delta (2) and a meeting of the national Delta Committee (3). During two of these observations (1 and 3), the role as observer-as-participant is adopted. This role is primarily about observing while the respondents are aware of the identity and purpose of the observer (Saunders, Lewis & Thornhill, 2000). During the other meeting (2) the role as a minimally participating observer is obtained, which means there has been interaction with group members. However, observation was not the primary source of data; interviews and document studies played in this situation a more important role (Bryman, 2015). During all meetings, the groups are observed, and notes are written down. The resulting collected data gave a better understanding of the setting in which these meetings take place and policies regarding CE, CA and ET in relation to water are discussed. Also, the interaction between actors was observed.

In-depth interviews

Thirdly, fifteen *in-depth interviews on location* were held for this research. This is done with four purposes. First of all, two interviews were taken at the beginning of the research to reflect upon the theoretical framework, including the conceptual model and analytical framework. This resulted in a revised research model. Secondly, the interviews were taken to generate findings for the first research question; the mapping of the current policy arrangements of CE, CA and ET. Thirdly, by the

interviews barriers and conditions for policy coordination between CE, CA and ET within the Southwest Delta were examined. From the results a first draft of the policy recommendations is made, which is the fourth purpose. All in all, the interviews were used to answer the first, second and fourth research question.

In comparison to interviews by phone, interviews on location positively affect data collection because the setting in which the interview is taken can be included as well (Bryman, 2015). The interviews were semi-structured, which means that interviews had an informal accent and supported an open response in the respondents own words (Clifford, French & Valentine, 2010). Interviews were taken with key actors working in either the CE policy arrangement, the CA policy arrangement or the ET policy arrangement, all within the water sector. The purpose was to interview a variety of actors to get as much as possible diverse viewpoints. This means interviews were taken with different organisations; among others governments, industry and interest groups. The functions of these respondents include, for instance, civil servants, representatives and program managers. (see *Appendix I: List with interview respondents)* Actors from governmental bodies on a national level were interviewed as well to get a better view on what is currently occurring on a national level, which might have effect on the policy arrangements within the Southwest Delta. The actors were identified in the document studies and strategically selected through purposive and snowball sampling. This means a small group of respondents is first selected after having a conversation with the supervisors. This small group is then used to get in contact with other respondents. Besides, this sample of respondents is chosen because it is relevant to the research questions that are asked (Bryman, 2015). The search for actors was stopped after a variety of interviews were planned that fitted within the period of time and scope of the research.

To prepare the semi-structured interviews, an interview guide has been created to guide the interviews with some questions, which are still open to response (see *Appendix III: Interview guide*). The interview guide is based on the indicators presented in the analytical framework (see 2.5.5). It is quite elaborated, written to guide the researcher during the interviews. However, the questions are not all asked, but rather a conversation is created between researcher and its respondents. A small oversight is sent beforehand to the respondents to give them information. This is done to encourage respondents to talk with colleagues within their organisation in advance, so more information could be given during the interview (of all three policy arrangements) (see *Appendix IV: Topic list interviews*). During the interview a visual supplementary is also presented to guide the respondents in answering questions about the level of involvement of organisations within the three policy arrangements in the Southwest Delta (see Figure 8).

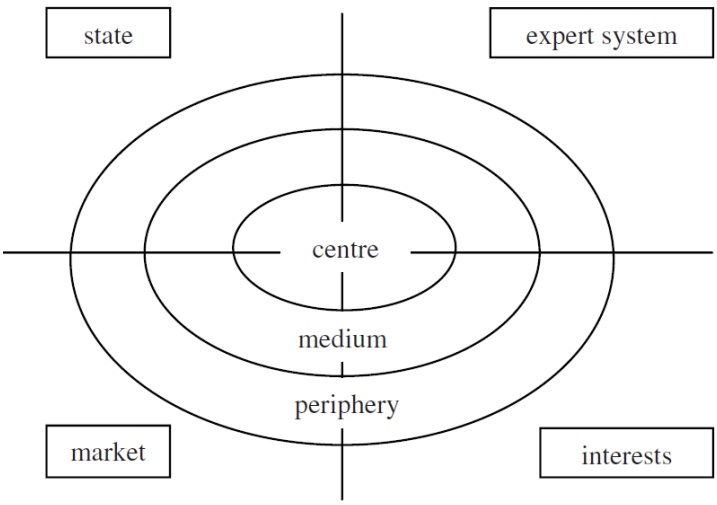

Figure 8: Map of actors and their respective positions in a policy arrangement. Source: adapted from Liefferink, 2004, p. 52 (in Leroy & Arts, 2006)

Focus group

The last data collection method was the use of a *focus group*, focussing on the embedded case study (see 3.4.2 for more information on the case). The organisation of a focus group is done with four purposes. First of all, to generate new ideas in general, which might differ from one-to-one interviews since these mainly probe experience. Besides, the social context in which these ideas are developed and shared can be included as well (Krueger & Casey, 2002; Breen, 2006). Secondly, the focus group is used to test some (barriers and conditions described in the) results to eventually being able to better support them within this thesis. Thirdly, a comparison is made between the main case study (organisation Southwest Delta) with an embedded case study (Programmatic Approach Eastern Scheldt Barrier) within the Southwest Delta. This is done to compare some barriers and conditions found on a more strategic level (main case) with barriers and conditions found on a more programmatic (project) based level (embedded case). The comparison is made to seek for similarities and differences between these two policy levels. The programmatic approach is also included to examine whether some of the identified barriers and conditions are also visible within a subproject of the Southwest Delta. Fourthly, the focus group is organised to test some statements regarding the policy recommendations found during interviews, to better support them in the thesis. To illustrate, after the focus group some recommendations were deleted from this study, because they were not supported by the respondents. Altogether, the focus group was used to answer the third and fourth research questions.

The focus group is taken with seven participants working in two organisations: Sweco and Rijkswaterstaat (see Appendix II: List with focus group respondents). The focus group was held about the Programmatic Approach Eastern Scheldt Barrier (see 3.4.2), which is an approach of Rijkswaterstaat. Four of the participants are working on this approach at Rijkswaterstaat. One participant is working at Rijkswaterstaat, but is involved in the restructuring of the PSSD. This participant is also interviewed, so one focus group participant was already informed about the content of the research. The five participants of Rijkswaterstaat work dispersed over three departments within their organisation. Together with the supervisors, a list of participants is created to get a variety of employees of different departments, but also with different points of view, so the discussion would become more critical during the focus group. The last two participants are working at Sweco. They were involved for two reasons; to participate in the discussion from another point of view and to assist the researcher (time management and taking notes on flip over).

The organisation of the focus group is done on the basis of the findings of the second phase of the research (see 3.3), and in dialogue with the supervisors. During the focus group, participants firstly generated a maximum amount of five conditions and barriers for a coordinated approach of CE, CA and ET within the Programmatic Approach Eastern Scheldt Barrier. These conditions and barriers were written on notes and stuck on pieces of paper. Afterwards, these conditions and barriers were combined and compared with three conditions and barriers found during the first phase of the research (see 3.3). Thereafter, the most important conditions and the barriers with the highest adverse effect were chosen by the respondents prioritising them. The second, and final, phase of the focus groups consisted of a discussion about statements regarding general policy recommendations.

3.2.2. Data analysis

For the analysis of the collected data, a deductive approach is used. A *deductive approach* is the most common way of relating the theory to research. On basis of the theory, data is collected. The findings confirm or reject expectations and revise the theory or not (Bryman, 2015). In this research, the concepts found in literature studies of policy coordination theory and the PAA are incorporated in the theoretical framework. Part of this theoretical framework is the operationalisation of these concepts into ‘measurable’ indicators. Consequently, these indicators are used to analyse the findings. Then the findings are compared with concepts of the theoretical framework to make a discussion, and possibly extend the theory.

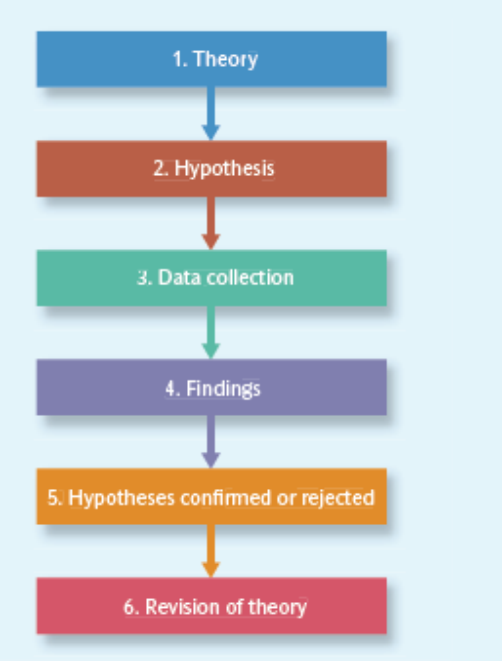

Figure 9: The process of deduction. Source: adapted from Bryman, 2015, p. 24

During the process, the interviews are recorded and transcribed. The software programme ATLAS.ti is used to code the transcripts for data analysis. Within this programme, a code book is created based on the analytical framework. Three categories of coding were created according to the dimensions of the PAA; one for the current analysis, one with barriers and one with conditions. The coding helped in reducing data into manageable and meaningful text parts, which made it easier to use the transcripts in the thesis (Attride-Stirling, 2001). For instance, when certain quotes of respondents were used.

3.3. Research steps

All in all, the strategy and methods can be summarized in Figure 10 below. This subsection further describes the research process and how the methods are used during this process. Three research steps were taken, which are presented in the overview below. Each of these steps concentrated on one research method, including only qualitative methods. Since the study is divided in steps, each end-product of one phase is the beginning of the next phase.

The *first research step* encompassed the literature review, which resulted in an analytical framework for analysis. This literature review includes information and discussion on two theories: policy coordination (and integration) and the Policy Arrangement Approach. Also some desk research on the case study is done within this phase, mostly on policy documents, reports and other available sources online. This desk research is done to adjust the theories to the context of the Southwest Delta. Altogether, this resulted in a theoretical framework, consisting of a conceptual model and an analytical framework.

The *second research step* consisted of conducting expert interviews. These in-depth interviews were taken with various experts filling in different functions within their organisation. The expert interviews were taken with four purposes, described in the previous subsection (see *In-depth interviews*). During this phase, desk research is also examined in order to support the findings with theoretically justified arguments.

The *third research step* consisted of doing one focus group to test parts of the findings (some conditions and barriers, and policy recommendations) in an embedded case study: the Programmatic Approach to the Eastern Scheldt Barrier. The focus group was done with four purposes, which are

described in the previous paragraph (see *Focus group*). Together with additional desk research, all the findings were translated into the result chapter to make a comparison with the 'main' conditions and barriers (4.14.2). Also, the conclusion, discussion and policy recommendations were conducted during this last step of the research.

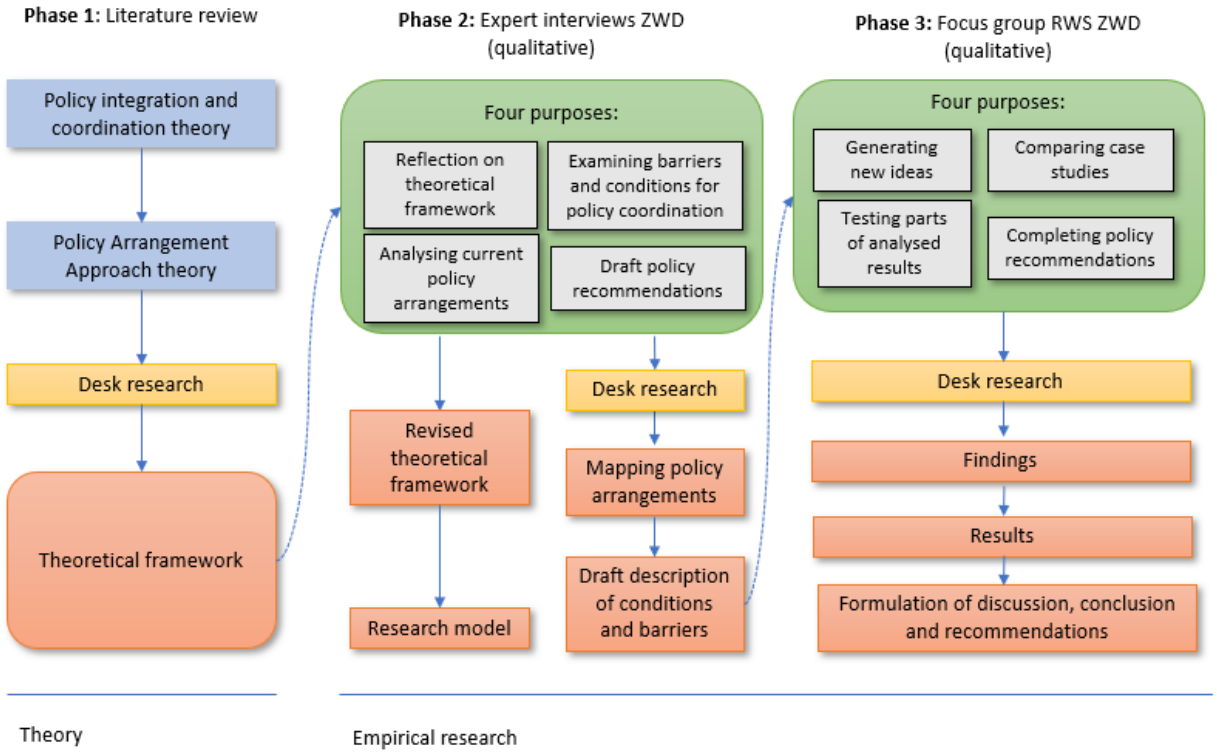

Figure 10: Overview of research steps (created by author)

3.4. Case study

This section dives deeper into the case study as well as the embedded case study. The main case study is the organisation of the Southwest Delta; explained in detail in the first subsection. The embedded case study is the Programmatic Approach to the Eastern Scheldt Barrier, which is described afterwards.

3.4.1. Case study: the organisation of the Southwest Delta

The organisation Southwest Delta is a partnership of governments, interest groups and entrepreneurs operating in the Southwest Delta region of the Netherlands (see Figure 1). They are directly involved through the regional steering group (*Adviesgroep ZWD*) and the Regional Consultative Body (*Gebiedsoverleg ZWD*) (see Figure 11). Also, civil servants are engaged through the liaison consultation. The formal responsibility is granted to the national government, specifically to the Ministry of Infrastructure and Water Management. The Ministry formally sets the vision of the Southwest Delta. The content is generated by the organisational structure of the Regional Consultative Body of the Southwest Delta (Zuidwestelijke Delta, 2018). The Regional Consultative Body is the administrative consultation which is imposed with tasks for the planning and operation of the Delta Programme and the operational programme Southwest Delta. These tasks include: monitoring and stimulating of progress and coherence (1), providing coordination between projects and parties (2), co-operating with 'The Hague' (3) and inspiring (4) (Zuidwestelijke Delta, n.d.-b). The whole organisational structure is showed below.

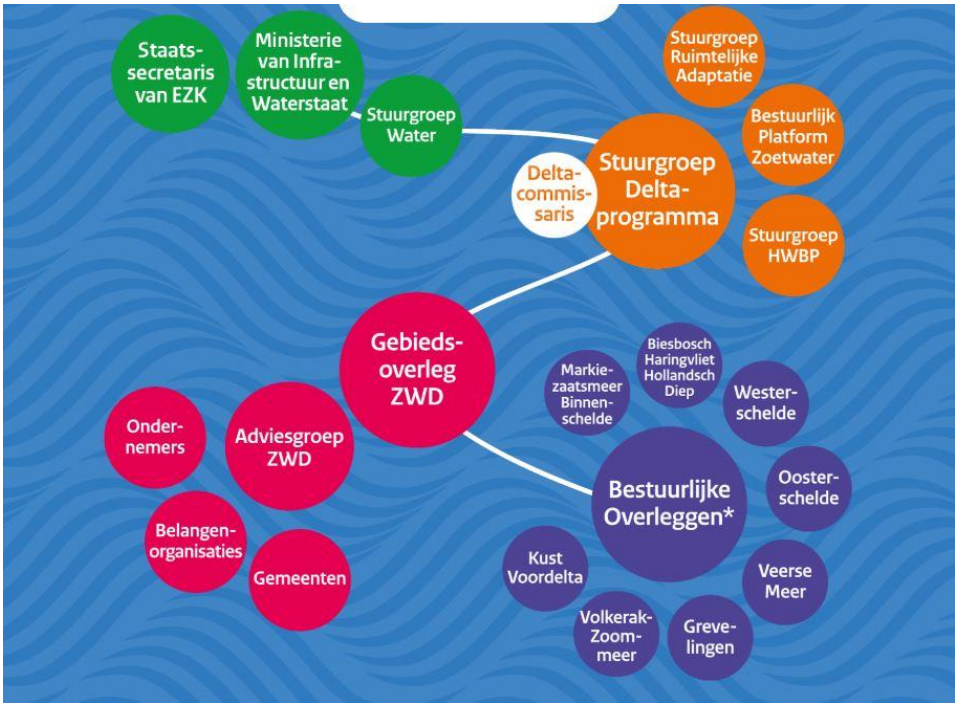

Figure 11: Organisational structure Southwest Delta organisation. Source: adapted from Over Zuidwestelijke Delta from Zuidwestelijke Delta, n.d.-b. (https://www.zwdelta.nl/over-zuidwestelijke-delta). Copyright 2019, Zuidwestelijke Delta.

The strategic objective of the organisation is to create an ecologically resilient, economically vital, climate-proof and safe Southwest Delta. This means (flood) safety is enhanced, economic vitality is stimulated, and enough freshwater is ensured (Zuidwestelijke Delta, n.d.-b). With regard to the Eastern Scheldt and the coast, the aim is "flexible where possible, rigid where needed", which means measures are linked to environmental and other spatial ambitions whenever possible. Furthermore, participation and an integrated approach are thoroughly embedded in the Southwest Delta (MIM & MEZ, 2017). To achieve these strategic goals, various assignments have been set. The most important documents for this study are the PSSD and the Delta Programme. The former document is the regional document of the Delta Programme and aims for an integral approach of CA, CE and ET. Other documents are, for instance, the operational programme Southwest Delta and the draft of the 'area agenda' (*Gebiedsagenda*) (MIM & MEZ, 2017; Zuidwestelijke Delta, n.d.-b).

3.4.2. Embedded case study: Programmatic Approach to the Eastern Scheldt Barrier

After the first and second phase of this study (see 3.3), the Programmatic Approach to the Eastern Scheldt Barrier will serve as a practical illustration in which those three policy arrangements could be coordinated. A programmatic approach is a new form of approaches. In general, it is a method to manage activities that might have a negative effect on the area values or objectives for a physical environment. The approach consists of measures for protection, management, use and development of the environment. The aim of a programmatic approach is to assess and allow certain activities again (Aan de slag met de Omgevingswet, n.d.).

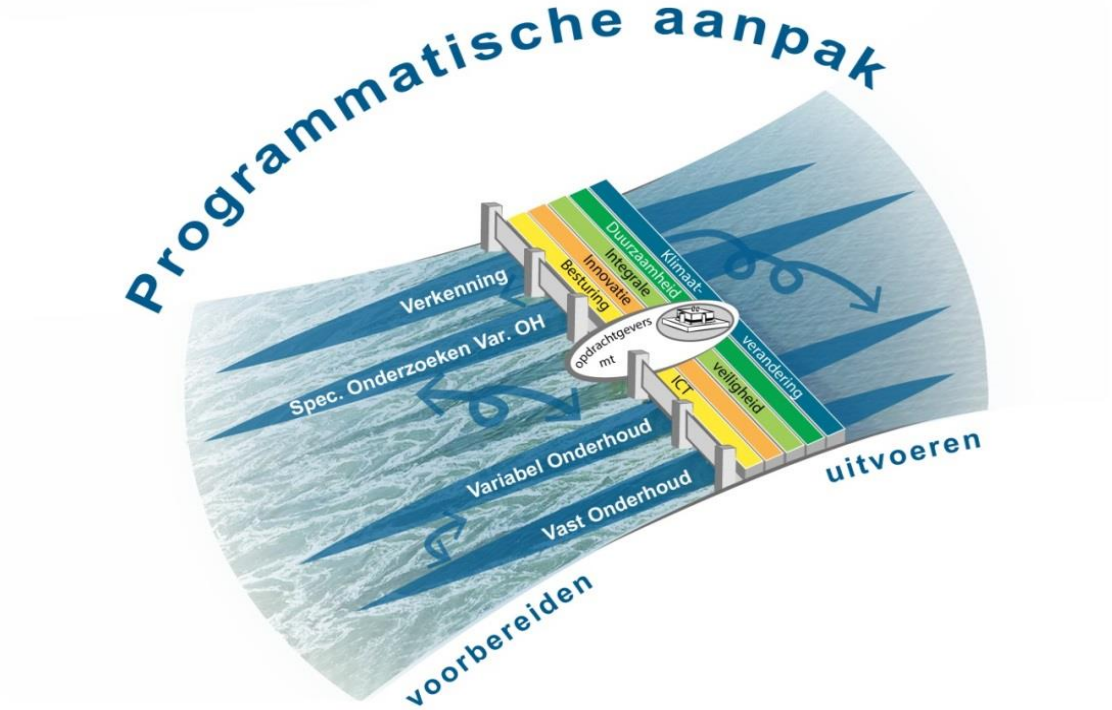

Figure 12: Programmatic Approach to the Eastern Scheldt Barrier. Source: adapted from Rijkswaterstaat, personal communication, January 24, 2019, p. 4

The Programmatic Approach to the Eastern Scheldt Barrier, specifically, is started to provide a long-term perspective on the Eastern Scheldt Barrier and its surrounding environment (see Figure 12). The process is still in the exploration phase and internally executed by one organisation: Rijkswaterstaat. Five points of view are incorporated and focused on within this approach, which are climate change/sea level rise (1), sustainability (2), technique/innovation (3), safety and security management (4) and control/ICT (5) (Rijkswaterstaat, personal communication, March 4, 2019). Particularly the first two themes make this programmatic approach an interesting embedded case study. Besides, the Eastern Scheldt Barrier is part of the Southwest Delta and an important body of water within the Southwest Delta, and even within the Netherlands. Also, from internal documents it became evident that there is a similar focus on factors influencing this approach, like co-operation, knowledge, resources, budget, politics and other factors, which makes the approach an interesting embedded case study to include in this study (Rijkswaterstaat, personal communication, March 4, 2019).

3.5. Validity, reliability and ethics of research

To conclude the methodological part of this study, this subsection elaborates on the *validity and reliability* of the research. To achieve this, the analysed data will be tested on their validity and reliability. As the constructionist research philosophy paradigm assumes validity and reliability are less important in comparison to other philosophy paradigms, still the trustworthiness of the research is of importance (Guba & Lincoln, 1994). Also, the ethics of the research are included in this subsection.

3.5.1. Validity

To test the data on validity, the researcher should test whether the analysed data sufficiently answers the research questions (Reswick, 1994). Bryman (2015) makes a distinction between *internal* and *external* validity. *Internal validity* refers to the good match there should be between the researcher's observations and the theoretical ideas developed. This should be the strength of the

qualitative research (LeCompte & Goetz, 1982). Internal validity of the research, for instance, can be achieved by data triangulation, for example, by comparing focus group results with interview questions to decide whether the respondents have misunderstood the questions (Webb, Campbell, Schwartz & Sechrest, 1966; Jonsen & Jehn, 2009). As previously mentioned, this research makes use of data triangulation (3.2.1), and thereby applied this technique to create internal validity.

External validity is about the degree to which research findings can be generalised cross-wise social settings (Bryman, 2015). This study is focused on the context of the organisation of the Southwest Delta, therefore it is important to produce a thick description. This refers to a rich account of the details of the context and culture of the organisation (Geertz, 2008). Therefore, the observation results include information in which the context is explained in detail. By this, others can judge whether the research findings are transferable to other settings (Lincoln & Guba, 1985).

3.5.2. Reliability

For the trustworthiness of the research findings, it is also important to test the reliability of the findings. Reliability refers to the degree to which the study can be replicated and is a difficult criterion to measure in qualitative research (Bryman, 2015). To achieve external reliability a possible method is 'auditing' (Lincoln & Guba, 1985). In this research all phases of the process are recorded in an accessible way, so peers are able to follow the process afterwards. Examples of these records are the list of selected research participants, interview transcripts, observation notes and the section 'research steps' (3.3).

3.5.3. Ethics

Having a constructivist point of view during the research is guided by intrinsic values. The researcher is facilitator of the process and aims to reveal as much as possible. This results in an advocated and activist attitude, which sometimes negatively affects the ethics of the study (Guba & Lincoln, 1994). For research that is not transgressing ethical issues, it is important that there is no harm to participants (1), no lack of informed consent (2), no invasion of privacy (3) and no involved deception (4) (Bryman, 2015).

Research that harms respondents, such as stress or loss of self-esteem, is most of the time regarded as unacceptable by other researchers (Diener & Crandall, 1978; Bryman, 2015). Therefore, this study is based on *voluntary participation* by respondents during the observations, interviews and focus group. The respondents were also informed beforehand, so they *participated on informed consent*. All respondents received an e-mail with an explanation of the interview and focus group, so they knew what was expected of them. Even more, interview respondents were asked to think about information that could be provided to the topics of the list they received by mail. During the observations, the participants were also aware of the role of the researcher, and therefore informed in advance. All participants, during each data collection method, were thus *informed to make a well-considered decision to participate in the research or not*.

The information respondents provided is used *anonymously* within the study; only their work function is made publicly. Besides, before the interviews and focus group the respondents were asked whether they agreed with recording. Therefore, *no invasion of privacy* has happened because the researcher has handled in a transparent way, through which the respondents were *not misled*.

4. Results

In this chapter the findings of the research are presented. Firstly, the current CE, CA and ET policy arrangements are mapped in accordance to the dimensions of PAA, which include actors, rules of the game, resources/power and discourses (see 4.1). From this analysis, a comparison is made to describe the current state of coordination, which is illustrated in a table (see 4.1.4). Thereafter, the barriers interfering with future coordination, and the conditions that might enable coordination between CE, CA and ET within the Southwest Delta, are presented. These barriers and conditions are also generated according to the dimensions of PAA (see 4.2). Lastly, in section 4.3 some of the identified barriers and conditions are further discussed for a subproject within the Southwest Delta.

4.1. Analysis of current policy arrangements

This section analyses and maps the current state of the policy arrangements of CE, CA and ET. Thereby it answers the first research question: '*How can the current situation of the policy arrangements of circular economy, climate adaptation and energy transition be described within the Southwest Delta?*'. It mainly concentrates on the regional policies regarding CE, CA and ET within the Southwest Delta. However, policy programmes are often translated from (inter)national programmes, therefore the context of higher governmental agencies is also incorporated in this section. Next to that, the policy arrangements are analysed because the aim is to compare these in order to identify barriers and conditions for a coordination approach within the PSSD. The policy arrangements are therefore analysed within the context of this strategy and the Southwest Delta organisation. Furthermore, the analysis is started with the discourses dimension, since the basis of the policy arrangements often started from a certain policy programme. From there, other dimensions can easily be described, for instance which responsibilities are distributed. Since the analysis of policy programmes is part of the discourses dimension, the result section starts with this dimension. Lastly, this section is mainly based on data from interviews, therefore the text often refers to interview respondents.

4.1.1. Current policy arrangement of circular economy

In this subsection the discourses, actors, resources/power and rules of the game dimensions of the CE policy arrangement within the Southwest Delta are described.

Discourses

Within the discourses dimension; a lack of objectives, belief systems, problem definitions and approaches are noticed. Current *objectives* are set in policy programmes by the Dutch national government. Within the Government-wide programme 'A Circular Economy in the Netherlands by 2050', which also includes five Transition Agendas, the following two objectives have been set (MIM et al., 2016):

1. A 50% reduction of primary raw materials by 2030
2. A circular economy by 2050 (100% reduction)

Most of the respondents are aware of these objectives. However, they often mentioned a lack of indicators and/or frameworks in order to implement these objectives, therefore a stronger link to the practical 'world' is needed [interview 5, 12, 16]. Still, some respondents are not aware of these objectives at all, as well as the use of which resources should be reduced [2, 3, 7]. This might be due to actors that are still *defining the problems* as well as why they need to take responsibility regarding CE and which role they might take [e.g. 1, 14, 16, 17]. One respondent ascribes the lack of problem definitions as follows:

"Although we might have an objective regarding the circular economy, but if we don't know where we are now, it's impossible to determine the amount of effort that is needed to get there" [6]

Besides, respondents feel a lack of clear and similar problem definitions by the national government as well, which leads to unclear or no lines of action for regional governmental bodies. Therefore, they *believe* it is necessary to first create more awareness; a change of thinking is required [e.g. 3, 8, 10, 15, 16]. Also, the level of urgency needs to be increased [7, 8]. As a consequence, organisations within the Southwest Delta are setting their own objectives and course, which leads to different *approaches* within the region [e.g. 5, 6, 19]. Examples of such current approaches within the Southwest Delta are pilot projects by the water boards as well as by ZMf (*Zeeuwse Milieufederatie*) and the municipality of Bergen op Zoom [2, 3, 10]. Other examples of approaches are internal within organisations, most of them focusing on circular purchasing [7, 8, 10, 12], which is supported by the national government. They introduced an instrument called the 'Climate Envelope' to stimulate governments to purchase circularly and climate neutral. Since 2019 there is more budget provided by the national government through this instrument (PIANOo, 2019). Only the work force CE is linking circularity to the water task of the Southwest Delta by their internal published action plan and administrative assignment (see BOX 1) (Werkgroep CE ZWD, personal communication, June 3, 2019). However, there is a lack of instantiation of approaches of this workforce, because of this reason:

"Yes, because it may be harder to link it to water. It is easier if you're talking about, for instance, a building, which is a bit more concrete" [5]

Actors

By taking into account the discourses dimension, there can be concluded that CE within the Southwest Delta is still in its infancy. Therefore, not much actors are involved, a lack of leadership is noticed, and too little coalitions are formed within this policy arrangement. The *actor constellation* is mostly divided into market parties and local governments; they are involved through the workforce CE Southwest Delta [e.g. 1, 7, 9]. Public organisations within the Southwest Delta are currently giving the transition towards a circular economy an impulse within their organisations by making use of the 'Climate Envelope' [2, 7, 8]. Furthermore, according to respondent [1], more experts are needed to proceed with this transition. Mostly because experts are able to upscale projects regarding CE towards the market, which still needs attention [7]. Some respondents mention the important role of parties like, the ZMf and Impuls Zeeland, as organisations that are currently taking a *leadership role* in the Southwest Delta [1, 8, 11]. The former organisation is an interest group concerned with the interests of nature and environmental organisations in Zeeland (ZMf, n.d.), and also involved in the workforce CE Southwest Delta (see BOX 1). Impuls Zeeland attempts to enhance the enterprises within Zeeland in commission of the Province Zeeland (Impuls Zeeland, n.d.).

BOX 1: Workforce CE Southwest Delta

The workforce CE Southwest Delta (*Werkgroep CE ZWD*) is set-up in 2018 to boost the circular economy and investigate the possible role this transition might have in the Southwest Delta organisation. This workforce is led by two persons, working at Rijkswaterstaat and the Province of Zeeland. Together with the organisations DOW/VNO-NCW, the water board Hollandse Delta, ZMf and Lievens Communicatie, the workforce has written an action plan and an administrative assignment. These documents are presented during meetings of the organisation of the Southwest Delta. Currently, the workforce is busy translating the action plan into a concrete plan, as can be derived from a conversation with members of the workforce (Werkgroep CE ZWD, personal communication, June 3, 2019). At least, the plan is to execute three 'Projects of allure' and to set up an 'Innovation hub' to translate ideas into concrete projects (Onze Delta, n.d.-b).

The two leadership roles of these organisations are sometimes leading to *conflicts*, for example in the recreative building sector. Namely, the two organisations define a circular recreative building differently, therefore contradictions have arisen between them [11]. Additionally, the leadership role

of ZMf is sometimes mis understood by local governments, since they feel responsible for upscaling the CE transition and do not want to interfere with other organisations [5]. In general, the level of friction is low since actors understand a circular economy can only be achieved if people work together [1]. According to others, there is no such leadership role at all noticed during the current process [7], while precisely within this policy arrangement a strong leadership role is needed, since it is a complex topic (see *Resources/power*) [7, 10].

There are also no expectations within this policy arrangement to create certain collaborations, through which only informal *coalitions* are formed yet with actors who accidentally came into contact with each other. The building of coalitions is therefore still in development [5, 6, 12, 17]. An example of an existing coalition is Smart Delta Resources, which is a collaboration between industries in which companies are working together to reduce their energy and raw material usage through industrial symbiosis (SDR Platform, 2019). According to respondent [12], this collaboration could be enforced if expert systems are incorporated in the process as well. An example of a grounded coalition is the creative breeding ground, initiated by the municipality of Bergen op Zoom, in which entrepreneurs, governments and educational bodies are working together to create innovative products [3,4]. However, both examples are not related to the water task of the Southwest Delta. Respondent [6] is explaining these *interaction patterns* as follows:

"Within the circular economy, the logical expectation pattern of 'he/she is doing this, and he/she is doing that' is in a lesser extent present, therefore more possibilities arise to co-operate with other ones… However, this is not without obligations, but there are more choice possibilities […] This might be the reason why it is not proceeding the way we want to. It is not clear who should take a leadership role." [6]

Resources/power

Within the dimension resources/power, there is a general lack of capacity regarding the CE policy arrangement within the Southwest Delta. As mentioned earlier, the workforce CE Southwest Delta is a group in which knowledge is mobilised and a small amount of actors are working within this workforce. Other than that, there is a lack of *personal capacity* and *knowledge capacity* to proceed with circular policies. As actors are willing to develop more knowledge, the lack of financial capacity is marked as a barrier to achieve this [5]. According to some respondents [1, 7, 8], this is due to the higher priority of policies regarding the energy transition in comparison to circularity.

Still, there are some examples that illustrate the current progress CE is making, meaning the knowledge development, increasing technological innovation and experiments done in projects. The first example of an *innovative* concept within this policy arrangement is the innovation hub of ZMf (ZMf, 2019). This is an emerging concept in which circular ideas are translated into practical solutions. Market parties, in particular medium-sized enterprises, are working together with ZMf during this process. According to respondents [5, 10], the innovation hub is a way of innovating and developing knowledge. However, the recession has caused companies not willing to take the risk of participating in this project. Another example is the breeding ground of the municipality of Bergen op Zoom, the Green Chemistry Campus, which remarks the way the municipality is experimenting with new *technological innovations*, since innovation is the central objective of this concept [4]. The last example is the Living Lab Schouwen-Duiveland; an initiative in which citizens, administrators, bureaucrats and businesses are participating to make *innovations* suited to the market in order to create a circular island (Delta Platform, n.d.). As these examples above suggest, *innovation* is receiving a central spot within this policy arrangement. Still, this respondent has a negative remark:

"Often innovation is present. However, there is still a world to win between thinking of solutions and the actual implementation of them" [10]

The little progress of CE within the Southwest Delta is also due to the lack of *authoritative capacity* [5, 7]. There is a certain power practiced by decision-makers, for example by the national body of

water boards (*Unie van Waterschappen*), because they have set some frameworks for the regional water boards. They have imposed the regional water boards to carry out a resources flow analysis as a first step to further proceed with CE. This has a positive effect on the progress of the civil service of water boards, since administrators expect them to get to work with CE [2, 17, 18].

Other than this national body of water boards, there is a lack of *political and decision-making power*. This also has to do with the unclear *division of responsibilities* [5, 10, 16]. For instance, often CE is not part of the portfolio responsibility of administrators, which leads to little attention and commitment from administrators and politicians regarding this topic [5, 10, 15, 16]. This gap also negatively affects the progress of the effort made by the work force CE ZWD. Although there is one progressive deputy of the Province of Zeeland who has CE in his portfolio, still he is not involved in the Southwest Delta organisation because water is not part of his portfolio, therefore CE is barely linked to the water task of the Southwest Delta organisation [7, 8, 11]. On the contrary, specifically within this policy arrangement enough decisive power is needed by generating more resources:

> *"And precisely within circularity, which is really complex, you should give the government that leadership role, since they have the resources and people to connect everything"* [10]

Rules of the game

Regarding the rules of the game, there is little to mention about legislation, procedures and the political culture of CE. There are some national policy programmes with rather vague objectives (see *Discourses*0), but these are not legally binding, therefore a lack of *legislation* is recognised. According to respondent [7], this lack of binding laws makes it hard to give CE a higher level of urgency within the Southwest Delta. Sometimes legislation is even preventing actors to work towards a circular economy, for example in holding back the use of silt again on farming lands by water boards [17, 18].

The Province of Zeeland started, approximately one year ago in 2018, with developing a network to make effort towards a circular province, which marks the beginning of more and more policy actors getting involved in this policy arrangement. The provincial governmental agency also started with the usage of vouchers and project subsidies to stimulate market parties that want to experiment with circular innovations [7, 9].

Other than that, there is a general lack of *procedures* within this policy arrangement. Because CE in the Southwest Delta is still in development, there is also little to remark about the *political culture* of this arrangement. Except for the workforce CE in the Southwest Delta; these involved actors have approximately one work group meeting per two months in which progress is maintained and new tasks are set and divided. During an observation of such a meeting the high level of efficiency of the process stood out in comparison to observations of different meetings in the other policy arrangements. This states that progress within this policy arrangement might be made fast in the near future.

4.1.2. Current policy arrangement of climate adaptation

This subsection discusses the policy arrangement of climate adaptation in the Southwest Delta. This analysis is divided into the four dimensions discourses; actors, resources/power and rules of the game of the PAA.

Discourses

Regarding this dimension, the policy arrangement is getting more established and institutionalised by policy programmes, resulting in the setting of problem definitions, objectives and approaches by actors. This is owed to the increasing attention to climate change problems among administrators and policy makers in the Southwest Delta. This originated as a result of the drought issues in the summer of 2018 and the additional dependence on fresh water by farmers from outside the Southwest Delta [6, 11, 13]. Besides, the Delta Programme helps with the setting of *problem*

definitions, since the Delta Committee updates the Delta Programme by new insides on sea level rises [10]. Still, there is unclearness about the level of urgency among the different themes of climate adaptation, which is leading to different belief systems [11, 13, 14].

Nonetheless, governmental agencies are determining *objectives* and *approaches* for CA in the Southwest Delta as the policy arrangement is institutionalising (Raad voor de leefomgeving en infrastructuur [Rli], 2019). The two policy programmes Delta Plan on Spatial Adaptation (DPSA) (*Deltaplan Ruimtelijke Adaptatie*) and HWBP (*Hoogwaterbeschermingsprogramma*) have a high level of influence on the approaches of the Southwest Delta organisation and other involved organisations. The HWBP is an alliance between the water boards and Rijkswaterstaat to ensure the sober and efficient enforcement of primary dike rings in meeting the objectives of the Water Law (Hoogwaterbeschermingsprogramma [HWBP], n.d.). HWBP is an effective programme, since it generates innovation possibilities and knowledge development [1]. The Delta Programme comprises the DPSA, which is a collective plan set by the national government, provinces and water boards. The plan is built on seven ambitions; each of them contributing to climate-proof and water-resilient spatial planning in the Netherlands (MIW et al., 2018).

The *objectives* of DPSA have been translated into an action plan of a climate adaptation strategy Zeeland (CASZ), and also in the PSSD. Within this action plan CASZ, the seven strategic goals or ambitions (like positive feedback loops utilizing) are set with clear timelines. Still, these goals need to be instantiated into possible measures in the form of a 'toolbox' or 'wiki' according to the action plan (Bestuurlijk kernteam Klimaatadaptatie Zeeland [BKKZ], 2018). One of these strategic goals is the mapping of the consequences of climate change by each governmental body in the Netherlands. This needs to be finished by 2019 through applying the 'stress test' (MIW et al., 2018). The stress tests are administered by actors within the Southwest Delta, which form the basis of the action plan of the CASZ. Although the national government has obliged regions to perform stress tests, the establishing of the action plan is done through a bottom-up *approach* (BKKZ, 2018).

Actors

Within the actors dimension, a strong involvement of the government is noticed, which is leading to several coalitions and a strong leadership role. Regarding the *actor constellation*, mostly governmental agencies are involved within this policy arrangement [19]. Provinces, together with municipalities, water boards and Rijkswaterstaat have been jointly working to make the action plan CASZ. A yearly report to the chairman of the Regional Consultative Body of the Southwest Delta is also part of this action plan, therefore the Southwest Delta organisation is included in the governance structure of the draft strategy (see Figure 13). This yearly report needs to be executed during the 'Water morning' (*Waterochtend*), which is a *coalition* of representatives of governmental bodies from Zeeland. Among other tasks, this collaboration steers and balances the plan and implementation of the DPSA (BKKZ, 2018).

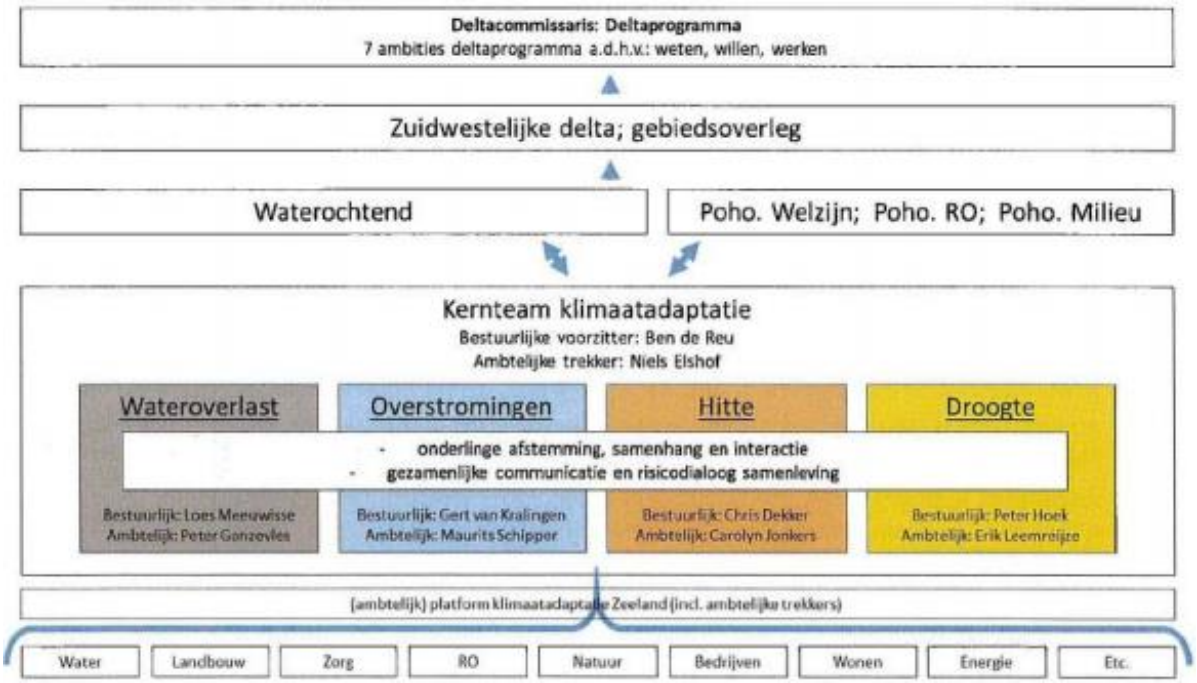

Figure 13: Governance structure action plan CASZ. Source: adapted from BKKZ, 2018, p. 1

Figure 13 illustrates the *leading role* of governmental bodies in this policy arrangement, which is also acknowledged by respondents [e.g. 1, 3, 6, 19]. Besides this *coalition* of actors, related to the action plan, there are other collaborations regarding CA within the Southwest Delta too. First of all, the SAZ+ collaboration (*Samenwerking (Afval)waterketen Zeeland*), which includes all thirteen municipalities of Zeeland as well as the drinking water company Evides and the water board Scheldestromen. The collaboration works on issues regarding sewage (Samenwerken aan Water, 2019). Secondly, a collaboration between drinking water industries, DOW Chemical Benelux and the Province of Zeeland is arisen to deal with problems regarding drought as a response on the drought issues during the year 2018 [6, 9, 13]. Altogether, there is *no friction* between actors recognised, since there is a clear draft policy document (action plan CASZ) and actors agree on the course the Southwest Delta organisation is charting for climate adaptation [5].

Resources/power

There are sufficient resources and power capabilities noticed for CA within the Southwest Delta. Regarding *knowledge capacity*, respondents agree on the high level of knowledge for CA. Actors are also willing to develop more knowledge and experiment with innovations, which is illustrated by the following examples. The school for advanced education (*Hogeschool Zeeland*) is an important source of knowledge regarding climate adaptation in the Southwest Delta, since it consists of a Delta Academy in which adaptive delta management has a prominent research role [3, 4, 10, 15]. Also the NIOZ (*Koninklijk Nederlands Instituut voor Onderzoek der Zee*), a Dutch research institute specialised in sea research, plays an important role in generating CA knowledge for the Southwest Delta. NIOZ has a location, specifically within the Southwest Delta, which functions as an ideal 'living lab' to experiment with *innovations* to create and ensure a safe and climate-proof Delta region (Waterforum, 2018).

Also, Campus Zeeland has CA high on the agenda. Campus Zeeland is a collaboration between businesses, research institutes and governmental bodies that aims to connect the government to businesses and generate more innovative capacity (Campus Zeeland, n.d.). As a consequence, CA within the Southwest Delta possesses more *innovative capacity* through this collaboration [10].

Lastly, members of the Advisory Group of the Southwest Delta organisation are involved in the knowledge community Eastern Scheldt, which is part of the knowledge community Southwest Delta [10]. This community is gaining insight and sharing knowledge about a future and climate-proof Eastern Scheldt Barrier (Deltacommissaris, 2018). Although these examples suggest the capacity of local knowledge is high, still national research institutes, like Deltares and KNMI, are important in providing knowledge about climate change calculations and models [10].

Climate adaptation in the Southwest Delta contains a high-level of *political and decision-making power* executed through the DPSA and HWBP. These two policy programmes have generated enough authoritative capacity, replenished with political will from administrators, to create the action plan of CASZ [5, 12, 14, 19]. As Figure 13 shows, this draft strategy includes a governance structure in which administrative as well as official responsibilities are distributed per climate adaptation theme. This draft strategy, supported by DPSA and HWBP, generates enough budget to implement measures, therefore the *financial capacity* is high. According to respondent [11], this is owed to the Delta Fund (*Deltafonds*), which is introduced to ensure enough resources for the long-term protection against flood risks and fresh water scarcity. Thereby the fund generates budget for the implementation of the DPSA and HWBP, as well as for the coming adaptation strategy (Kenniscentrum InfoMil [KIM], n.d.). The HWBP is also acknowledged as a programme that cultivates possibilities to *innovate* [1, 11].

Rules of the game

Within this dimension, there are some legally binding laws noticed. Monitoring is an important aspect of the procedures and the Dutch polder model is quite present. As mentioned earlier (see *Discourses*), there is a *legal* obligation for each municipality to map the risks of climate change in their areas by using the stress tests (BKKZ, 2018). These stress tests were to be taken by 2019 and, on basis of the results, the action plan CASZ is developed [e.g. 3, 8, 10, 11]. When the action plan CASZ becomes an official policy document, it is legally binding as well, since there will be an obligation to report to the Delta Commissioner. Actors acknowledge the importance of this coming legally binding document, since it will generate personal capacity (a core team with administrators and officials) and budget. Besides, it will cultivate clear *procedures* of how to work together on climate adaptation in the region [5, 14]. Respondent [14] describes the importance of the legally binding document as follows:

> *"I believe, now there is a formally signed document, the topic will be better adhered to the political agenda"* [14]

Besides the legal obligation to yearly report about the progress of the DPSA, there are no further formal competences for the coalition '*Waterochtend*' included in the action plan (BKKZ, 2018). Nonetheless, through the HWBP there is a formal obligation to ensure an enforcement of all primary dikes, through which they satisfy the binding laws of the Dutch Water Law (HWBP, n.d.). The HWBP, therefore, has a strong legal impact on climate adaptation in the Southwest Delta, which is also acknowledged by respondents [1, 9, 10].

Because of the, earlier described, several coalitions (see *Actors*), the amount of meetings between actors is also high for CA within the Southwest Delta. This is simplified by dividing meetings per climate adaptation theme (drought, heat stress, superfluous water and flood risks), for instance the SAZ+ collaboration for superfluous water. Since there are many concertation networks, there can be concluded that the Dutch 'polder model', is highly present within the political culture of this policy arrangement [9]. The polder model is about attempting to build consensus between actors based on co-operation, which sometimes causes delay in decision-making processes (Schreuder, 2001). This delay is noticed by respondents as well, but not always regarded as a negative factor because it also creates support [2, 4, 5].

4.1.3. Current policy arrangement of energy transition

In this subsection the current policy arrangement regarding the ET in the Southwest Delta is mapped. The dimensions actors, resources/power, rules of the game and discourses are used to analyse the current situation.

Discourses

Considering the discourses dimension, differences in belief systems and problem definitions are noticed, but there are still objectives and approaches composed. *Objectives* within this policy arrangement are top-down determined and translated to the region by means of the Regional Energy Strategy (RES), which is explained in BOX 2. Currently, this *approach* constitutes the basis of the ET policy arrangement within the Southwest Delta (Rli, 2019). Through this instrument, it is easier to translate national objectives into measurable goals for the Southwest Delta, according to respondents [3, 15]. Furthermore, several (political) fragmentation issues are causing differences in *problem definitions* and *belief systems*. To start, the on-going negotiations on the Dutch Climate Agreement are not helpful for the progress of the RES, which is summarized by a respondent as follows:

"[…] it is not helping that the Climate Agreement is still not there. Because that could be used as a leverage to force actors to act''[17]

There are also fragmentation issues between actors about the direction that should be followed within the Southwest Delta. Actors have different ideas on the right course to follow towards more sustainable energy use within the Southwest Delta, for instance regarding sun energy (power farms), hydrogen, windmills and electrification [e.g. 1, 3, 10, 15]. All in all, these fragmentation issues are resulting in negative ideas about the way forward for ET within the Southwest Delta, and thereby create negative *belief systems*, which is marked as follows:

"There arises a 'climate sickness' I would say. People do not like it anymore" [11]

According to respondents, this is not helpful in setting a proper *approach* within the Southwest Delta [11, 12]. The current RES approach, examined by the Southwest Delta, is group-centred and encompasses various organisations, either publicly or privately. Therefore, this RES development is important, because it will hopefully make it able to alter the ideas and interests of actors into more shared ones, and thereby jointly set a direction. The Province of Zeeland also feels the urge to seek for solutions together with organisations, and is therefore open to incorporate other interests [e.g. 1, 16]. The current RES process is described as follows:

"You can see it happening within the energy transition, that is applied in an extensive way and also widely supported by every organisation. Everyone equally therein" [1]

Although contradicting ideas of actors are making it harder to develop an approach for ET, still an acceleration of *approaches* is signalled within the Southwest Delta. This is intensified by impulses of the Dutch Climate Agreement, the decision on stopping the gas exploitation in Groningen and the verdict on the Urgenda case (Rli, 2019) [2, 3, 9, 15].

BOX 2: Regional Energy Strategy (RES)

The Regional Energy Strategy (*Regionale Energiestrategie*) is realised by the National Programme RES. RES is an instrument to make choices for the generation of sustainable electricity, the heat transition in the built environment and the necessary energy infrastructure and storage. The instrument is meant for municipalities, water boards and provinces to create a strategy together with stakeholders in their regions. RES will help these governmental organisations in developing and exchanging knowledge, data assistance and provide information about the Dutch Climate Agreement (Rijksoverheid, Interprovinciaal Overleg [ipo], Unie van Waterschappen [UvW] & Vereniging van Nederlandse Gemeenten [VNG], 2019). The Netherlands is divided into thirty RES regions of which six regions are part of the Southwest Delta, which are Zeeland, Goeree-Overflakkee, Hoeksche Waard, and parts of Drechtsteden, Rotterdam – Den Haag and West Brabant (VNG, n.d.).

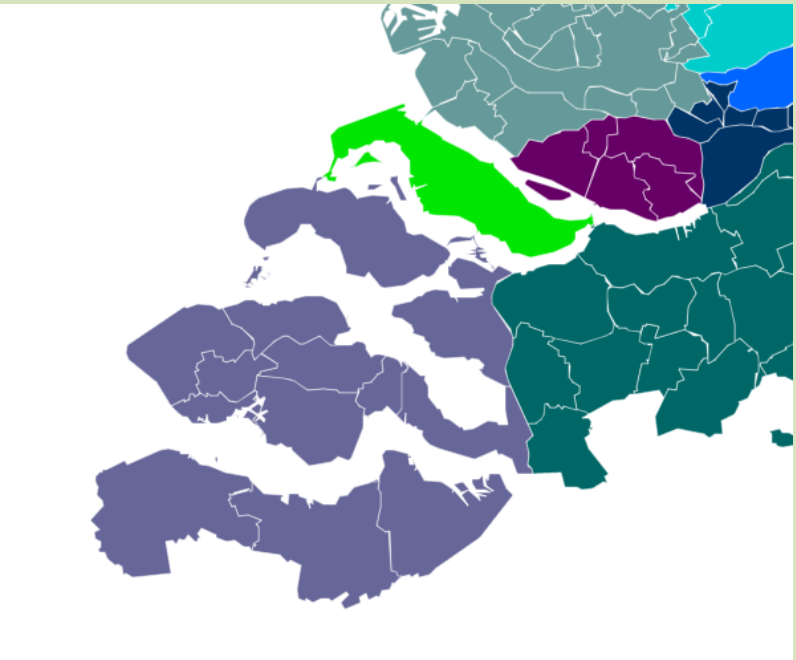

Figure 14: RES regions which are part of the Southwest Delta. Source: adapted from Regionale Energiestrategie (RES) from VNG, n.d (https://vng.nl/onderwerpenindex/milieu-en-mobiliteit/energie-en-klimaat/regionale-energiestrategie-res). Copyright 2017, VNG.

Actors

Regarding this dimension, there is a diverse actor constellation, sometimes opposing interaction patterns, stable coalitions and clear leadership roles. The Southwest Delta is divided in various regions currently working with RES (see BOX 2). The *actor constellation* is based on the organisations involved in the RES regions, which are water boards, provinces, municipalities and other organisations, like Enduris (regional grid operator) and Impuls Zeeland (company working with entrepreneurs) [2]. The role of municipalities, in particular, is striking since they are *leading* the current RES process. This is owed to the VNG, because they asked municipalities to take a leading role in the energy transition, since they feel municipalities are able take that role [3]. Also, the market is highly involved in this policy arrangement, which might lead to conflicts since they sometimes have contradicting interests [1, 15].

Other *opposing interaction patterns* are also arising, since this policy arrangement is in development and getting more established and institutionalised. There is a division mentioned between the national government and local governmental bodies, since the national government is not always

understanding the local needs in municipalities, according to respondent [11]. On the contrary, there is also co-operation between actors found. One example of a good *coalition*, accompanied by a leadership role of the municipality of Goeree-Overflakkee, is the Energy Island Goeree-Overflakkee. On this island, the municipality, Province of Zuid-Holland, citizens, businesses, educational institutes and societal organisations are working together to create an island that functions as a living lab for the Netherlands by seeking for solutions and possibilities in the energy transition (Goeree-Overflakkee, n.d.). Respondents acknowledge the *front running and entrepreneurial role* of Goeree-Overflakkee and also mention the island as the leading region out of the other five regions in the RES progressions [17, 18]. This is also acknowledged by actors during an observation of the Regional Consultative Body.

Resources/power

At this moment, actors are missing a steering role of the government, and thereby acknowledge a lack of authoritative capacity. Regarding other resources, there are no lacks signalled. Although the previous section suggests that municipalities are fulfilling strong leadership roles, still actors are missing a steering role of the government, and thereby acknowledge a lack of *authoritative capacity*. However, according to respondents, the current top-down RES approach by the national government might be helpful in solving this lack of authoritative capacity. Namely, according to respondents the RES as an instrument is going to provide local governments with enough guidelines, a clear structure, time line and objectives to succeed the establishment of a future course [9, 10, 13]. The current upcoming *political pressure*, executed by national authorities, might be caused by public pressure, for example because of the political conflicts about the gas exploitation in the province Groningen [6, 9, 11, 13]. Also, pressure from the international Paris Agreement might have caused more political power [9]. This political pressure has a logical explanation, according to this respondent:

> *"The energy transition affects people at home in their purse. So, the politics is, or the politics should be busy with it, because people start protesting against it, businesses start protesting against it. The newspapers are full of it on a daily basis"* [6]

At this moment, *budget* for the energy transition has to be spent by market parties, therefore a critical remark is to strengthen the facilitation by governmental bodies [10]. However, according to respondents [5, 15], the RES, together with the National Climate Agreement, will provide more budget in the future. This is also needed, according to this respondent:

> *"[…] the government should not pay everything. But from different sides I'm hearing people saying: yes it is delegated towards other people now. So, if you want to develop more sustainable energy as a government, there must be something in return"* [10]

Furthermore, the RES will also intensify more *knowledge development* among actors in the Southwest Delta, because of the prospective increase in financial capacity. At the same time, the *knowledge capacity* in the Southwest Delta is already high, especially among market parties. Therefore, there is enough knowledge capacity within the Southwest Delta to develop an energy strategy by means of the RES [2, 5, 9, 14]. Regarding *technological innovations*, there is no lack of capacity, since there is room for innovation within this policy arrangement [1, 11]. Also, through the RES there are actions going to be formulated for stimulating innovation opportunities in coherence with the water task of the Southwest Delta organisation (Onze Delta, n.d.-a). This room for innovations is owed to the extension of the SDE subsidy, which makes it interesting for entrepreneurs to develop new goods (Rijksdienst voor Ondernemend Nederland, n.d.). Also, the DEI subsidy generates money for pilots and demonstrations regarding energy innovations [12, 15]. Lastly, the *level of autonomy* is low, since parties are already seeking for collaborations in the RES progress (see *Actors*), and thereby are not afraid to interact with each other in an equal way. Also, by means of the RES *responsibilities will be distributed*, which will make it more straightforward to interact with each other [11].

Rules of the game

The rules of the game dimension consists of little legislation, specific procedures and political fragmentation. Regarding ET within the Southwest Delta, there are no *binding laws* noticed. As already mentioned, the RES is currently applied in the Southwest Delta to develop a strategy for each region. The national government formally agreed on the voluntary collaboration for actors of each RES region to develop such a strategy. This means that the regions are not obligated to collaborate (Rijksoverheid et al., 2019), but still all RES regions within the Southwest Delta are currently creating energy strategies.

The *procedures* applied to develop these strategies can be characterized as a group-centred approach, sometimes in the form of climate tables, like the national government is doing to create the National Climate Agreement [2, 5]. Furthermore, public participation is also an important aspect of the procedures within this policy arrangement [9, 15]. Also, the importance of public support is closely related to the participation of citizens. Public support is also considered as crucial for decisions regarding new innovative approaches [3, 11, 15]. To illustrate the importance of public participation; the municipality of Schouwen-Duiveland considers public participation as a precondition for energy projects. An example of such a project is 'Wind Park Krammer', which is the largest citizen initiative of the Netherlands; the building of the wind park is examined by two public energy cooperatives with approximately four-thousand members (Windpark Krammer, n.d.). Another example is the public-private cooperation on tidal energy [10].

Regarding the *political culture*, there are some fragmentation issues signalled (see *Discourses*). The opposing political ideas between left-wing and right-wing parties on a national level also negatively affect the regional political culture [6]. However, the side-effect of these contradicting opinions makes it sometimes easier to discuss the interests of citizens as there is more time and no strict rules. The upcoming energy strategies, and additional institutionalisation might change this [14].

4.1.4. Current state of coordination

The theoretical framework presents some indicators that need to be shared between policy arrangements to achieve successful policy coordination. These indicators include shared responsibilities, objectives and belief systems. Besides, common procedures, instruments, problem definitions and approaches also raise the possibility on successful coordination (see *Operationalisation*). On basis of these conditions for general policy coordination and a comparison between the analysis of the current state of policy arrangements, a first impression can be made on the current state of coordination between CE, CE and ET. Conditions, like strong leadership, are left out, because they cannot be used to compare policy arrangements. The following Table 2 illustrates this on basis of the results of the previous subsections (4.1.1; 4.1.2; 4.1.3). This means, it is mostly built on in-depth interviews, supplemented by policy documents. A green box indicates that the condition is found, based on the comparison of the three policy arrangements. Consequently, the orange box indicates that sometimes the condition is found, and the red box implies the condition is not noticed during the comparison.

Table 2: Determined current state of coordination, based on conditions for general policy coordination

Conditions for policy coordination based on literature studies	+	+/-	-	Brief explanation
Shared responsibilities				Unclear division or no division of responsibilities within policy arrangement, therefore no shared responsibilities either.
Shared objectives				All policy arrangements have set their own objectives and sometimes strategic goals, which are not similar.
Shared belief systems				Actors within all policy arrangements have conflicting or diverging belief systems, therefore these cannot be shared with actors in other policy arrangements.
Common procedures				Policy arrangement CE has a lack of procedures. Policy arrangement CA contains of clear procedures, but these differ from the, likewise, clear procedures of ET.
Common instruments				Different instruments (and subsidies) used among policy arrangement. Also, actors within policy arrangement ET apply RES as an instrument, while the other two policy arrangements do not possess such instruments, other than certain policy programmes (like HWBP).
Common problem definitions				Problem definitions differ (CE has a lack of clear problem definitions). Additional level of urgency to seek for solutions also differs between policy arrangements and even within them. However, actors in all policy arrangements agree on the fact that something needs to be done to become more sustainable.
Common approaches to problem				Policy arrangement of CE is still defining the problem, and therefore almost no approaches are yet found. Approach for ET is top-down imposed, while the action plan of CASZ is bottom-up established (CA).

In conclusion, the level of coordination is relatively low, based on the conditions used in this comparison. Neither of these conditions for general policy coordination, found in literature studies, are fulfilled in this case. Therefore, barriers and conditions are examined in order to achieve a higher level of coordination between the policy arrangements CE, CA and ET related to the water task of the organisation of the Southwest Delta. Conditions are presented in the next chapter that will enable policy coordination between CE, CA and ET within the context of this case. Barriers will be identified as well, since these will provide information about how the conditions can be achieved.

4.2. Barriers and conditions for policy coordination between CE, CA and ET

In this subsection a further comparison is made between the three policy arrangements by using the indicators of the discourses, actors/power, resources and rules of the game dimensions of the PAA (see 2.5 *Analytical framework*). Power is in this section part of the actors dimension instead of the resources dimension, because indicators of these dimensions are closely related to each other, as can be deducted from results. The comparison is made by using the conditions for general policy coordination used in the previous table (Table 2), supplemented with other conditions that can be found in the *Operationalisation* section, like political and decision-making power. Additional barriers and conditions, specifically for policy coordination between CE, CA and ET within the Southwest Delta, found during the research process are added to this comparison to seek for similarities or contradictions with the ones for general policy coordination. Thereby this result section answers the

second research question: '*What are barriers and conditions for policy coordination between the policy arrangements of the circular economy, climate adaptation and energy transition within the Southwest Delta?*'.

4.2.1. Discourses

Regarding the barriers and conditions of the *discourses* dimension, there are different *belief systems* and *problem definitions*, resulting in *unshared objectives* and *diverging approaches*. A further explanation of barriers and conditions within this dimension is clarified below, which is summarized in the *Conclusion* section.

Belief systems and problem definitions

The analysis of the current situation of the policy arrangements of CE, CA and ET (see 4.1) illustrates the different phases the three policy arrangements are found within. Within the CE policy arrangement, there are almost no problem definitions yet set by actors, because the level of urgency is low, therefore actors do not believe much have to be done in the near future. Also, more awareness and more knowledge development needs to created [9, 12]. The *problem definitions* of actors within the policy arrangements of CA and ET are more set; actors agree on the fact that solutions need to be found. Therefore the problem definitions, set by actors, vary between the three policy arrangements.

There is also a difference in *belief systems* noticed both within and between the policy arrangements. This is due to a lack of long-term visions among actors and a lack of governance by the national government. Consequently, actors develop different ideas and concepts about solutions, which results in different directions taken by organisations [5, 11, 19]. Next to that, respondents belief the main aim of water management is more important than the incorporation of ideas about climate concepts. Respondent [19] describes this as follows:

"Are we going to hire extra people for the energy transition or are we going to start with flood safety to achieve our tasks faster? In that case, we will choose the last one" [19]

Altogether, these lacks of similar problem definitions and belief systems are recognised as barriers for policy coordination of CE, CA and ET within the Southwest Delta. Therefore, some conditions and opportunities are given for the Southwest Delta organisation to bring together the problem definitions and belief systems of the three policy arrangements. First of all, water as a starting point might be helpful to connect CE, CA and ET [16]. Also combining CE, CA and ET with other non-environmental policy arrangements, for instance with spatial development, agriculture or mobility, would be useful according to respondents [e.g. 5, 8, 14, 15]. The incorporation of climate concepts into non-climate policy arrangements is described as external climate policy coordination in literature studies (Nilsson, 2005; Kivimaa & Mickwitz, 2006; Howden et al., 2007; Persson & Runhaar, 2018). This form of coordination might, therefore, be helpful to alter belief systems of involved actors.

Secondly, actors feel CE, CA and ET all contribute to solutions for climate change and sustainability, and therefore are able to strengthen each other. Some actors even think CE could be used as a means to achieve a transition towards sustainable energy use, and will get more attention when the RES is getting more established [e.g. 5, 6, 13, 16]. Thirdly, changing the belief systems of actors into ones in which policy coordination might have positive consequences, like employment opportunities, is also recognised as condition [3, 4, 5, 14].

Objectives

The differences in problem definitions and belief systems are leading to political fragmentation (see *Rules of the game*), resulting in unclear *objectives* for each policy arrangement. Since objectives for CA, CE and ET are not made explicit, there are also no shared objectives between the policy

arrangements, which is considered as a barrier. Shared objectives are an important condition for general policy coordination, according to Nilsson et al. (2012), since coherence of both strategic targets and informal goals between policy arrangements is crucial for policy coordination. This argument is also acknowledged by respondents [11, 14, 16, 19] in the case of coordination between CA, CE and ET within the Southwest Delta, since it might lead to synergy effects between organisations.

To achieve shared objectives in the future, some context-specific barriers are impeding at this moment. First of all, objectives are nationally determined (for instance RES), so there is not much room to deviate for organisations within the Southwest Delta. Since the national government is not used to coordinate between objectives of CA, CE and ET, they cannot demonstrate this to regional governments either [2, 9]. Also, the objectives of the Southwest Delta organisation are considered as rather vague or actors are not aware of them, which might lead to difficultness when objectives of CE, CA and ET need to be implemented [5, 8, 13]. Moreover, the organisation of the Southwest Delta does not have objectives for CE, CA and ET at all incorporated in their policy documents, so neither in their PSSD (MIW et al., 2018). Lastly, sector objectives for water issues often have priority above objectives regarding CE, CA and ET [16].

To take away these barriers, some conditions need to be fulfilled. To start with, knowledge exchange between actors and organisations is important, since it leads to awareness of objectives of other organisations [16, 19]. This could be stimulated by a project-based approach, which is further explained in the section *Approaches to problem*. Secondly, political and administrative support for policy programmes in which CE, CA and ET are incorporated is important as well [17, 18]. If objectives are subsequently set, then monitoring is an important third condition according to respondents. Currently the Delta Committee is already monitoring the objectives set by the Southwest Delta organisation (MIW et al., 2018). However, since the organisation did not incorporate objectives concerning CE, CA and ET, these are not monitored. Therefore, it is of importance to set objectives regarding CE, CA and ET by the Southwest Delta organisation, because these will consequently be monitored by the Delta Committee [14, 19].

Approaches to problem

The unclear and unshared objectives are ending up in different *approaches* executed by actors at this moment. Through a lack of steering by the national government, regional governments are setting their own direction, leading to diverging approaches [5, 19]. It is therefore of importance to develop more common approaches for policy coordination of CE, CA and ET in the Southwest Delta. This is in accordance with literature studies, written about policy coordination, in which is stated that common instruments and a group-centred approach are key conditions (Briassoulis, 2004; Meijers & Stead, 2004).

Some barriers are recognised during the research, since achieving common approaches is difficult within the Southwest Delta. Firstly, because the Southwest Delta organisation is nowadays mainly focused on water quality issues and flood safety, but in a lesser extent to the consequences of environmental changes [9, 13]. Besides, policy makers sense to avoid risks, and therefore they find it difficult to incorporate environmental solutions since these come along with great uncertainty [2]. Moreover, actors miss practical guidance and good examples, because there is a lack of instantiation of CE, CA and ET [1, 8, 12]. Also, indicators to measure and monitor the progress that is made are missing [1, 3, 6, 13]. The following quote illustrates the need for instantiation.

> *"Furthermore, there is need for instantiation of the themes. The themes are quite extensive and intangible. Everyone has their own interpretations"* [1]

To achieve common approaches, different conditions can be enabled. First, public participation is considered as a condition to have successful policy coordination. Gaining public support is important for the processes' progress [9, 15]. This is in accordance with the group-centred approach, described

by Meijers & Stead (2004), in which greater emphasis on public participation and mutual support are crucial factors. Respondents also acknowledge the importance of approaches in which co-operation between organisations is a priority. These collaborations should not exist of only governmental bodies, but the incorporation of research institutes and businesses is also necessary (see *Actors/power*). There is a general feeling of "together we will make more progress" [6, 7, 8, 16].

Also, more common policy programmes are needed, since these can create administrative support. There are already examples of programmes which could help with fulfilling this condition, like the ambition document of the water board '*Hollandse Delta*', in which objectives for CE, CA and ET are embedded in the main tasks of the organisation (Waterschap Hollandse Delta, 2019). This document also has administrative support. According to the respondents, this document makes policy coordination manageable, since the objectives are translated into roadmaps [17, 18]. Also, inter-administrative programmes are considered as important for providing solutions with administrative support and for more co-operation between governmental agencies [2]. Furthermore, the upcoming Environmental and Planning Vision (*Omgevingsvisie*) could provide means to coordinate between CE, CA and ET [3, 4]. Next to that, actors could also make more use of already existing programmes to incorporate objectives of CE, CA and ET, like the regional Water Plan, the multiannual plan and vision of the Regional Consultative body Southwest Delta, and of course the PSSD [9].

Organisations could also make use of feedback positive loops, which is sometimes already happening, for instance by means of a 'quick scan' for the various climate adaptation measures (BKKZ, 2018). This could be extended with measures for CE and ET as well. Moreover, as mentioned earlier, a lack of instantiation is found as a barrier for policy coordination between policy arrangements of CE, CA and ET. A project-based approach could help making policy coordination more concrete [e.g. 7, 8, 16, 17]. Within this kind of approach, actors could make use of roadmaps to translate objectives, and work towards concrete strategies [16, 19]. Another possibility is to work with key principles of CE, CA and ET as a kind of 'checklist' during projects [5, 7, 15].

A project-based approach helps in creating more knowledge exchange and gives more room to experiment [2, 16]. Making use of pilot projects will help even more for creating capacity and instantiation [1, 2, 8, 12]. By using pilot projects as a solution to seek for combinations between CE, CA and ET, also the possibility on budget through subsidies, like DEI, is higher. The Southwest Delta itself could even be a living lab for experimentation, after which successful projects could be upscaled to the national level or copied to other organisations [12]. This is also a means to involve the knowledge of research institutes, since it is easier for them to participate in concrete projects [15]. Moreover, a project based approach also helps in making coalitions and networks for policy coordination. Finally, also a system approach could be of help for that purpose. By looking at functional entities within the Southwest Delta, more strong and robust relationships between actors could be created [12, 16]. Respondent [12] describes the positive effect of a system approach as follows:

> *"So where is the allocation… Not governmental. Forget about the municipalities. Forget about the Provinces. But in what way is it functional? Look from a functional perspective in what way the best collaborations can be made"* [12]

Conclusion

The barriers and conditions for policy coordination between CE, CA and ET found, within the dimension *discourses* of the PAA, are summarized in the table below.

Table 3: Barriers and conditions for policy coordination between CE, CA and ET within the discourses dimension

Dimension	Indicator	Conditions	Barriers
Discourses	Problem definitions	Similar problem definitions needed, possible by external climate policy coordination	Current lack of similar problem definitions
	Belief systems	Similar belief systems, possible by: 1) using CE as a means for ET policies 2) changing belief systems into ones in which policy coordination has positive consequences, like employment opportunities	1) difference in belief systems of actors between and within policy arrangements 2) lack of long-term visions 3) lack of steering by national government 4) different directions taken by organisations because of diverging ideas
	Objectives	Shared objectives can be enabled by: 1) more knowledge exchange 2) political - administrative support for policy programmes 3) improved monitoring	1) current unshared objectives 2) negative influence of national government 2) objectives of Southwest Delta organisation are rather vague 3) Southwest Delta organisation did not include objectives for CE, CA and ET within their documents 4) sector objectives regarding water issues are prior
	Approaches	Common approaches can be enabled by: 1) group-centred approach 2) common policy programmes 3) using positive feedback loops 2) project-based approach (pilot projects) 3) system approach	1) lack of steering by national government 2) Southwest Delta organisation is too much focused on water issues 3) lack of practical guidance 4) lack of monitoring indicators 5) actors sense to avoid risks

4.2.2. Actors/power

Regarding actors and power, there is an *unclear actor constellation and division of responsibilities* leading to *vague and uncoordinated interaction patterns* with actors being *afraid to lose their autonomy* to interact with other actors. There are *some coalitions* that could help with policy coordination, but these need to be elaborated and strengthened. Moreover, there is a *lack of authoritative capacity*, resulting in a *lack of leadership roles* and entrepreneurs, and *political and decision-making power*. A further explanation of this dimension is given below, which is summarized in the *Conclusion* section.

Actor constellation and division of responsibilities

The actor constellation of each policy arrangement, individually, is diversified (see 4.1). For instance, CA is more dominated by governmental agencies, while ET is more controlled by market parties. This *difference in actor constellation* is therefore regarded as a barrier for policy coordination, since it leads to vague interaction patterns (see *Interaction patterns and level of autonomy*). To adjust to a clearer actor constellation, it is of importance to clarify the division of responsibilities. To have successful policy coordination, *shared responsibilities* between actors of each policy arrangement is presented as a condition by Verhoest et al. (2005). Also, respondents recognise this as an important condition for coordination between CE, CA and ET within the Southwest Delta, because actors will create ownership regarding CE, CA and ET through which meaning is given to the responsibility they have [2, 5].

To achieve shared responsibilities within the Southwest Delta regarding CE, CA and ET, also officials must get clear responsibilities and create ownership. At this moment a *gap between the division of political-administrative responsibilities and official responsibilities* is acknowledged [e.g. 8, 9, 14, 19]. Some administrators already have shared responsibilities, for instance aldermen with both energy and climate in their portfolios [9, 15, 17, 18]. However, this could be improved, because the translation to officials is not clear, since these shared responsibilities among administrators is barely noticed by officials.

According to respondents, there are three main barriers interfering with more sharing of responsibilities among policy actors. To start, policy actors are often *working sectoral* in either the CE, CA or ET policy arrangement. Therefore, there is little interaction with other policy arrangements and responsibilities are only divided within such a policy arrangement [e.g. 5, 9, 10, 16]. To reduce this adverse effect, the use of intermediaries can be helpful, which is further explained in the section *Coalitions and oppositions*. A second barrier is the *geographical scale* of the Southwest Delta, which involves several small municipalities. Based on this high number of small municipalities, it is unclear who should take a leading role for policy coordination between CA, CE and ET and thereby who should divide the responsibilities [e.g. 1, 10, 11, 12]. Respondent [11] explains this barrier as follows:

"Based on size you cannot point at one municipality for no reason, which is different in comparison to other regions" [11]

Some respondents even suggest an administrative rearrangement as a condition to deal with this problem [19]. This administrative rearrangement could lead to a 'Province of Southwest Delta', which also makes coordination of CE, CA and ET easier to relate to the water task. The current structure and institutional setting of the Southwest Delta is namely presented as another barrier, among other things, because the organisation does barely divide responsibilities among their members, which holds back the progress of the decision-making process. Furthermore, the organisation does not have decision-making authority at this moment, which makes it hard to divide responsibilities. If this alters, the distribution of shared responsibilities would become easier, which is therefore a condition for policy coordination of CE, CA and ET in the Southwest Delta [e.g. 7, 9, 13, 19].

Interaction patterns and level of autonomy

The unclear actor constellation and distribution of responsibilities is resulting in *vague and uncoordinated interaction patterns* with actors being *frightened to lose their autonomy* to interact with other actors in the Southwest Delta. There are five barriers identified that are interfering with more interaction patterns between the policy arrangements. First, as explained in the previous paragraph, the actor constellation per policy arrangement is diversified in comparison to the other ones, and a lack of shared responsibilities is noticed, which leads to uncoordinated interaction patterns between actors and organisations. Also, within the policy arrangements there is a difference in interaction patterns. For instance, interactions between actors within the CE policy arrangement are often based on coincidence, since this arrangement is not institutionalised yet. Interaction patterns within CA are more present, since these are getting more coordinated by the action plan CASZ in which a governance structure is included (see 4.1.1 and 4.1.2). The differences in interaction patterns of actors in less institutionalised policy arrangements make it harder to interact with actors from more institutionalised policy arrangements, since these often have a lack of time to co-operate with them [7, 8, 19].

Another barrier is the lack of leadership roles to steer in knowledge exchange and co-operations between the policy arrangements [3, 4]. Also, there is a barrier regarding the boundaries between the three provinces. Within the province of Zeeland there are certain interactions patterns and coalitions recognised, but organisations outside Zeeland (in North-Brabant and South-Holland) feel less connection with the work in the province of Zeeland [3, 4, 17, 18]. This might negatively affect the overall process of policy coordination within the Southwest Delta. Finally, the level of autonomy

is low, which suggests that actors can easily interact with each other. Respondents acknowledge this, because they understand they need to interact and co-operate with each other to drive climate policies. So, also for coordination regarding CE, CA and ET these interaction patterns are needed [e.g. 3, 5, 12, 14], which is explained as follows:

> *"You do not have full autonomy here, it is about issues which are exceeding municipalities and sometimes are exceeding Provinces. This means you have to coordinate, which is also asked by the national government if you want to receive financing or support at all"* [14]

However, actors find it rather difficult to interact with one another. According to Stead & Meijers (2004), interaction and co-operation are an important part of the process of coordination. Therefore, some conditions are given to improve interaction between the policy arrangements of CE, CA and ET. As a response on the lack of steering, more strong leadership is needed to coordinate interaction patterns (see *Authoritative capacity, leadership roles and political and decision-making power* for more information). Next to that, by means of organising events or work groups more interaction can be developed, because they create possibilities to interact with each other and exchange information. The work conference of the Southwest Delta organisation can be considered as a good example [3, 5, 11]. Lastly, if responsibilities are distributed in a way that they are shared among actors between the three policy arrangements, then actors will be forced to interact with each other. Therefore, this in an important condition as well.

Coalitions and oppositions

There are *some coalitions and oppositions* noticed between the policy arrangements CE, CA and ET. First, some current examples will be given after which the barriers and conditions for the forming of more coalitions are given. By comparing the three policy arrangements some interactions and collaborations are noticed between them. First, there are coalitions on micro-level, like business areas. On the small scale of business areas, actors sometimes attempt to insert objectives of CE, CA and ET, which therefore leads to co-operation between actors of the three policy arrangements [3, 4]. Another example is the '*tidal power station Brouwersdam'*, which is currently stopped because of a lack of political power to proceed. In the past, actors of each policy arrangement worked together during this project [16]. The collaboration '*Vitaal Sloe- en Kanaalzone*' is another example in which co-operation between actors is noticed. This coalition focuses on a specific area to boost in which aspects of CE, CA and ET are covered [6]. Lastly, '*Waterpoort'* is a good example in which actors from the three policy arrangements associate to instantiate CE, CA and ET policies into actions for a certain area (see BOX 3). These examples are rare illustrations of coalitions formed between the three policy arrangements, because some barriers are currently interfering with the construction of coalitions within the Southwest Delta. These barriers are closely related to the barriers of interactions, which are therefore not explained again.

Co-operation is a crucial condition for policy coordination in general, according to Stead & Meijers (2004). Respondents acknowledge this argument and have suggested some conditions for improved co-operation and the construction of coalitions between actors of CE, CA and ET policy arrangements. First, there is a general agreement that coalitions should be formed consisting of both public and private organisations. Also, research institutes are considered as important to involve during policy coordination, because they are less focused on one policy area (like CA), while governmental agencies mostly are, since they often work in departments or sectors [5, 6, 12]. The current interactions and collaborations between industries and interest groups, like ZMf, are also considered as special and important to proceed for future coordination [e.g. 1, 5, 10, 12].

BOX 3: Waterpoort

Waterpoort is an area situated between the boundaries of the provinces South-Holland, Zeeland and North-Brabant, around the lake Volkerark-Zoommeer. The area involves six different municipalities. Other organisations, like water boards, drinking water industries, educational institutes and nature associations are involved as well. The aim of this collaboration is to work on concrete projects that contribute to more regional activity, within the three main themes: Water, Delta nature/landscape and Heritage. In the coming years, the network organisation is going to expand with an operational programme with instantiated project ideas, including an initiator/owner, business case with financial capacity and the necessary resources. Furthermore, the network organisation has announced 2019 as the year in which the themes CE, CA and ET (and biodiversity) are instantiated and made tangible within their main themes. In this way, they contribute to the relevant societal tasks and a sustainable future-proof region. Citizens are asked to submit any suggestions of ideas for initiatives of activities throughout the year (Waterpoort Werkt, n.d.).

Secondly, inter fraternal cooperation within networks is acknowledged as a condition for coordination between CE, CA and ET by some respondents [17, 18]. This is type of coordination is similar to the archetype coordination by co-operation in loosely coupled networks (Zürn & Faude, 2010). This type of coordination contains relatively coupled institutions that interact co-operatively with each other. To achieve this kind of network coordination, intermediaries could be useful, since they specifically concentrate on coordination issues [2, 10, 17]. The following quote illustrates the importance of intermediaries.

"No, you always need intermediaries who connect it with each other. But then it will happen. So, in a sense, they are open to each other's stories, but the process needs to be facilitated" [2]

The Southwest Delta organisation is an already existing network organisation, which could make use of intermediaries. Intermediaries could help in maintaining contacts with non-governmental organisations, like research institutes and (innovative) companies. However, it is unclear whether there is enough budget for such a person within the Southwest Delta organisation at this moment [10]. Besides, some respondents mark the current institutional setting of the organisation as shortcoming for policy coordination between CE, CA and ET (see *Authoritative capacity, leadership roles and political and decision-making power*).

Lastly, due to the scale and location of the Southwest Delta, there is a high amount of small governmental bodies, consisting of little personal capacity (see *Personal capacity*). Therefore, often the same people are working on similar policy issues, resulting in interests of actors that are more likely to be the same. The frequently contacts made between actors are sometimes leading in the formation of collaborations [1, 12]. However, the scale and location of the Southwest Delta also has a negative side effect, since there are little shifts of new involvement of actors within these policy arrangements. Because there is a tight labour market within the Southwest Delta; new shifts are getting less and less noticeable (Rli, 2019). Also, if interactions between actors are *conflicting*, these are more difficult to resolve because actors keep working together on interlacing issues [1].

Authoritative capacity, leadership roles and political and decision-making power

By comparing the policy arrangements of CE, CA and ET, the conclusion can be drawn about a general *lack of authoritative capacity*; only within the CA policy arrangement there is enough authoritative capacity. This lack of authoritative capacity is closely related to a *shortage of (strong) leadership roles* (or entrepreneurs) and *too little political and decision-making power*. According to Persson (2004), a lack of *authoritative capacity* is leading to uncoordinated processes, therefore a condition for future policy coordination between CE, CA and ET is the generation of enough authoritative capacity. To

accomplish this condition, some barriers first need to be demolished. First, a barrier with a high adverse effect is the tight labour market in the Southwest Delta, which will get even more tight during the coming years (Rli, 2019). The tight labour market is currently leading to a lack of personal capacity, and thereby to a shortage of actors that can take a leadership role [e.g. 3, 8, 12, 13]. Self-evidently, the departure of employees needs to be prevented and more employment opportunities need to be stimulated [12]. Moreover, the leadership roles for actors that are available need to deal with a lack of time, which makes it hard to broaden the scope of leaders [e.g. 1, 4, 5, 9]. Therefore, it is necessary to bring about more people that are legitimate to broaden their scope, and include a broader range of objectives regarding CE, CA and ET [16].

Furthermore, respondents acknowledge the dependence on the will and commitment of certain leaders for coordination, but at this moment see a lack of such persons for leadership roles. To illustrate, the upcoming Dutch Climate Agreement and Environment and Planning Act (*Omgevingswet*) will divide responsibilities to local parties within the Southwest Delta, which are hard to fulfil because of the lack of authoritative capacity [12]. Lastly, the current administrative structure of the Southwest Delta is generating insufficient room for leadership roles, therefore a respondent thinks a condition might be to develop a new 'Province of Southwest Delta' for policy coordination of CE, CA and ET [19].

Not only authoritative capacity is needed according to literature studies, but also strong leadership is a condition for policy coordination (Persson, 2004; Lenschow, 2006), which is also recognised by respondents [e.g. 9, 14, 16, 17]. Currently, the Southwest Delta is facing a *lack of strong leadership* roles, caused by several barriers. To start with, the earlier described high number of small municipalities makes it difficult to allocate leadership roles, since it is unclear which municipality should take a leading role. Secondly, a more steering role by the national government is required. In the analysis of the current policy arrangements, it became clear that in general a more leading role of the national government is needed to set clear frameworks and objectives for local governmental bodies. This is in accordance with the policy document of Rli (2019), in which is stated that the connection between the national government and the Southwest Delta needs to be improved for the setting of approaches. A steering national government is also necessary to create more support (mostly financial) for local governmental bodies, since local governments are dependent on national authorities [16, 19]. Lastly, there is a lack of entrepreneurs [3]. According to Meijerink & Stiller (2013) and respondents [3, 7], entrepreneurs might have a positive influence on policy coordination, since they can seek for 'windows of opportunity'. Policy entrepreneurs are, thereby, able to solve collective coordination problems (Mintrom & Vergari, 1996).

Although respondents agree on a varying actor constellation involved for policy coordination between CE, CA and ET, which should not be executed only by local governmental agencies, they still agree on the leadership role which should be carried out by governmental bodies. Organisations like Rijkswaterstaat, water boards and Provinces should take this leadership role, because they understand the region's interests, are concretely engaged with implementation and are able to provide the additional support, according to respondents. Most logically, the Province of Zeeland should take a leadership role, because they have the most acceptance of their authority. Nevertheless, according to the respondents, it will be difficult to point at a certain governmental body that needs to take this responsibility [e.g. 2, 7, 9, 19]. The acknowledged leadership role of governmental bodies is similar to one of the types of coordination found in literature studies: authoritative coordination through a hierarchical institution (vertical coordination) (Mickwitz et al., 2009; Zürn & Faude, 2010). The form of policy coordination needed is often context-dependent. In this case, some respondents agree on vertical coordination executed by a hierarchical institution needed in the Southwest Delta to combine CE, CA and ET.

Next to the necessary strong leadership roles, political will and commitment executed by a certain amount of power is also a condition according to Persson (2004). Respondents acknowledge that

political commitment and pressure are conditions for policy coordination between CE, CA and ET within the Southwest Delta [e.g. 1, 2, 5, 17]. However, some barriers are interfering with the need of more political and decision-making power. The first barrier is the pressure on politicians, executed by lobby groups most of the time from industrial companies. Within the Southwest Delta there are some large industries possessing much power to obstruct decision-making processes concerning CE, CA and ET [5]. Secondly, politicians often set other issues higher on their agenda than climate change and water issues. Therefore their commitment is higher regarding other issues (within their portfolio) [7, 9]. The lack of agenda-setting on climate tasks is described as follows:

"Actually, I'm missing that 'umbrella' in Zeeland, because we are talking about the energy transition only, a little about climate adaptation and too little about circularity. While actually, all three themes are part of the climate task which we have for 2050 Paris… So, it would be great if that awareness, that we have a climate task, is felt on administrative level to set it stronger" [7]

Also, the four-year term of administrators is leading to making more 'popular decisions' and a lack of political will before, and during, periods of election [11, 17, 18]. Lastly, the institutional setting and structure of the Southwest Delta organisation do not ensure the use of power by politicians and decision-makers, because the Regional Consultative Body does not have decision-making authority. Respondents remark this as a barrier, because during meetings coordination between interests of actors seems to be more important than the distribution of responsibilities and capacity. This argument is endorsed by attending a meeting of the Regional Consultative Body; within a short period of time, different issues dropped by to which members could agree or disagree. There was little room during those meetings left to discuss these issues in more detail.

Conditions for breaking down these barriers are related to, earlier discussed, conditions for creating more authoritative capacity and more strong leadership roles. It is, however, important to create more political commitment and power, therefore two additional conditions are added. Firstly, pledging decision-making authority to the Regional Consultative Body by the Delta Committee could be helpful. Also hiring intermediaries (from an external party) could help developing more power, because they *have* to lead policy coordination between CE, CA and ET [2, 9, 10]. People who are able to steer coordination are crucial, because:

"Other administrators are working within one or two sectors […] So, if you are talking about acting integrally and thinking integrally, you have to organise that within a certain governance in which it comes about different 'linking pints' as I call it" [9]

Conclusion

The above presented barriers and conditions for policy coordination between CE, CA and ET found within the *actors/power* dimension, are summarized in the table below.

Table 4: Barriers and conditions for policy coordination between CE, CA and ET within the actors/power dimension

Dimension	Indicator	Conditions	Barriers
Actors/ power	Actor constellation	More diverse actor constellation by clarifying the division of responsibilities	Differences in actor constellation (leading to vague interaction patterns)
	Distribution of responsibilities	Shared responsibilities between policy arrangements, can be enabled by: 1) use of intermediaries 2) administrative rearrangement 3) decision-making power for Southwest Delta organisation	1) gap between the division of political-administrative responsibilities and official responsibilities 2) sectoral working 2) region's geographical scale 3) institutional setting of Southwest Delta organisation
	Interaction patterns	Coordinated interaction patterns by loss of autonomy among	Uncoordinated interaction patterns caused by:

		actors is needed, possible by: 1) more strong leadership 2) organising events/work groups 3) shared responsibilities between actors of policy arrangements	1) different actor constellations 2) different interaction patterns *within* a policy arrangement 3) lack of leadership roles 4) provincial boundaries 5) low level of autonomy
	Coalitions and oppositions	More co-operation through forming of coalitions, can be stimulated by: 1) inclusion of both public and private organisations 2) coordination by co-operation in loosely coupled networks 3) same people working on similar policy issues leads to collaborations	Barriers for this indicator are closely related to the ones of the indicator 'interaction patterns'
	Authoritative capacity	Increasing authoritative capacity	Lack of authoritative capacity caused by: 1) tight labour market within Southwest Delta 2) lack of time to broaden scope of leaders 3) dependence on political commitment 4) current administrative structure provides insufficient room for leadership roles
	Leadership roles	More strong leadership can be enabled by: 1) leadership roles of governmental agencies (preferably the Province of Zeeland) 2) vertical coordination	Lack of strong leadership roles caused by: 1) high number of small municipalities 2) lack of steering by national government 3) lack of entrepreneurs
	Political and decision-making power	Political and decision-making power and commitment can be enabled by: 1) pledging decision-making authority to the Regional Consultative Body by the Delta Committee 2) hiring intermediaries	Lack of political and decision-making power and commitment caused by: 1) pressure by lobby groups 2) political agenda-setting 3) four-year term of administrators 4) lack of decision-making power by Regional Consultative Body

4.2.3. Resources

Regarding the resources within the Southwest Delta, there is *enough knowledge capacity and willingness to develop more knowledge* for policy coordination between CE, CA and ET. There is also *enough financial capacity and technological capacity*. However, *a lack of personal capacity* (with time) is found. A further explanation of the barriers and conditions for this dimension is given below, which is summarized in the *Conclusion* section.

Knowledge capacity and development

By comparing the three policy arrangements, sufficient *knowledge capacity* in the Southwest Delta for coordination of CE, CA and ET is noticed. Therefore, no barriers are found concerning knowledge capacity. Schools, educational programmes and research institutes, which are the school for advanced education (*HZ*), the '*Delta Academy*', '*Scalda*' and '*NIOZ*', are considered as important sources of knowledge. If there is a lack of knowledge concerning a certain issue, actors are not timorous to seek for knowledge outside the Southwest Delta, for instance by involving research

institutes like *Deltares*, *TNO* or *Wageningen University & Research* [e.g. 3, 4, 10, 12]. A condition for policy coordination of CE, CA and ET is, therefore, the hauling in of knowledge from outside the region. Also, Rli (2019) states the value of maintaining contacts with research institutes, since they are in the possession of an overarching knowledge image of each policy arrangement.

Moreover, respondents agree on the willingness of actors within the Southwest Delta regarding CE, CA and ET to *develop knowledge* [e.g. 5, 9, 11, 15]. However, a remark is made by respondents on the ability of actors within the Southwest Delta to mobilize the knowledge, because often knowledge stays attached within one policy arrangement [3, 12]. Nilsson et al. (2012) emphasize the importance of management of knowledge as well. It is thereby significant to exchange knowledge between actors of the policy arrangements. Respondents consider this as a condition of successful policy coordination of CE, CA and ET within the Southwest Delta [e.g. 3, 12, 13, 14], which is illustrated by the following quote:

"[…] if you add up all together: researchers, entrepreneurs and governments […]. Then you will have the total of knowledge mapped. Even more important is, how are the three of them working together on these different themes" [3]

Different conditions and opportunities arise that could lead to more knowledge exchange in the future. First of all, the knowledge community Southwest Delta is important for sharing information, as well as the project coordination meetings of the organisation Southwest Delta and the Delta Platform [13, 14]. Also websites (like onzedelta.nl) and conferences (like the work conference Southwest Delta) are regarded as helpful means to exchange information between actors [5, 11]. Moreover, pioneer projects in which CE, CA and ET objectives are coordinated could also lead to the development of more knowledge. The results of these pioneer projects can serve as examples, which could be easier shared to other projects or organisations [16]. Also, actors should make more use of instrument like 'knowledge vouchers' to, at least, share more information between CE, CA and ET within their organisations. The municipality of Bergen op Zoom is already making use of these vouchers and is positive about the effects of internal information sharing [3, 4]. Lastly, according to Hertin & Berkhout (2003) knowledge exchange for policy coordination can be enhanced by issue-specific working groups, informal discussions, ad hoc meetings and consultation processes between policy arrangements.

Financial capacity

More knowledge exchange could also be enhanced by generating more budget for research programmes, according to respondents. At the moment there is no lack of *financial capacity* noticed, but actors could make more use of certain means for receiving more budget, since sufficient financial capacity is considered as a condition for policy coordination [2, 10, 14]. There are several ways to receive more budget for coordination of CE, CA and ET. For example, by requesting European funding, which is explained by respondent [12] as follows:

"Money is not a problem at such. There is always money for good projects. This region is also well-positioned for European funding […]. There are also all sorts of programmes that provide us money to spend on a national level as well" [12]

The making of good business models is also considered as a condition, since it leads to investments and thereby raises the financial capacity. The, earlier explained, '*Delta Fund*' could be extended as well. This is in coherence with the aim of the fund, since it makes means available for collecting, editing and sharing coherent information as well as doing coherent research (KIM, n.d.). Also instruments like the 'Climate Envelope' are helpful for governmental agencies, since they get stimulated to purchase money for CE and ET purposes [12]. Organisations within the Southwest Delta could also create investment agendas to receive budget in a more intended way. On a national level, the overarching organisations of the water boards, Provinces and municipalities already developed such an agenda which is positively received by respondents [17, 18]. Lastly, a more leading role of a

governmental body for coordination between CE, CA and ET is crucial for facilitating the process. Also for broadening the scope of their tasks to heighten the budget that parties receive for completing CE, CA and ET tasks [14, 16].

Technological capacity

Concerning the technological innovation capacity, there are no lacks noticed. Respondents also acknowledge the importance of innovative capacity for policy coordination between CE, CA and ET [7, 8, 16]. This is in accordance with the literature study of Bauer & Rametsteiner (2006), in which innovation is increasingly recognised as a way to contribute to climate problems. The innovative Smart Delta Resources project and the creative breeding ground of the Municipality of Bergen op Zoom illustrate how innovative capacity is currently practiced by actors (see *Discourses*). A way to make room for more innovation within the Southwest Delta might be by assigning someone as a 'launching customer' to lead projects specifically aiming to coordinate between CE, CA and ET, like Rijkswaterstaat is currently doing on a national scale [16]. The consequences of such an approach are explained as follows:

> *"This means, that in the exploration and plan elaboration phase of such projects, sufficient budgets need to be available, since the scope of climate adaptation, energy transition and circular economy needs to be broader because more research is needed"* [16]

Personal capacity

Regarding *personal capacity*, there is a lack noticed for policy coordination between CE, CA and ET within the Southwest Delta. Respondents consider the lack of personal capacity as a barrier with a high adverse effect on policy coordination between CE, CA and ET [e.g. 7, 8, 11, 13]. There are currently some barriers impeding to create more personal capacity. First of all, the earlier discussed tight labour market creates a lack of personal capacity, and this trend is still increasing. As a consequence, people are working on different policy issues within the environmental field. The work for each of these topics is often too much to accomplish all appropriately [11, 12]. The second and most important barrier, is the shortage of time among policy actors. Respondents acknowledge the lack of time within their own policy arrangements, by which they do not have enough time to co-operate with actors of other policy arrangements. This applies for administrators as well as officials of governmental bodies, but has the highest adverse effect on administrators, because they do not have sufficient time to set the right course or framing for policy officers [e.g. 1, 3, 4, 9]. The lack of time is also influencing the knowledge capacity, since there is insufficient time to mobilize knowledge, because new knowledge is developing in a high speed [12]. The relation between time being spent by personnel and the ability to acquire new knowledge is also marked within literature studies (Hertin & Berkhout, 2003; Persson, 2004; Mickwitz et al., 2009; Persson & Runhaar, 2018). The lack of time is explained as follows by respondent [5]:

> *"So, in theory I think people know how to find each other, but people being too busy is still a problem. So, if you want to create something together, you must invest time, because time is often a threshold"* [5]

Some conditions for generating more personal capacity (and time) are, first, developing more policy programmes. These programmes provide, among other resources, personal capacity which makes it easier for policy actors to create time, since it is formally arranged [3]. Next to that, recruiting more employees to work in the region by stimulating measures could also help in generating more personal capacity [5, 12]. Lastly, more time is closely related to more (political) commitment. Policy coordination is highly dependent on individual actors and their willingness to invest more time and be committed to what can be achieved [9].

Conclusion

The table below summarizes the barriers and conditions described for policy coordination between CE, CA and ET within the *resources* dimension:

Table 5: Barriers and conditions for policy coordination between CE, CA and ET within the resources dimension

Dimension	Indicator	Conditions	Barriers
Resources	Knowledge capacity	There is sufficient knowledge capacity, but this can be increased by taking in expertise from research institutes from outside the region	No lack of knowledge capacity found
	Knowledge development	There is enough willingness to develop knowledge, but this can be further stimulated by: 1) more knowledge exchange 2) pioneer projects 3) 'knowledge vouchers' 4) issue-specific working groups, informal discussions, ad hoc meetings and consultation processes between policy arrangements	Lack of mobilisation of knowledge
	Financial capacity	Sufficient financial capacity can be enabled by: 1) good business models 2) extending the 'Delta Fund' 3) instruments, like the 'Climate Envelope' 4) investment agendas 5) improved facilitation by a governmental body	No lack of financial capacity found
	Technological capacity	Sufficient technological capacity needed, which can be further enabled by appointing a launching customer to lead innovative projects or programs	No lack of technological capacity found
	Personal capacity	More personal capacity needed, which can be increased by: 1) developing more policy programmes 2) recruiting employees 3) creating more (political) commitment	Lack of personal capacity by: 1) tight labour market 2) lack of time among actors

4.2.4. Rules of the game

Within this dimension, a *lack of legislation and procedures* are found for policy coordination between CE, CA and ET within the Southwest Delta. Furthermore, the *political cultures* of the policy arrangements are *not united*. Barriers and conditions found within this dimension are discussed below and summarized in the *Conclusion* section.

Legislation

At this moment there are almost no policy discourses translated into binding laws; because there is not much *legislation*. Only the action plan CASZ can be considered as legally binding, since the actual strategy will require an obligation to report to the Delta Commissioner. Moreover, right now there is no legislation combining objectives of CE, CA and ET. Still, respondents acknowledge the importance of the realisation of formal institutional arrangements as a condition for policy coordination between CE, CA and ET [14, 15], which is in compliance with some literature studies written about general policy coordination (Meijers & Stead, 2004; Nilsson et al., 2012). The following quote illustrates the need for formal institutional arrangements.

"My experience is that if you eventually come up with a document so strong brought into discussion, with people interred, this will lead to everyone gathering together and eventually doing the needed work" [14]

Respondents [14, 15] also mention formal institutional arrangements as crucial, because they can lead towards political and administrative support for certain decisions regarding CE, CA and ET. However, some barriers are currently interfering with reaching more legally binding laws for coordination between CE, CA and ET policies. First, coordination will possibly lead to new judicial issues. This is due to water safety issues might getting into conflict with issues regarding CE, CA and ET if policies for these climate themes are going to be coordinated in relation to water issues [14]. Secondly, Natura 2000 legislation can halt objectives regarding CE, CA and ET. Namely, nature development is sometimes leading to budget being spent on nature objectives instead of objectives regarding CE, CA and ET in relation to water, according to respondents [15, 16]. On the contrary, formal legislations like the Environment and Planning Act and the Dutch Water Law could provide means to create more legally binding objectives for future policy coordination of CE, CA and ET [4, 6].

Procedures

Regarding *procedures*, there is a lack of good examples for each policy arrangement, and therefore also for coordinated arrangements of CE, CA and ET. Hence coordination between CE, CA and ET within the Southwest Delta needs good and common procedures, which is therefore a condition [e.g. 1, 3, 9, 19]. This is in accordance to the literature study of Briassoulis (2004) in which common procedures is recognised as a requirement for general policy coordination. The need for procedures is illustrated by the following quote:

"Missing the practical guidance to know what we should actually do? How do we get to work? So good examples, procedures, processes… How am I ending up from broad to fine? That is seriously lacking now and therefore required" [1]

One barrier is not helping in providing more practical guidance, which are the MIRT systematics. The MIRT systematics ask from policy makers to start broad and from there work towards executable infrastructural, environmental or transport projects via transparent choices (MIW, 2018). This is contradicting to coordination in which policy makers should actually keep a broader scope to include objectives regarding all three themes (CE, CA and ET) [16].

To develop good procedures for policy coordination between CE, CA and ET, some conditions need to be enabled. To start, public participation is an important part of the proceedings for coordination between CE, CA and ET. Public participation is crucial, since each of the three climate tasks will have societal impact (Rli, 2019). Mainly within the policy arrangement ET it is mentioned as necessary to create public support, but respondents notice this kind of procedures are easily being translated to other policy arrangements [1, 5, 9, 15]. Within the Delta Programme, public participation is also a prominent requisite of the procedures. During projects, participation of governmental bodies, societal organisations and citizens is required to develop support for decisions (MIW et al., 2018). Also, the involvement of interest groups within the process of coordination might have positive effects on creating more public support [10].

Moreover, monitoring is an essential part of procedure for CE, CA and ET. According to respondents, the Delta Commissioner and Regional Consultative Body of Southwest Delta could do more to monitor the process of the PSSD, including objectives of CE, CA and ET if these are to be incorporated [e.g. 8, 10, 13, 19]. Lastly, at this moment the Regional Consultative Body has an obligation to effort, which is marked as a disadvantage, because an obligation to achieve will probably result in more progress. An obligation to achieve for the Regional Consultative Body is, therefore, the last condition [16, 19].

Political culture

As mentioned earlier, the different belief systems and problem definitions are now resulting in differences in *political culture,* mainly on a national level. The different ideas on climate change problems between left-wing and right-wing parties, leading to political fragmentation, are affecting the policy processes regarding CE, CA and ET within the Southwest Delta. This political fragmentation is found on a national level considering the slow progress of the Climate Agreement, but on a regional scale more fragmentation is also expected. After the elections of the Provincial States in the first quarter of 2019, actors are afraid possible shifts of involvement of administrators in decision-making making processes will negatively affect the policy arrangements of CE, CA and ET, since an extreme right-wing party won the elections. This could increase the internal discord within local governmental agencies, which is already noticed. All in all, political fragmentation is considered as a barrier with a high adverse effect for policy coordination between CE, CA and ET within the Southwest Delta [e.g. 6, 10, 13, 16]. Another barrier is the political culture of negotiating (Dutch polder model) within each policy arrangement, since it leads to delay of decision-making processes [11, 12, 15]. Respondent [12] explains it as follows:

"The wish to co-operate often leads to an extra meeting. But the wish to co-operate should lead to projects and really doing things" [12]

A condition with high priority for creating a more united political culture in which policy coordination between CE, CA and ET can be improved, is creating more political-administrative support. This is possible by several approach, for instance by developing more administrative arrangements, like inter administrative programmes [2, 17, 18, 19]. The ambition document of the water boards can be considered as an example of a document creating political support as well as formally binding objectives [17, 18] (see *Approaches to problem*).

Conclusion

The barriers and conditions found for policy coordination between CE, CA and ET within the *rules of the game* dimension, are summarized in the following table:

Table 6: Barriers and conditions for policy coordination between CE, CA and ET within the 'rules of the game' dimension

Dimension	Indicator	Conditions	Barriers
Rules of the game	Legislation	1) formal institutional arrangements 2) Environment and Planning Act and Dutch Water Law	1) new judicial issues 2) Natura 2000 legislation
	Procedures	More (common) procedures are needed, which can be enabled by: 1) public participation as a part of procedures 2) involvement of interest groups 3) monitoring 4) obligation to achieve for the Regional Consultative Body	1) lack of good and common procedures 2) MIRT systematics
	Political culture	A more united political culture can be achieved by creating more political – administrative support	1) current political fragmentation on different scale levels 2) negotiating culture (Dutch polder model)

4.3. Programmatic approach to Eastern Scheldt Barrier

Within this section, barriers and conditions for policy coordination of CE, CA and ET within the Programmatic Approach to the Eastern Scheldt Barrier (PA ESB) are presented. The PA ESB is currently in development by actors working at Rijkswaterstaat. The barriers and conditions are

discussed within the dimensions of PAA. The section is mainly based on insights from the focus group, which is supplemented with information from policy documents and literature studies. Indicators of the dimension 'rules of the game' are not discussed during the focus group, therefore this dimension is not included in this section. Next to that, not all indicators of the other three dimensions are applied either. This section answers the third research question: '*How are the identified barriers and conditions for coordination between the policy arrangements of the circular economy, climate adaptation and energy transition visible within a subproject of the Southwest Delta?*'.

4.3.1. Barriers and conditions for policy coordination between CE, CA and ET in PA ESB

Within the ***discourses*** dimension, a lack of shared *problem definitions* as well as *belief systems* is found, leading to *unshared objectives*. Actors working for the programmatic approach are lacking the perception of the need for an integral approach for CE, CA and ET, because there are no *similar problem definitions*. Thereby actors do not *believe* coordination between CE, CA and ET has to take place for the programmatic approach. This lack of belief systems among actors for policy coordination is also due to a deficiency of ambitions amidst actors. This is caused by the negative feeling towards the extensiveness and complexity of coordination between CE, CA and ET, which they believe. This makes actors anxious to invest time and money for policy coordination. Also the uncertainty of the future makes actors being scarified to invest time and money into climate policy coordination. Next to that, specifically managers involved in the PA ESB have the sense to avoid risks, because they rather prefer to play it safe for the reliability of the barrier. Therefore, the level of urgency for coordination between CE, CA and ET within the PA ESB should be increased, according to respondents ([focus group 20, 22] see *Appendix II: List with focus group respondents*).

Because of the dissimilar belief systems of actors, only short-term *objectives* are set by actors. Respondents therefore acknowledge more connection between short-term objectives and long-term strategic goals is needed. Not only short-term control and maintenance objectives for the Eastern Scheldt Barrier should be of matter, but also long-term perspectives in which CE, CA and ET objectives take a more prominent role. These long-term objectives should therefore be shared between CE, CA and ET policy arrangements. The current lack of shared objectives is also due to sectoral working of actors, because there are differences in background and specialisms of actors involved in the PA ESB [22, 23, 24]. This is summarized by respondent [23] as follows:

"Everyone is speaking a different language" [23]

Also, more time for actors is needed to instantiate CE, CA and ET objectives for the PA ESB [26]. Instantiation of objectives can be enabled by the set-up of *approaches*. Respondents agree on the condition of achieving coordination between CE, CA and ET through a project-based approach or through a programme (within Rijkswaterstaat), like PA ESB. Also instruments, like the Environment and Planning Vision, might be helpful for coordination between CE, CA and ET within the PA ESB [22, 24, 26]. The forming of new instruments is also marked as a condition. New instrument can be developed by the national government. Currently, a general lack of leadership roles, as well as a lack of steering by the national government is noticed (***actors/power dimension***). Lack of leadership and entrepreneurial roles is presumably caused by the perception of the uncontrollable task of coordination between CE, CA and ET within the PA ESB. Therefore, national authorities should execute their *power* towards employees of Rijkswaterstaat for coordinating between CE, CA and ET within the PA ESB, according to respondents. Also, more commitment of managers is needed. Respondents think the low level of commitment and support by directors and managers negatively affects the effort done by policy actors. More pressure on employees will improve coordination between CE, CA and ET within the PA ESB, according to them [20, 22, 24, 25].

Also, the earlier discussed lack of ambition is not helpful in generating more commitment, since realising ambitions of managers into concrete actions will lead to more willingness among policy

actors to work towards coordination between CE, CA and ET [e.g. 20, 22]. Another reason for a lack of commitment is explained as follows:

"If there were unlimited resources available, then it would have been easier to generate commitment in general as well" [21]

Consequently, within the ***resources*** dimension, a lack of resources is found for coordination between CE, CA and ET within the PA ESB. Primarily, a shortage of *personal capacity* is marked by respondents. This is closely related to insufficient time and knowledge amongst actors. A lack of personal capacity causes actors having too little time to elaborate on their tasks. Moreover, it is also difficult to adjust current processes in addition to maintenance of the barrier, because this is a continuous process. Therefore, control and maintenance of the barrier have priority before objectives for CE, CA and ET will be incorporated. This is caused by a lack of time among actors to extend objectives for the PA ESB [e.g. 20, 23]. More time is also needed to explore and execute research. Right now, too little *knowledge capacity* within Rijkswaterstaat is seen as a barrier for connecting ambitions with objectives for the PA ESB. For that reason, knowledge capacity should be increased by actors developing more knowledge. In that sense, the *financial capacity* is currently too low to spend budget on research programmes [e.g. 20, 24]. Other than that, there is no lack of budget noticed.

Another way to develop more knowledge is by involving research institutes. For the *actor constellation*, it is therefore of importance to involve not only governmental organisations, but also non-governmental organisations, like research institutes. To identify the actors that should be involved in the process, the performance of a stakeholder analysis is acknowledged as a useful instrument [24]. Also, knowledge sharing between departments within Rijkswaterstaat could be strengthened as a means to develop more knowledge. More knowledge exchange is also a way to create more internal support for decisions made for coordination between CE, CA and ET within the PA ESB. If actors are more aware of the process by sharing knowledge, this increases internal support, according to respondents [20, 24, 26].

4.3.2. Conclusion

The above discussed barriers and conditions for coordination between CE, CA and ET within the PA ESB, can be summarized as follows:

Table 7: Barriers and conditions for policy coordination between CE, CA and ET within the PA ESB

Dimension	Indicator	Conditions	Barriers
Discourses	Problem definitions	Shared problem definitions needed	Lack of similar problem definitions through a lack of perception for an integral approach of CE, CA and ET
	Belief systems	Shared belief systems are needed, which can be enabled by: 1) increasing level of urgency of policy coordination	Lack of similar belief systems, by: 1) lack of ambition among actors 2) actors (specifically managers) sense to avoid risks 3) sectoral working
	Objectives	Shared objectives are needed, which can be enabled by: 1) linking short-term tasks to long-term strategic goals 2) time among actors for instantiation of objectives	1) unshared objectives 2) control and maintenance objectives are prior to objectives for CE, CA and ET
	Approaches	1) project or programmatic - based approach 2) use of (new) instruments	-
Actors/ power	Actor constellation	Involvement of research institutes	-

	Leadership roles	More steering leadership role of national government needed	Lack of leadership and entrepreneurial roles
	Political and decision-making power	More political and decision-making commitment needed	1) lack of ambition among actors 2) shortage of general resources
Resources	Personal capacity	1) more personal capacity needed 2) more time for actors needed	Lack of time among personnel
	Financial capacity	Budget for research needed	-
	Knowledge capacity	1) more time needed for research 2) sharing knowledge	Lack of knowledge capacity

5. Conclusion, discussion and recommendations

This chapter consists of the concluding and discussing parts of the research. The chapter is finished with recommendations for policy makers and researchers.

5.1. Conclusion

This study, first, mapped the current situation of the circular economy (CE), climate adaptation (CA) and energy transition (ET) policy arrangements within the Southwest Delta. This analysis is performed by means of the policy arrangement approach (PAA) and its including dimensions: discourses, actors, resources/power and rules of the game. Thereafter, barriers and conditions for policy coordination between CE, CA and ET within the Southwest Delta are discussed. Some of these barriers and conditions are further examined in the embedded case study: the Programmatic Approach to the Eastern Scheldt Barrier (PA ESB). These barriers and conditions for both case studies are also presented in the dimensions of the PAA. Each of these research steps is conducted to answer the sub research questions. The answers to these questions can be found in the concluding parts of the result sections. The last research question is answered in the *Policy recommendations* section at the end of this chapter. Therefore, this section primarily focuses on answering the main research question, which is:

How can the policy arrangements of circular economy, climate adaptation and energy transition be coordinated within the Southwest Delta by which conditions are enabled and barriers are reduced?

From the results, it became clear that the conditions for (climate) policy coordination presented in the operationalisation section (2.5) are also acknowledged during the research. That is to say, within the discourses dimension; shared belief systems, problem definitions and objectives need to be achieved. Also the development of common approaches is of importance. Within the actor dimension; a diverse actor constellation, coordinated interaction patterns, more co-operation and strong leadership roles are needed. Within the resources/power dimension; sufficient knowledge, financial, technological, personal and authoritative capacity are necessary. Also, willingness to develop knowledge, political and decision-making power, loosing autonomy and a shared distribution of responsibilities are essential. Within the 'rules of the game' dimension, formal institutional arrangements are of importance, together with common procedures and a more united political culture.

By comparing the current situations of the policy arrangements, it became evident that the level of coordination between CE, CA and ET, at this moment, is low within the Southwest Delta (4.1.4). This means, that nearly all conditions presented above are currently, on the opposite, found as barriers for policy coordination between CE, CA and ET. Only some interaction patterns, coalitions, knowledge and procedures are shared between policy arrangements at this moment. In order to have successful policy coordination between CE, CA and ET, it is therefore crucial to reduce as much barriers as possible. Several additional conditions and opportunities are presented in the results that should be enabled to interfere with the current barriers.

For instance, this research suggests that more strong leadership and political and decision-making power are needed for policy coordination between CE, CA and ET. Presumably, this leadership and power should be executed to an increasing extent by national authorities, because actors within the Southwest Delta are highly dependent on development and facilitation by the national government. To illustrate, the political negotiations about the Dutch Climate Agreement negatively influence the progress made by local governmental bodies, since the distribution of responsibilities among actors is still unclear. Since there is no clear course set by national authorities, actors are setting down their own course as a response on the lack of framing by national authorities. This has an adverse overall effect on policy coordination, because it is more difficult to bring together the different policy arrangements if organisations take different directions. All of this is due to political fragmentation on higher governmental levels. Political fragmentation is not included in the theoretical section of this study, which is therefore found as an additional barrier. Altogether, the influence of higher governmental agencies on regional policy coordination is an implication that should be taken into account in the future.

Furthermore, this study suggests not only knowledge capacity and development are of importance, but also knowledge sharing is crucial. More knowledge sharing should be taken into consideration, since it increases the willingness to develop more knowledge, which thereby increases the knowledge capacity. Mobilisation and management of knowledge might be improved as well, because knowledge stays to a lesser extent attached within one policy arrangement. More knowledge exchange also results in more information being shared between actors of each policy arrangement. Through this way, actors are more aware of the objectives set within each policy arrangement, which increases the possibility on objectives becoming shared between policy arrangements. Knowledge sharing between actors of each policy arrangement is not mentioned within literature studies as a condition for policy coordination. More knowledge sharing is therefore, through this study, found as an additional condition.

Moreover, the use of intermediaries is acknowledged as a condition as well, since it might reduce several barriers. Involving an intermediary leads to one person being responsible for policy coordination of CE, CA and ET. At this moment, a lack of leadership roles is found for policy coordination. An intermediary could fill this gap and lead the process of coordination. A lack of authoritative and personal capacity for policy coordination is therefore to a greater extent managed as well. It also means that the intermediary is in charge of the distribution of responsibilities between actors of each policy arrangement. In this way, intermediaries are able to make sure that responsibilities are shared, because this is necessary for policy coordination between CE, CA and ET. Lastly, intermediaries can maintain contacts with other organisations, like research institutes, leading to a more diverse actor constellation. Therefore, the use of intermediaries is in many aspects of help, since it leads to various barriers being reduced.

Lastly, this study shows there is a difference in position of each policy arrangement. The CA and ET policy arrangements are more institutionalised in comparison to the CE policy arrangement. To coordinate between these three climate policy arrangements, it is therefore of importance that the CE policy arrangement needs to develop. According to the results, the first step towards more development is to create more awareness and increase the level of urgency for circularity among actors within the Southwest Delta. This means, actors need to change their belief systems into ones in which circularity is as important as climate adaptation and the transition towards sustainable energy use are, and can be used for water management issues as well. When more awareness among actors is created, the development of objectives and approaches is easier to make, according to the results.

All in all, there is a difference in the current state of the CE, CA and ET policy arrangements in the Southwest Delta. Also, the current level of coordination between these three climate policies is low.

However, this study presented several barriers and conditions that should be taken into consideration to enable policy coordination between CE, CA and ET within the Southwest Delta.

5.2. Discussion and reflection

First, this subsection compares the results of the main and embedded case studies with each other. Thereafter, it draws conclusions and reflects on the theories used during this study by describing its implications. The theoretical conclusions are taken into a broader view by extending the theoretical framework with some new insights as well. Lastly, the methodological choices are reflected and discussed as well.

5.2.1. Comparison between main – and embedded case study

In this section, results of the main case study are compared to results of the embedded case study. In both case studies, the importance of shared objectives, belief systems and problem definitions are acknowledged. Also, the use of a project-based or programmatic based approach is considered as a beneficial way to instantiate policy coordination between CE, CA and ET. Moreover, knowledge exchange should be strengthened, which is possible by the involvement of research institutes. Regarding resources, in both cases, lacks of personal capacity and authoritative capacity are found. This is closely related to a lack of time to co-operate and develop knowledge. Also a lack of leadership is acknowledged in both cases; specifically a lack of steering by national authorities is noticed.

Even more interesting is to seek for differences between the results of both cases. Involved actors of the Programmatic Approach to the Eastern Scheldt Barrier (PA ESB) tend to focus on linking short-term maintenance and control objectives to long-term strategic goals regarding CE, CA and ET. Whereas for the main case study, respondents mainly concentrated on the development of shared objectives. This difference might be due to dissimilarities between coordination on a more strategic level and coordination on a programmatic level. On a strategic level there is no strong focus on maintenance of certain works in an area, like the Eastern Scheldt Barrier. Another difference is the little attention by respondents of the PA ESB on legislative aspects for coordination of CE, CA and ET. In the main case study, respondents emphasized the importance of creating formal institutional arrangement and similar procedures, like public participation. During the focus group of the PA ESB, these conditions are not mentioned.

Lastly, respondents of the PA ESB strongly focused on the needed internal support for decisions to combine objectives of CE, CA and ET within the PA ESB. This states, that on a strategic level it is more important to first interact with other organisations to create a coordinated approach, whereas within the PA ESB it is more important to first receive internal (administrative) support to further progress. Next to the support, also the ambitions and will of managers is important for the PA ESB, since this influences the effort made by policy actors. The results of the embedded case study also mark the importance of a leading role by national authorities. Altogether, this implicates vertical coordination is favoured on a programmatic level, since the influence of top-down hierarchical authorities is important.

This comparison, furthermore, implies that barriers for policy coordination between CE, CA and ET are found on both levels; strategic and programmatic. Whether policy coordination between CE, CA and ET will be implemented on a strategic level or programmatic level in the future; in both cases actors have to deal with the barriers found during this study. The comparison also implies that conditions for general policy coordination, found in literature studies, are necessary for policy coordination between CE, CA and ET on both a strategic level and programmatic level. According to Meijers & Stead (2004), policy coordination is successful if coherence and consistency between various objectives and elements of a single project is ensured, within a set of interacting policies. Given the fact that mainly similar conditions are found between both cases, and that consistency

between both cases thus needs to be achieved, it is important that in both cases actors need to follow to a similar direction towards policy coordination between CE, CA and ET.

5.2.2. Theoretical reflection, conclusions and extensions

In this section, the empirical results are linked to the theoretical framework by presenting theoretical reflections, conclusions and discussing its implications.

Theoretical reflection and relevancy

This study is based on two theories: policy coordination and the policy arrangement approach (PAA). This happened to be a logical combination for a theoretical framework, since the theories supplemented each other well. The conditions, found in literature studies, for (climate) policy coordination fitted well within the dimensions of PAA. The PAA is therefore a good method to use for comparing different policy arrangements with each other. Often PAA is used to *analyse* just one arrangement (Immink, 2005; Veenman et al., 2009; Ahebwa et al., 2012), however this study shows it can be used as a method to *compare* as well, which is therefore suitable for studies about coordination. Shannon & Schmidt (2002) already presented theoretical approaches useful to promote policy integration, which are comparable to PAA. The Policy Arrangement Approach is not used in their study. This study, therefore, supplements another theoretical approach helpful to endorse policy integration (and coordination). Moreover, according to Geerlings & Stead (2003) little thinking is yet done to the organisational and/or institutional aspects of policy coordination, and how it relates to policy theories, like PAA. This study, however, extensively examined the organisational and institutional aspects of policy coordination, as well as related this to PAA. Therefore, it contributes to literature studies, which makes the study scientifically relevant.

The theory policy coordination seems to be a good theory to use as well, since the conditions presented in the theoretical framework (operationalisation; 2.5) are found in the results as well. These conditions were set from different literature studies published about policy coordination. This means, conditions for coordination between CE, CA and ET are nearly similar to conditions for (climate) policy coordination in general. Most of literature studies about climate policy coordination are written about external climate policy coordination, which is the incorporation of climate objectives into non-climate sectors (Nilsson, 2005; Kivimaa & Mickwitz, 2006; Howden et al., 2007; Persson & Runhaar, 2018). Literature studies, written about internal climate policy coordination, are most of the time about coordination between mitigation and adaptation climate policies (Klein et al., 2005; Kok & De Coninck, 2007; Wilbanks & Sathaye, 2007; Swart & Raes, 2011). As the introduction suggested, this study is relevant by studying coordination between three internal climate policies; CE, CA and ET. From the results, the conclusion can be drawn that there is no difference between conditions for policy coordination between this study and earlier literature studies. Therefore, based on this study, there can be concluded that this study is supplementary to other literature studies about climate policy coordination.

Although climate policy coordination has been a good theory for the purpose of this study, still it has some limitations too. Coordination is the first degree of integration, next to mainstreaming and integration. On the one hand, the choice for coordination was right, because it is the first level of coordination and there was no coordination yet mentioned (4.1.4). On the other hand, sometimes influences of mainstreaming and integration passed within the results. To illustrate, mainstreaming has a focus on sharing objectives (Nunan et al., 2012), which seemed to be an important condition found during this study too. Integration requires more resources and capacity, and more interaction between actors (Meijers & Stead, 2004). During this study, the need for more capacity as well as interactions and co-operations with different organisations is strongly emphasized. Therefore, the results sometimes have been conflicting with the policy coordination theory.

Interrelatedness PAA dimensions

According to Liefferink (2006), the four dimensions of PAA are interrelated with each other. This study supported the findings of Liefferink, because the results showed the dimensions were indeed related to each other. The barriers and conditions, found in each dimension, were often connected. Section 4.2.2 supports this argument, since indicators from the dimensions actors and power (actually part of resources) are used intertwined. To illustrate, interaction patterns, part of the actor dimension, is discussed together with level of autonomy, which is part of the resources/power dimension. It seemed like these two indicators are closely related to each other, because a low level of autonomy often means there is more interaction between actors. Another example is the level of authoritative capacity, which is closely related to leadership roles and political and decision-making power. No additional conditions are given for this latter indicator, since these are similar to the ones found for the former two indicators. These examples state the interconnectedness between the actors and power dimensions. When PAA is used in relation to policy coordination in future research, it therefore requires another application of the PAA dimensions.

This theoretical conclusion tells it is important to perform research to the dynamics between dimensions of a PAA as well. For coordination, in particular, it indicates that dimensions within each separate policy arrangement are interrelated, but also the policy arrangements themselves are related to each other. Therefore, policy coordination consists of quite dynamic aspects. To incorporate these dynamic factors, this study started with the discourse dimension, because from there it was easier to explain the other dimensions. Belief systems, problem definitions, objectives and current approaches tell a lot about which actors are involved, which capacity is available, and which formal and informal rules are set within a policy arrangement. This is in accordance with the argumentation of Liefferink (2006), because he states that the tetrahedron – a figure showing the interrelatedness between dimensions (see Figure 5) – makes it possible to start from one of the four dimensions. The dimension to start with, depends on the aim of the study. This possibility has been taken into account from the start of the research, and thereby made it easier to seek for dynamics within and between dimensions. This theoretical conclusion implicates that taking into consideration the tetrahedron makes it possible to explain dynamics between policy arrangements in order to make policy coordination possible.

Theoretical extensions: taking a broader view

In this section, some theoretical conclusions are taken into a broader view by supplementing this with additional literature studies. To start, Underdal (1980) already presented comprehensiveness as a criterium for policy integration. Comprehensiveness includes the acknowledgement of a broader scope of policy consequences in terms of time and space, that policy integration should have. Persson & Runhaar (2018) also present the geographical focus as an external factor for policy integration. Other than that, little attention is given to the temporal and spatial scale of policy coordination.

Yet, this study suggests, in practice, the temporal and spatial scale affect policy coordination to a large extent. To illustrate, the results showed that personal capacity is closely related to time ‘capacity’. If there is a lack of personnel, actors are often being forced to work on the various climate issues with a deficient of time. Consequently, there is currently no time left for actors to, for instance, develop knowledge for coordination between CE, CA and ET. In both case studies, this is strongly cited by respondents. Furthermore, the geographical scale of the Southwest Delta is of importance for policy coordination between CE, CA and ET as well. To illustrate, the scale and location of the Southwest Delta influence the labour market and thereby the available personal capacity. Consequently, there is a tight labour market noticed, resulting in little renewal of actors getting involved. This results in actors working with each other on a frequent basis and thereby the same people are often working on similar issues regarding CE, CA and ET. Altogether, the temporal

and spatial scale are of influence, and therefore, should be taken into consideration in future literature studies as factors influencing policy coordination of CE, CA and ET to a high extent.

This study also suggests that both horizontal coordination and vertical coordination are important within the context of the Southwest Delta (see 5.3). The results show that political-administrative support is an important part of decision-making processes regarding policy coordination of CE, CA and ET; particularly this condition is noticed on a programmatic level. Persson (2004) and Peters (2005) already presented high-level political commitment as an important condition for successful policy coordination in their literature studies. This is somehow related to political-administrative support, but there is a difference. Political commitment (and power) concerns the top-down influence that is crucial for policy coordination (Peters, 2005). However, creating political-administrative support is more bottom-up oriented. Moreover, creating public support, which is also part of a bottom-up approach, is considered as important as well in this study. This is in accordance with findings from Bauer & Rametsteiner (2006), because they state that support is needed from both higher governmental levels as well as through societal backing.

Still, there is a contradiction noticed between top-down processes (political commitment and power) and bottom-up processes (political-administrative and public support) for policy coordination between CE, CA and ET. This marks the inconsistency between vertical and horizontal coordination needed within the Southwest Delta. According to literature studies, it seems like there is only one way of how policy coordination should be carried out, while this study suggests that both forms of policy coordination should be taken into consideration within the context of the Southwest Delta.

5.2.3. Reflection on methods and results of the research

This study is built on four research phases; each of them executed by use of qualitative methods. Furthermore, the research is performed by taking a constructivist point of view. Thereby this research has a strong focus on the context of the case study. The results therefore cannot be generalised, which might lead to differences if the results are compared to other cases. If another research philosophy paradigm had been used, for example a positivist paradigm, the methods would have concentrated on generating more objective results. However, this study is based on a case-study design, which asks for a philosophic paradigm focusing on the setting of a case. The choice for constructivism as the research philosophy paradigm is therefore logically made.

At the beginning of the research, the idea was to use a mixed method theory approach, including a deductive and inductive approach. Namely, the first part of the result section, the analysis of the current policy arrangements, would have been done by using the analytical framework, thus by means of a deductive approach. On the contrary, the generation of barriers and conditions would have been done by means of an inductive approach. Namely, since this study is explorative of nature, it would have been harder to seek for barriers and conditions based on the analytical framework. Also, it was expected that completely new barriers and conditions would have been found that did not fit within the indicators and dimensions presented in the analytical framework. During the research this expectation is revised when it became clear that almost all barriers and conditions found for general policy coordination were similar to the ones found during this research. From there, a deductive approach is adopted for the remainder of the research.

This adjustment of approaches is also due to the vague dividing line between ‘barriers’ and ‘conditions’. During the research, the definition for conditions is changed multiple times to eventually use the word conditions. However, by looking back at the process, this word still does not comprise the value it should have. It would have been better to use the word ‘opportunity’, since this is the antonym of barrier. However, opportunity is not used, because this notion of change is made in a late stage of the research process, after the data was already collected. Still, this change could have led to a clearer result and conclusion section. Although, sometimes opportunities for policy

coordination within the Southwest Delta are presented within the results, these are indistinctly mixed up with conditions.

Another reflective remark can be made on subsection 4.1.4. The current state of coordination is based on conditions for general policy coordination, which can be used to compare policy arrangements, like common approaches. However, conditions like 'strong leadership' are left out in this comparison, since these cannot be used to compare. Therefore, the current state of coordination is only based on comparable conditions, which is therefore not comprehensive. Fortunately, this can be justified by the constructivist point of view, which makes it possible to make more subjective choices like this one.

Next to that, a large part of this research consisted of taking in-depth interviews with respondents. Part of this process included the development of an interview guide, since the interviews were semi-structured. However, this interview guide took out to be quite extensive (see *Appendix III: Interview guide*). This is done in order that a comprehensive document of questions to guide the interview was set up. The idea was to have interviews in the form of a conversation in which not all questions were asked. However, it could have happened that the extensive interview guide has steered the investigator too much into one direction, while this was actually the opposite intention of the extensiveness of the guide.

Lastly, a topic list made of the interview guide was sent beforehand to respondents (see *Appendix IV: Topic list interviews*). This might have led to different answers, since they were informed before. Another effect is the positive effect on the ethics of this study, because now respondents participated on informed consent. Yet, it hopefully led to more information, since respondents were able to collect more information and talk to colleagues of other policy arrangements within their organisation in advance, which was the initial idea of sending a topic list.

5.3. Recommendations

In this subsection, recommendations for policy makers are made, as well as recommendations for further research.

5.3.1. Policy recommendations

This section presents two elaborated policy recommendations, based on insights from the results. The recommendations followed from result section 4.2, and are during the research process further discussed with respondents during the focus group by means of statements. These statements were discussed in the context of the Southwest Delta, and not only for the programmatic approach. Through this way, the recommendations are supported by the focus group participants. These recommendations are mainly meant for policy makers, which are assigned with the task of restructuring the Preferential Strategy for the Southwest Delta. Altogether, this subsection answers the last research question: '*Which policy recommendations can be given to enable coordination between the policy arrangements circular economy, climate adaptation and energy transition within the Southwest Delta?*'.

Intermediaries in policy networks

As mentioned in the conclusion, the use of intermediaries has several benefits. The first policy recommendation is, therefore, to make use of the intermediaries. Given the lack of leadership roles and entrepreneurs, as well as the lack of steering and power executed by national authorities towards local governmental bodies, the use of intermediating actors might be a helpful outcome. Intermediaries are often used within networks, therefore the Southwest Delta organisation could be used as a network in which an intermediary is appointed, since self-steering by this organisation seems to be insufficient for the aim of policy coordination between CE, CA and ET. At this moment no coordination is noticed yet (4.1.4) and the current institutional setting of the organisation is marked as negative for future policy coordination.

Improved coordination could be enabled by creating and changing networks and its arrangements (Klijn, Steijn & Edelenbos, 2010). According to respondents, the current network of Southwest Delta itself seems to be sufficient for the aim of policy coordination, therefore there is no need for creating a new network. However, the use of an intermediary within the network is supported as a recommendation for the future [e.g. 20, 21, 22]. Changing the network of the Southwest Delta is therefore possible by network management which aims to guide and facilitate interactions between actors. This can be done by an intermediary that works out strategies to deal with different belief systems and approaches of actors (Klijn et al., 2010). Or the intermediary could set up cross-sectoral groups within organisations, so CE, CA and ET are mainstreamed (Nunan et al., 2012). Furthermore, coordination within networks is based on mutual trust, interdependencies, interests and responsibilities, which therefore should be created by the intermediary (Verhoest et al., 2005).

This form of coordination is comparable to horizontal coordination in which coordination often takes place within networks (Mickwitz et al., 2009; Zürn & Faude, 2010). However, respondents agree on a needed leading role of a hierarchical institution, which is more comparable to vertical coordination (see *Authoritative capacity, leadership roles and political and decision-making power*). According to Lafferty & Hovden (2003), this leadership role of an authoritative body is still possible since this authority is also able to develop a comprehensive cross-sectoral strategy by balancing objectives. This means horizontal coordination in networks is possible by a leading role of a hierarchical institution. This leading role could be usurped by, for instance, the national Delta Committee.

For the successful implementation of this recommendation, some pros and cons are generated with the focus group participants. To start with, the first pro (or condition) is the conscious choice that must be made of someone with status, and above all competences [21]. A possible person can be a figurehead with enough knowledge. Furthermore, according to respondents [20, 24], it is strongly suggested to hire a person from an independent third party. There are two disadvantages of working with an intermediary as well. To start with, a tangible choice needs to be made for someone to hire as an intermediary. Consequently, a lack of personal capacity anywhere else in an organisation might follow [22, 23]. Secondly, respondents agree on the low possibility of finding the right person to coordinate policies between CE, CA and ET within the Southwest Delta [22].

Project-based approach

The second recommendation for policy makers is to apply a project-based approach. During the research, respondents acknowledge this as a means to make policy coordination more concrete, share knowledge and generate budget. Policy coordination between CE, CA and ET can be instantiated by translating policy objectives into roadmaps or key principles (see *Approaches to problem*). Next to that, the scope is adjusted to the project which instantiates what has to be done in a certain period of time. A project-based approach makes it easier to force actors to work towards policy coordination of CE, CA and ET. It is also easier to monitor the progress by setting indicators during the process of the project [e.g. 20, 23].

The use of pioneer projects or living labs, as examples for other projects, is a way to instantiate policy coordination between CE, CA and ET as well. This should be done by sharing information and learnings of the exemplifying project, which leads to more knowledge exchange too [e.g. 22, 23, 24, 26] (and see *Knowledge capacity and development*). Pioneer projects also moderate more flexibility to adjust objectives during the process. Moreover, by defining good projects as examples, there is more possibility on receiving financing from national or European governmental agencies too. Or from subsidy programmes, like the DEI subsidy. The Delta Platform is an already existing platform which generates possibilities for developing pioneer projects in collaboration with experts from advanced schools, universities, research institutes, companies and governmental agencies. By means of in integral approach, new insights and knowledge is generated. The Delta Platform is recognised as a living lab in which experiments are performed with international Delta-innovations (Hogeschool

Zeeland [HZ], n.d.). This platform could, therefore, be used by policy makers to instantiate coordination between CE, CA and ET within the Southwest Delta.

Although this recommendation and its advantages seem promising for the future, there are demerits for a project-based approach too. First, the project objective might become too important, therefore the possibility arises that 'sub-objectives for CE, CA and ET' fall behind the scope of the project [22]. However, pioneer projects, primarily developed with the objective to seek for interfaces between CE, CA and ET only, will not come across this disadvantage [20, 26]. Respondents, furthermore, did not agree on requesting for European subsidies by defining sample projects within the Southwest Delta. Applying for European subsidies often leads to difficulties on the time limit and objectives of the project. Also, a favour in return is often asked to share information with other countries. According to respondents, this reciprocation is a barrier [20, 22, 24], but it might also lead to more knowledge exchange, which is a condition for policy coordination between CE, CA and ET within the Southwest Delta (e.g. *Knowledge capacity and development*).

5.3.2. Recommendations for further research

From this study, some recommendations for further research can be given as well. *First of all*, this research can be applied to other cases too to compare results. That is to say, the theoretical framework and methods can be copied. This case study is highly context-specific, also due to the constructivist philosophical research paradigm that is chosen. For more general results regarding coordination between CE, CA and ET, it should be applied to other cases; either in the Netherlands or in other countries. A comparison with another organisation appointed by the Delta Committee, which is another area in the Netherlands, might be even more interesting. Moreover, the study can be upscaled towards a national level to investigate how policy coordination between CE, CA and ET should be carried out on a higher scale level. In this case, barriers and conditions between these two studies can be compared with each other to look for differences in results.

Secondly, many barriers and conditions are presented in the results, but are not extensively discussed since this would have exceeded the scope of the research. Therefore, it might be interesting to do further research by diving deeper into barriers and conditions for policy coordination between CE, CA and ET. This might result in more detailed information about the relations between certain barriers and conditions within the dimensions of the PAA. This can be accomplished by the *third* recommendation as well; taking the tetrahedron into account (see Figure 5). It is strongly suggested to do this if more research is done to the interrelatedness between dimensions of PAA, and thereby between barriers and conditions.

Some results showed vertical coordination was more preferred (see *Authoritative capacity, leadership roles and political and decision-making power*) above horizontal coordination, whereas sometimes it was the other way around (see *Intermediaries in policy networks*). As a *last* recommendation, it might be interesting for further researchers to perform a study about these two different ways of coordination, and to examine which one is better applicable for coordination between CE, CA and ET within the Southwest Delta.

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Appendix I: List with interview respondents

Respondent number	Organisation	Function	Role in Southwest Delta organisation	Interview number
1	Sweco	Business Development Manager 'City of the Future' & Project manager innovative projects	-	1
2	Water board Scheldestromen	Programme manager sustainability		2
3	Municipality of Bergen op Zoom	Alderman	-	3
4	Municipality of Bergen op Zoom	Floor manager sustainability	-	3
5	Lievens Communicatie	Communication consultant	Communication consultant Southwest Delta organisation	4
6	VNO-NCW Brabant Zeeland & DOW Chemical Benelux	Regulatory Affairs Leader Benelux at DOW & member VNO-NCW Brabant Zeeland	Member of Advisory group	5
7	Province of Zeeland	Process leader and floor manager Circular Economy	-	6
8	Province of Zeeland	Senior consultant Circular Economy	Member of workforce CE Southwest Delta	6
9	Province of Zeeland	Deputy of Provincial Council Zeeland + various other administrative functions	Chairman regional Consultative Body Southwest Delta	7
10	Zeeuwse Milieufederatie (ZMf)	Programme manager Delta Waters	Member of Advisory group	8
11	Municipality of Noord-Beveland	Project manager sustainability	Member Liaison consultation	9
12	Ministry of Economic Affairs & Climate Policy	Sustainable Finance Expert at Ministry of Economic Affairs and Climate Policy	Member of Advisory group	10
13	Evides	Manager Drinking Water and Source Protection	Member of Advisory group	11

14	Municipality of Schouwen-Duiveland	Alderman (inter alia Water)	Chairman Liaison group & member of regional Consultative group	12
15	Municipality of Schouwen-Duiveland	Alderman (inter alia Energy, Climate & Waste)	-	12
16	Rijkswaterstaat	Program manager & launching customer coastline projects	-	13
17	Water board Hollandse Delta	Programme manager circularity, sustainability and energy	Member of workgroup CE Southwest Delta	14
18	Water board Hollandse Delta	Senior policy and strategic consultant water chain	-	14
19	Rijkswaterstaat	Senior consultant water(safety)	Project manager of the restructuring of Preferential Strategy for the Southwest Delta	15

Appendix II: List with focus group respondents

Respondent number	Organisation	Department	Function
20	Rijkswaterstaat	ZD	Senior consultant water(safety)
21	Rijkswaterstaat	PPO	Senior consultant
22	Rijkswaterstaat	NVOP/ZD	Technical manager
23	Rijkswaterstaat	NVOP/ZD	Senior consultant, project- and surroundings manager
24	Rijkswaterstaat	NOV/ZD	Project manager and senior consultant living environment
25	Sweco	-	Consultant water management
26	Sweco	-	Consultant water and flood risk management

Appendix III: Interview guide

Ik wil graag beginnen met het introduceren van mijzelf:

- Starten met korte introductie
- Gegevens zijn anoniem, dus als ik in mijn scriptie een quote gebruik, dan zet ik er geen naam bij maar respondent #1 bijvoorbeeld
- Vind je het goed als ik het gesprek opneem?

Ik ga nu beginnen met het opnemen. Om een beeld te krijgen van degene waar ik een interview mee afneem, zou ik graag eerst wat algemene vragen willen stellen:

- Wat doe je in het dagelijks werk?
- Wat doe je met de thema's circulaire economie, klimaatadaptatie en energie transitie?
- Wat is je ervaring met het werken op beleidsniveau met deze thema's?

Ik wil graag breed beginnen, dus mijn eerste vraag is:

1. **Wat denk je dat er nodig is voor integratie tussen circulaire economie, energie transitie en klimaatadaptatie op beleidsniveau?**

<u>Actoren</u>

Ik wil eerst wat vragen stellen over ieder beleidsterrein op zich

2. **Wat zijn de belangrijkste actoren voor elk beleidsterrein in de regio Zuidwestelijke Delta?**
3. **Als je kijkt naar dit figuur, waar zou je dan betrokken actoren kunnen plaatsen voor <u>circulaire economie</u> in de regio Zuidwestelijke Delta?**
4. **Als je kijkt naar dit figuur, waar zou je dan betrokken actoren kunnen plaatsen voor <u>klimaatadaptatie</u> in de regio Zuidwestelijke Delta?**
5. **Als je kijkt naar dit figuur, waar zou je dan betrokken actoren kunnen plaatsen voor <u>energie transitie</u> in de regio Zuidwestelijke Delta?**
6. **Hoe gaan de actoren met elkaar om binnen het beleidsterrein, is er veel samenwerking of zijn er juist meer conflicten (welke samenwerkingsverbanden)?**

Nu over de mogelijke coördinatie

7. **Wie zijn de belangrijkste actoren om beleid op het gebied van circulaire economie, klimaatadaptatie en energie transitie te integreren in de regio Zuidwestelijke Delta?**
8. **Is er al samenwerking tussen de beleidsterreinen? Of juist geen samenwerking of zelfs conflicten?**
9. *Hoe is het gesteld met de machtsverhoudingen? Zijn er bepaalde dominante actoren die de leiding nemen binnen het beleidsterrein (sleutelfiguren)? Of juist niet (weinig samenhang)?*

<u>Discoursen</u>

Deze vragen gaan weer over het beleidsterrein op zich

10. **Welke doelstellingen zijn er binnen een beleidsterrein (in de regio Zuidwestelijke Delta)?**
11. **Wat is de toegevoegde waarde van een beleidsterrein? Wat is het doel? Wat is het grootste probleem dat een beleidsterrein kan oplossen?**
12. **Wat zijn ideeën/ideologieën van beleidsactoren/welke principes worden gehanteerd (zoals 'geld voorop'/'meer innovatie')?**
13. **Op welke manier wordt er naar oplossingen gezocht binnen een beleidsterrein?/ Welke beleidsprogramma's worden er gemaakt door actoren in een beleidsterrein?**
14. *Hoe kun je de normen en waarden binnen een beleidsterrein omschrijven?*
15. *Hoe worden problemen gedefinieerd door actoren binnen een beleidsterrein?*
16. *Hoe kijken mensen naar problemen/ wat is hun wereldbeeld binnen een beleidsterrein?*
17. *Welke oplossingen worden er gevonden binnen een beleidsterrein? En welke methoden worden daarvoor gebruikt?*

Vraag over mogelijke coördinatie:

18. **Zijn er gedeelde ideeën tussen beleidsterreinen?**
19. **Welke overlap is er tussen doelstellingen/gedeelde ideeën/principes/beleidsprogramma's tussen beleidsterreinen?**

<u>Hulpmiddelen</u>

20. **Zijn er voldoende hulpmiddelen voor handen binnen het beleidsterrein CE/KA/ET?/ Is er voldoende capaciteit binnen beleidsterrein CE/KA/ET? Bijvoorbeeld op technologisch vlak/kennis/budget/persoonlijk/gezaghebbend (apart vragen)?**
21. **In hoeverre zijn actoren bereid om nieuwe kennis op te doen/te leren binnen een beleidsterrein?**

22. **In hoeverre is er politieke wil om iets te bereiken binnen een beleidsterrein?**
23. **In hoeverre zijn beleidsactoren autonoom/zelfredzaam binnen een beleidsterrein? En zijn zij bereid dit 'op te geven' voor samenwerking met een ander beleidsterrein?**
24. *Zijn er mogelijkheden tot het ontwikkelen van meer kennis binnen beleidsterrein?*
25. *Wordt er veel geëxperimenteerd met nieuwe technologische innovaties binnen een beleidsterrein?*
26. *Hoe zit het met persoonlijke capaciteiten binnen beleidsterreinen? Zijn er voldoende gezaghebbende capaciteiten aanwezig binnen een beleidsterrein?*
27. *Welke politieke invloed is er binnen het beleidsterrein?*
28. *Zijn er duidelijke gedeelde verantwoordelijkheden binnen een beleidsterrein?*

Deze vraag gaat weer over mogelijke coördinatie:

29. **Wat voor hulpmiddelen/capaciteiten zouden er nodig zijn voor integratie van CE/KA/ET op beleidsniveau?**
30. **Zijn er gedeelde verantwoordelijkheden tussen beleidsterreinen in de regio Zuidwestelijke Delta?**
31. **Is er momenteel gedeelde/overlappende kennis tussen beleidsterreinen of is dit juist meer gefragmenteerd?**
32. **Zoeken de verschillende beleidsterreinen elkaar op om kennis te delen? Op welke manier?**
33. *Worden er al nieuwe technologieën 'gedeeld' tussen de beleidsterreinen?*
34. *Zijn er duidelijke gedeelde verantwoordelijkheden binnen de organisatie van de Zuidwestelijke Delta?*

<u>Regels</u>

35. **Welke gemaakte afspraken zijn er binnen een beleidsterrein? Formeel (bijv. wetgeving) en informeel gezien (netwerk/participatievormen)?**
36. **Welke politieke cultuur heerst er binnen een beleidsterrein (bijv. Nederlandse poldermodel)? Welke politieke opvattingen zijn er binnen een beleidsterrein/manier waarop politiek bedreven wordt?**

Vraag over coördinatie:

37. **Welke formele en informele coalities zijn er tussen beleidsterreinen in de regio Zuidwestelijke Delta? Bijv. bepaalde participatievormen/publiek private samenwerkingen/netwerken**
38. **Is er overlap tussen gemaakte afspraken /manier waarop politiek bedreven wordt?**

<u>Conclusie</u>

We zijn bijna aan het einde gekomen van het interview. Ik wil graag nog wat vragen stellen om het interview af te sluiten.

39. **Zijn er nog aanvullingen?**

Ik stop nu met opnemen.

40. **Zijn er verbeterpunten voor mijn volgende interview?**
41. **Zijn er nog andere collega's waarvan je denkt dat het handig is om een interview mee af te nemen over dit onderwerp?**
42. **Mag ik nog contact opnemen, mochten er alsnog vragen/onduidelijkheden zijn?**

Bedankt!

Appendix IV: Topic list interviews

Beste meneer/mevrouw,

Op (datum) hebben wij een interview gepland staan voor mijn onderzoek over integratie van klimaatadaptatie/energie transitie/circulaire economie op beleidsniveau. Ter voorbereiding op dat gesprek stuur ik bij deze alvast een lijst met onderwerpen door die aan de orde zullen komen tijdens het interview. Het interview zal bijvoorbeeld gaan over:

- De betrokken personen binnen de circulaire economie, energie transitie en klimaatadaptatie (verder beleidsterreinen genoemd) binnen de regio Zuidwestelijke Delta
- De betrokken personen binnen de organisatie van de Zuidwestelijke Delta
- De omgang tussen personen *binnen* en *tussen* deze beleidsterreinen (bijv. samenwerkingsverbanden die er zijn)
- Doelstellingen binnen beleidsterreinen
- Ideologieën/gedeelde ideeën binnen een beleidsterrein (bijvoorbeeld 'meer innovatie is beter')
- Manier van aanpak om tot oplossingen te komen/ Beleidsprogramma's binnen de beleidsterreinen
- Hulpmiddelen/capaciteit (bijv. kennis) binnen de beleidsterreinen (en wat is er nodig voor integratie?)
- Gedeelde verantwoordelijkheden tussen beleidsterreinen
- Gemaakte afspraken (formeel en informeel) binnen de beleidsterreinen
- Politieke cultuur binnen de beleidsterreinen
- De mogelijke synergiën en barrières *tussen* de beleidsterreinen over bovenstaande onderwerpen

Deze onderwerpen dienen als basis voor het interview. Ik stuur ze alvast op, zodat er van te voren meer informatie is over het interview en we daardoor gemakkelijker een gesprek kunnen voeren op het moment zelf. Uiteraard hoeft niet iedere vraag beantwoord te worden. Mochten er nog onduidelijkheden of vragen zijn, dan hoor ik het graag.