

## **Transborder strategies against the common enemy:**



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## Preface

At the time of writing these lines the FIFA World Cup 2010 in South Africa is in its fiercest course. No better backdrop could have been envisaged for concluding my research. An outbursting national fervour is at its heydays by shouting for the own team. The teams are set up alongside national frontiers that are being at the time of play. Football, like borders, may encourage a healthy form of nationalism, national pride and unification. However, they also keep strengthening the ideology that breeds the distinctions between ‘us’ and ‘them’, aggravating the divisions between communities. Imagining and bordering societies keep massively reigning sport, economy and any human proceeding. The next pages delve into the details.

The other content of the research, the bio-based economy, was also covered by breaking news: *“At this week’s world congress on industrial biotechnology in Washington, DSM will announce a breakthrough in bioconversion. This will improve the efficiency with which fuels can be made from second generation sources – agricultural waste such as corn stalks and wheat straw, wood chips and energy crops grown on land that is unsuited to food production”* (Financial Times, 2010). These are favorable signs for the cooperative projects I examined and for a more sustainable future for us all. It gives an actualized hue to my study too.

The bio-based economy as a concept does not have too much resonance beyond the sphere of experts and scientists. It is rather marginalized in current discussions on tackling fundamental sustainability issues. This should be changed. Hopefully, this research can somewhat contribute to bring more awareness on the development of a "green" industrial landscape and society.

I would like to speak out my thanks to a few persons. Dr. Kees Terlouw, my tutor at the University of Utrecht helped me for giving a compass in the launching phase and with his constructive remarks during the research. My thankfulness also goes out to Mayko Slinkman, managing director of ERAC, by giving me the chance and time to conduct this fascinating investigation. I am very grateful for Huub Smulders, my mentor at ERAC for his superior guiding in the research trajectory. For his critical glance and unvarnished opinion, given for the benefit of the research quality. And thanks for the good talks and laughs. At least but not last I express my big appreciation to all of my respondents who have shared their time, thoughts and feelings with me on the cross-border bio-based developments and other issues.

As in the case of any research conduct, the experiences have widened up the horizon and again destructed boundaries for me. I dedicate this work to my life companion Christiaan Rietveld: All too well we know the cross-border everyday - the differences that make us weak and complicated and the diversity that makes us strong and rich.

‘s-Hertogenbosch, July 2010

Zsuzanna Tomor

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## **Dutch summary**

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### **Attachement 1: Questions for the semi-structured interviews**

### **Attachement 2: Most frequently named hindrances/conditions for the bio-based economy**

# 1. Introduction

## 1.1 The research field: border regions

With the completion of the Single European Market in 1993, border regions have been put into the middle of the attention since “the European Commission was convinced that the border is the ultimate place where the success of European integration shall be proved” (Hassink et al., 1995). Academic and political focus on cross-border interactions has in the last few decades considerably grown due to the proliferation of cooperation linkages across national borders. This growth of mutual transborder arrangements has been triggered by the strong regionalization tendencies worldwide, by the efforts for an intense European integration and by the recent phases of the EU enlargement (Newman, 2006).

Furthermore, technological advancement and economic integration processes make competitiveness a cross-border issue. As economic structures gradually become entangled across borders and raise in size also knowledge growingly spreads across borders. That engenders transboundary knowledge flows and inter-national spillovers (Ecorys, 2008).

Border regions are the places where one can examine how the growing cross-border cooperation and regionalization can change the functions and hierarchies of national borders. Border inquiries illustrate how spatial-economic organizations alongside borders contribute to the emergence of new functional spaces and regional identities.

## 1.2 Aim of the research

The main objective of the research is to grasp the nature of the processes at stake in territorial cooperation across state borders by analysing the dynamics of learning and participating at micro scale (project level). In order to go beyond broad principles and ideas, investigation will be made on tangible issues by applying specific economic projects. This enables to look at the Europe at work in cross-border territories. Through empirical evidence concrete elements in the partnership, structuring the cooperation and exchange processes as well as the outcomes will be studied through a bottom-up approach.

The specific purpose of this study is to scrutinize cross-border (economic) interaction in the innovation field of emerging biotechnological networks. In addition to advancing competitive and knowledge-based regions with strong innovation capabilities, the furtherance of a sustainable development strategy plays as well a prominent role among policymakers within the European Union (European Commission, 2010b).

In its reviewed strategy planning, the EU puts additional stress on the continuous improvement of quality of life for the present and future generations through managing and using resources efficiently *‘to tap the ecological and social innovation potential of the economy, ensuring prosperity and environmental protection’* (European Commission, 2010a; European Union, 2008, p. 6). The agenda has been set towards a green and innovative economy. The main areas of attention include, among others, climate change and clean energy and sustainable production and consumption. The initiatives for an industrial policy for the globalization era aims to improve the business environment and to support the development of a strong and sustainable industrial base, being able to compete globally (European Commission, 2010b).

### *The content of the research field: the bio-based economy*

The research field in this report can be embedded in these broad specific ecological and economical initiatives: the emerging bio-based economy unites the aspirations of an ecologically sustainable (global) society to be buttressed by innovative technological and organizational arrangements. A green industrial revolution seems to be unfolding if one considers the huge fascination in the academic and public discourses regarding the need for a global sustainable economic system (Verburg, 2008; Stern Review, 2006). According to Smulders et al. (2009) *‘the whole organization of the production and consumption systems is under debate’*. The bio-based economy has become a ‘hot item’ as a potential alternative and solution to replace the fossil based social-economic configuration. The awareness on climate change, the scarcity of oil and gas reserves but also new economic opportunities and competitiveness requirements intensify the wishes to realize the bio-based economy.

The switch to bio-based economy is a comprehensive makeover, demanding a completely new technological and industrial foundation. Governmental interference worldwide attempts to address the difficulties hampering the exchange to a bio-based economic system such as the availability and sustainability of biomasses, the ethical dilemma of using plants for food or as an input for industrial production and the required biotechnological advancement (One world.net, 2010; Institute of Science in Society, 2006).

Since the bio-based economy is a systemic constellation, the relevant innovation projects combine a broad range of themes and economic sectors: *‘Only by exchanging ideas and through interdisciplinary cooperations higher targets such as climate protection and sustainability in industrial production can be reached’* (Bionity.com, 2009). Besides, multi-party

transborder cooperation seems to be a prerequisite as a result of the large-scale volume of this new industrial-technological branch, the requirement to obtain a critical mass and to become a major global factor (van der Wielen, 2010; Scheer, 2010; Tegenlicht, 2010).

Above the intentions for a leading economic position, the growing understanding of the borderless character of environmental challenges advances as well the formation of transborder strategic alliances. Complicated societal and ecological problems do not stop at the border. The tackling of multifaceted issues assumes a mutual awareness of responsibility and a joint action for the entire region. Sustainable economic development requires therefore the uniting of capacities and competencies on supra-regional or transnational scale (MOT, 2007; Van Vilsteren et al., 2005).

Due to the liberalization of numerous economic areas, internationally operating companies in the private sector are often also the driving power behind the strengthening of transborder and transnational networks. Through their geographically spread business activities cross-border relations in numerous economic branches can get more diversified and intensified (de Vries et al., 2007).

### *The border as opportunity*

Supra-regionally overarching operations take the border as an opportunity, being a point of entry for both commercial strategies. Border regions are given enforced political interest so that they can transform their unique local possibilities into globally competitive assets. The politico-economical innovation objectives of the European Union are also formulated in the operational programmes for interregional and territorial cooperation. Magnifying their potential benefits is part of the reinterpretation of borders: *'there is a widespread agreement in the academic literature that in the emerging globalized knowledge economy the long term competitive strength of these areas..... increasingly rests on their capacity to create an integrated innovation space'* (Lundquist et al., 2007, p. 1.).

The dissimilar economic histories, institutional set-ups as well as different social dynamics, political visions and cultural identities create the ground for cross-border cooperation. Border areas have become points of contact and interaction and serve as key geographical engines for economic development. Synergies can be created from the complementarities and asymmetries between the divided spaces (Hassink, 1996; Perkmann, 2007; Akinwuni, 2006).

The stakeholders' aspirations in bio-based projects to turn into a significant European or global core contribute to the inevitable need of international or transboundary alliance formation through networks. These expectations are mirrored in the Ghent-Terneuzen Canal zone, being one of the cases in this research. It is a natural economic and logistic whole where large investments have already been put into both harbours for the creation of bio refineries and bio-based activities (Bio Base Europe, 2010). The exploitation of the mutual interdependencies and complementarities between the two clusters should strengthen the interregional Ghent-Terneuzen concentration in the European bio-based arena (Soetaert, 2010; van Leest, 2010; Wiersma, 2010).

### *The border as hindrance*

At the same time in the context of border regions, the question arises though if and under which conditions can sustainable economic growth and a successful innovation trajectory be achieved. The different national and regional systems in the domains of culture, politics, economic structure and institutions often mean serious hindrances in creating narrow interaction and cooperation. In border regions subnational organisations, like authorities, companies, institutes etc. are bounded to national references and legal regulations while they collaborate with partners which are embedded in another national framework. The problematic of cross-border cooperation lies exactly in the differences in the cultural, legal, administrative framings and forms that are somewhere else (at the national political centre) are defined (Spoormans et al., 1999). Despite the disappearance of physical state borders as part of European integration and the mounting chances for transboundary synergies, the social, economic and institutional variations frequently obstruct cross-border entrepreneurship. In particular in the generation, the transfer and share of innovation-related knowledge appears the border an impeding factor (Gijzen et al., 2008; Remmers, 2007; Van Houtum, 1998; Lundquist et al., 2009).

The special barriers of transborder regions to communication and cooperation between economic and governmental actors have been recognized by recent studies (Schmidt, 2005; Van Gorp, 2009; Bucken-Knapp, 2001;). They warn for the overestimation of the degree of the social-economic integration in border regions. The border remains to have negative effects on joint relations *'the mindset of policymakers and private actors is often less focused on cross-border cooperation'* and that there is often a moderate willingness to collaborate due to socio-cultural factors.

Moreover, fruitful progression of cross-border initiatives is frequently deterred by the idea of the sovereign state with its all too obvious national interests. The chances for cooperation are often dissipated due to the parties' perceptions of each other as national competitors and to the shortage of insight into mutual interests (de Vries et al., 2007).

The above notions illuminate that transborder cooperation processes require new working methods at new scales and in new types of networks. It is necessary in order to address specific strategic spatial development and to implement specific

transnational projects. Implanting more flexible structures of knowledge infrastructure and innovative types of governance and institutions appear inevitable for constructing innovative cross-border partnerships. This is even more true for joint ventures to establish the “green” economical and industrial system. The level of commitment of the various stakeholders and the existence of a mutual long-term strategy for a viable network alliance are in these mutual projects further underlined (Atzema et al., 2007; 2008; Boschma et al., 2007; Moodysson et al., 2007).

These thoughts on the prospects and challenges created by the border form the major argument to obtain more insights through this study into the actual situation around specific economic projects. More knowledge is needed on the influence of borders concerning the bottlenecks and success factors of specific cross-border relations. The research examines whether the high complexity of developing the bio-based economy in a public-private partnership is further exacerbated by the challenges or on the contrary stimulated by the opportunities of the national border.

### 1.3 Research questions

The choice of the study area is motivated by the gap in recent empirical researches. While cluster and network studies are rarely combined with the aspects of cross-border cooperation, the analyses dealing with transborder cooperation mainly focus on the institutional-administrative collaboration between local governments or on the macro-level social-economic integration between regions. Cross-border entrepreneurial alliances with public-private involvement are seldom the subject of academic examination. This absence in scholarly work means that transborder cooperation often becomes reduced to the cooperation of local state bodies and to the research of legal and political systems.

Due to the limited scope of this study carrying out an all-encompassing research on the above mentioned terrains is impossible. Therefore the range of this investigation applies a narrowed approach by concentrating the socio-cultural and -institutional features of border regions and their influence on (economic) interactions. The socio-cultural element in this study should be understood in a broader sense. This dimension points to the functioning of the various institutions involved as well as to the actors’ perceptions on the impact of the border on their collaboration. Elucidating the degree to which the state border can still be a dividing line in the bio-based collaboration among different nationalities forms the major path of this investigation and input for the main research question:

#### **What is the influence of the national border upon the Flemish-Dutch cross-border collaboration projects in the emerging bio-based economy?**

The research examines the nature of the organization structure of bio-based cooperative alliances. It also analyzes the processes shaping the network architectures and the quality of cooperation, placed in a cross-border geographical setting. As the bio-based projects still stand in a planning phase, it is very instructive to learn about the most crucial “internal” matters, determining the outcomes of project formation and progression. This phase entails the trajectory wherein decisions and measurements are taken for switching the aspirations into real actions and progress.

This micro-analysis intends to acquire knowledge on the perceptions of the many stakeholders participating in a specific innovation network entailing and necessitating intensive cross-border interaction and learning processes. Anticipation on the expected implications justifies a small-scale inventory of the various features of the border that shape the actors’ willingness to establish a durable partnership. The application of an interdisciplinary approach for the research field is therefore required in order to ‘*move away from a fixation with visible function toward consideration of border landscapes as the product of a set of cultural, economic, political interactions and processes occurring in space*’ (Van Houtum, 1998, p. 4).

In order to decrease some of the complexity, signifying cross-border integration processes, this study is confined to the inquiry of the preconditions, key determinants, driving forces and barriers in special transboundary programmes. The main focus is put on visions and attitudes that evaluate the (ir)relevancy of border regarding the cooperation activities. The following sub questions aid to refine the research goals by referring to the essential attributes and factors within cross-border partnership:

#### *1. What is the rationale for the transnational cooperation among the project partners?*

The driving forces for participating in a project are diverse. The overall rationale for collaboration within a project partnership affects the form and intensity of the partnership. Elaborating on this aspect will provide more knowledge on the main motivations to participate in the project. This will enable the identification of the existence or lack of a strong mutual ground for a durable project development. This questions aims to find out what types of issues and specific agenda are dealt with by the partners. Focused interview questions help to determine whether the existence of the border plays a decisive role among the main motifs.

2. *How can the type, form and the intensity of the cooperation be characterized?*

Based on the answer for sub question 1 the structure and the nature of the partnership can be established. The knowledge on the type and intensity of the cooperation helps to define the specific elements that shape the exchange processes between the partners. In this dimension the role of the border can be studied regarding its impact on the strength, intensity of the interlinkages and the frequency of face-to-face contacts. Essential characteristics will be revealed such as the joint targets and actions, the degree of internal cohesion within the cooperation, the level of the partners' commitment, trust etc.

3. *Which opportunities are indicated by the stakeholders for participating in the cross-border bio-based network?*

Herewith the notion of 'the border as opportunity' will be assessed. While sub question 1 may contain parts in this understanding, the explicit designation of the expected benefits from the mutual project can be further enhanced. Reaching individual benefits are prerequisites for each partner to participate in a collaboration. Moreover it is essential to look at advantages which can only be reached due to mutual operation among many partners. Focussing on this function of the border reveals whether the various stakeholders see the economic chances arising from their mutual border region or if they rather interpret the activities from the perspectives of the 'own' national interests.

4. *What are the most frequently mentioned problems and bottlenecks in the cooperation and how do the parties try to solve these barriers?*

This question entails one of the most important parts of the research. It tries to find empirical evidence for the concept 'the border as a barrier' as previously explained. The theoretical insights and the assumptions on the potential negative influence of borders in various forms can through this investigation recognized or opposed. It is essential to understand if and what kind of borders may hinder rising bio-based activities in the border space. This knowledge can generate more awareness on obstructions and motivate the parties' problem-reducing behaviour. Also, this information can be used for anticipation in projects of the future as well as an input for policy making that targets to tackle bottlenecks in this domain.

5. *To which extent is the cross-border collaboration influenced by the differing socio-cultural characteristics and mental borders?*

This issue can partially be connected to the former question although in this feature influences of the cultural and psychological border can be explicitly revealed. Directed questions during the interviews will attempt to discover the socio-cultural differences and variations in business conventions as well as the participants' feelings, beliefs and mental distances (the so-called 'soft' factors). The individual perceived impact on the collaboration is an important feature to look at. Perceptions are vital components in collaborations since actors' the goals as well as strategies originate from their perceptions regarding their own position, interests, the partners and the collaboration itself. The inquiry will scrutinize whether these factors are present in the cooperation and to which extent they affect the joint enterprise for the advancement of the bio-based economy.

6. *How can the above mentioned cross-border dimensions interpreted when economic cooperation transcends the contiguous geographical areas? In other words: How can the function and effect of the border understood by switching to a far-reaching spatial range of relations on supra-regional and supranational scale?*

While questions 1-5 relate to the enquiry of immediate borderlands, question 6 reveals an intriguing aspect on cross-border networks in the light of a territorially rescaled concept. If the various bio-based networks and clusters, spread over different European regions, foster the ambitions to become a globally powerful and influential biotechnological centre, transnational cooperation and international network formation seems inevitable. This dimension touches upon the question on the meaning and effects of the state border on innovative business projects in an altered geographical scale of non-neighbouring transnational regions. This suggests an interesting analysis from a geographical point of view as it concerns the variations in the spatial range of economic and governmental interconnections.

Placing the cooperation from a more narrowly defined level of interaction into the transnational level can tell how the altering geographic scope affects the bio-based collaboration. This enables to look into the actors' (changing) approach and motivation in respect of working together. This reinforces the conviction that studying border regions and transborder regionalism in their many forms deserves the attention of researchers: aside of being spaces of dynamic processes, they disclose the processes of territorial restructuring and the shifting meaning of borders and of the different spatial interlinkages across state boundaries.

In 2009 a broad research among several Dutch institutions has been accomplished in a similar subject. It studies the role of agribusiness clusters as the potential economic pillars in the bio-based economy in Dutch regions (Smulders et al, 2009). That report defined the most important actors and underlined the need of the transit towards a green economy on a rather high abstraction level. Present research aims to examine the dynamics of existing cross-border regional innovation projects through a more practical approach. As bio-based clusters and networks are emerging phenomena in the industrial landscapes it is of great importance to evaluate the various evolution phase. It allows that lessons are learned from the rising challenges in these transborder partnerships. This inquiry hopes to expose the most crucial elements in the unique



spatial and economic interrelation in the acceleration of the European transition towards a sustainable industrial with regard to factors caused by the issue of the border.

In order to grasp the micro-sociology of the relevant transborder partnership and to evaluate the views on the role of the border in the process of business interaction, qualitative research methods were applied. This in-depth investigation was carried out by conducting semi-structured interviews with public and private stakeholders in the regional bio-based programmes. Evidently, this method was extended by a thorough literature study.

Due to the limited time allowed for this research, the analysis assesses the development of the cross-border biotechnological innovation cooperation on the base of two selected cases. These regions are in more details described in the following paragraph.

#### 1.4 The case studies

Theoretical concepts and hypotheses were applied to two case studies displaying serious undertaking – albeit in an initial phase - in bio-based activities. Because borders are contextual phenomena the use of particular cases makes it possible to illuminate the conditions of specific border regions. Furthermore, this allows applying a more bottom-up approach disclosing daily experiences in the relationship.

Regarding sub questions 1-5 case one alludes to the Flemish-Dutch Interreg project (Bio Base Europe) in the Ghent-Terneuzen Canal zone. This cross-border cooperation is located in the area between the East-Flemish city of Ghent (Belgium/Flanders region) and the Zeeland-Flemish city-of Terneuzen (The Netherlands). The Canal zone is a distinct example of a border space. It can be considered as a cross-border economic conglomeration that is unique to border regions. The Canal creates a geographical-natural fixed connectedness and interdependency between the two regions though the two sides of the Canal institutionally belong the Netherlands and to Belgium/region Flanders.

The collaboration Bio base Europe is set up between Bio Energy Valley (Ghent) and Biopark Terneuzen with the target to establish research and education facilities for bioprocesses. A research (2007) by the Radboud University of Nijmegen analyzed the development chances of the existing cluster of Biopark Terneuzen. The highest progression grade out of the possible scenario's referred to the transborder concept of Bio Base Europe, being '*the most important growth pole for the bio-based economy in Europe*' (Smulders et al., 2009, p. 64).

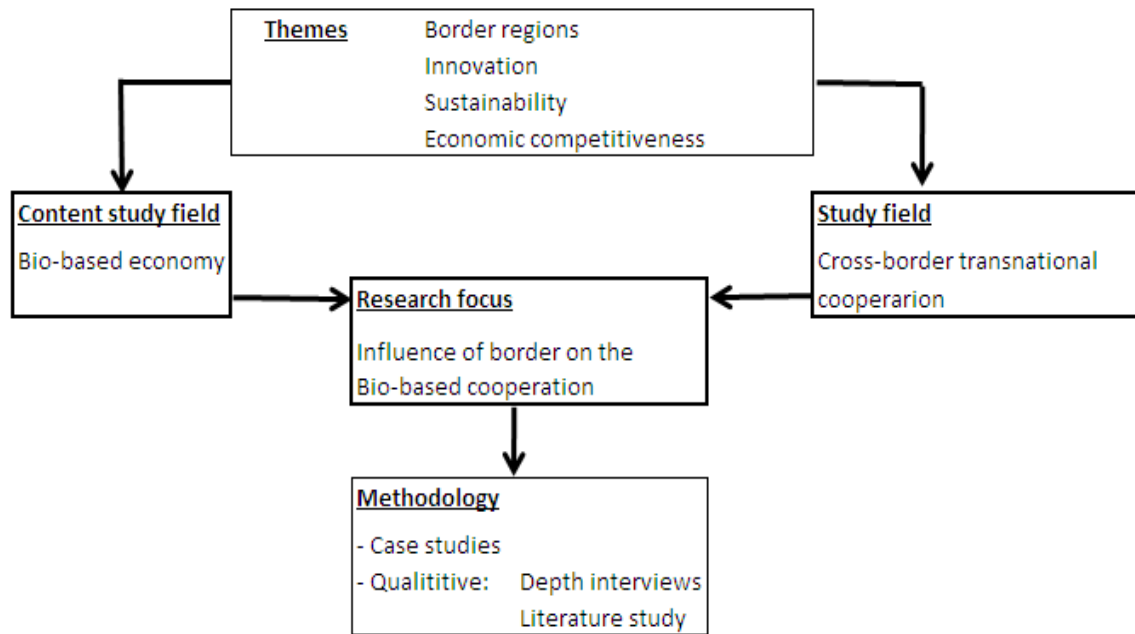
Sub question 6 orientates towards the possibility of allying on the transnational scale. The inclusion of a second case study was therefore needed. The chosen arrangement is the Be-Basic Consortium, an initiative in the Province of South-Holland (The Netherlands). Geographically, it is situated in the 'South Wing' of the Randstad area between Rotterdam, the cities of Delft and The Hague. This coalition consists of some twenty partners of research institutes, governmental organizations and the industrial sector. The ambitions can be compared to those of Bio Base Europe. Its 'Open Innovation Multi Purpose Bioprocess Pilot Facility' is initiated by the Technical University of Delft (TU Delft) to '*fulfil a prominent role in the biotechnology in the near future*' (Municipality of Delft, 2010) by gaining a leading international position (Be-Basic, 2010). Moreover, the development of the Rotterdam Mainport into the largest bio-energy harbour in Europe stands high on the agenda of numerous political and economical share- and stakeholders (Energieraad, 2010).

Both bio-based initiatives are located in the region of the Rhine-Scheldt Estuary. Due to their relative geographical proximity the above argument seems adequate on a possible supraterritorial coalition for the bio-based movements. The major opportunity of looking at both bio-based projects does not so much lie in the comparison of the two separately demarcated bio-based clusters. Rather, the willingness to cooperate in the bio-based innovation – and the meaning of the national border - within a supra-regional region can be illuminated. This inquiry can disclose the dilemma between the sensitivity of pure national economic concern versus the understanding of a mutual interest at European scale.

The choice of these two regional projects can also be reasoned by their feature being in the initial project stage and by their similar characteristics regarding functions and complementarities in materializing the 'green' economy. While Delft and Ghent excel in research activities for innovative biotechnologies, the main significance of the harbors of Rotterdam and Terneuzen/ Ghent can mainly be found in the logistics and hence in the organization of the transport and distribution of biomasses.

The related regions considerably differ regarding their social-economic position. While the region Delft-Rotterdam belongs to one of the most dynamic areas of the Netherlands and Europe, the Dutch Zeeland –Flanders (part of the Province of Zeeland) can be characterized as a region on the national margins with the dominance of traditional sectors like agriculture and tourism and a relative low economic performance (Gijzen et al., 2009; Buuron, 2006). The chemical industry in the Canal zone is though strongly represented. Integration through cross-border cooperation projects with the economically powerful Flemish Ghent area however may put the position of Zeeland-Flanders into a different light. Building up intertwined connections in the sustainable economy can increase the social-economic activities and welfare for the whole transboundary region (Gijzen et al., 2009; Telos/Erac, 2009; Buuron, 2006).

**Figure 1.1. The structure and main exploration field of the research**



## 1.5 The relevance of the research

### *Social relevance*

The social relevance of the present research can be underlined by the massive socio-political concern relating to all forms of sustainable development, enhanced by the planet-profit-people concept (Beth, 2010; Worldwatch Institute, 2006). The intensifying focus from governments and societies on searching for new alternative energy sources strongly emphasizes the importance of the issue. New questions, controversies and dilemma's arise due to the emerging concept of the bio-based economy as well as due to the opportunities and threats it can generate.

Furthermore, the research orientation regarding the possibility of a transnational bio-based cooperation can be aligned with the policy strategies of the European Union (European Commission, 2005; 2007). In the light of these guidelines the connection between the Delft-Ghent innovation networks appears necessary in order to create a globally competitive European biotechnological core.

Given the recent proliferation of cross-border initiatives the limited focus on innovative regions within a pure national context has become increasingly inadequate. The research fills a gap in inventorying unique cross-border community practices to launch the bio-based economy. The dimensions of the border in these particular enterprises are rather under-investigated.

Borders should be treated as contact zones, places of opportunities and openness. Practitioners as well as academics should therefore put effort in transforming border areas into common and shared spaces where prosperity and stability can improve the life of the citizens. This research for that reason strives for a practical value beyond exclusively enriching theoretical dimensions. An attempt has been made to solve the mismatch between top-down integration policies and ‘‘bottom-up’’ integration in daily (social and economic) life. Instead of the restricted study of institutional cross-border organizations and administrative institutions evaluating tangible economic initiatives would bring the goal of practicality closer.

This in-depth investigation of the dynamic processes and hindrances of cooperation enhances the significance of learning experience between project partners and the awareness of the benefits of collaboration. More knowledge on the diverse facets can generate powerful tools for effective alternative approaches from the side of the public as well as from the private participants in transborder innovative programmes. The research therefore also contributes to better understand the coordination, facilitation and policy making on national, regional and European scale regarding innovation programmes on sustainability.

### *Scientific relevance*

The scientific relevance of the present research can be emphasized by applying a broadened perspective through cross-border cooperation. As has previously been outlined most scientific material on transboundary relations rely mainly on the institutional, administrative and legal aspects of the interactions. While the functioning of the authoritarian bodies and institutions are enthusiastically handled by the researchers, the facets of micro-scale multi-party economic partnerships remain underexposed. Social-economic collaboration though is the most fundamental component of genuine interregional relations across borders. The integration of the macro-level analysis of the circumstances of border regions with micro-level perceptions on the border influence on business projects is an addition in the relevant academic literature.

The multidisciplinary approach can enrich the scientific value of the research. It draws on and combines border studies and creates an indication base on the typology of relationship as well as its driving forces and effects. The research thus sheds more light on the diversity of factors shaping the dynamics of transborder cooperation between public, private and non-profit stakeholders. Considering the weight of socio-cultural, mental and institutional features in economic cooperation fills some "blank spots" in the scientific documentation. Most studies in relation to the bio-based economy predominantly focus on the aspects of biotechnological development, the economic feasibility and alternative development trajectories. This study, by concentrating on the "soft" facets of organizing a transborder bio-based partnership, is complementary to the existing knowledge on this terrain.

Finally, the analysis provides chances to enrich the knowledge on the changing role and associations of the border by altering the geographical scale. It entails the switch from geographically continuous borderlands onto the extended domain of transnational networking in developing the bio-based economy. Scientific curiosity triggers the exploration of the potential impacts and outcomes of multi-scale interaction networks with reference to distinct geographical and relational proximities.

### **1.6 The structure of the research analysis**

Chapter 2 introduces the concept of the bio-based economy, being the background area and the content of the present research field. Explanation on the wider contextual features of socioeconomic and political circumstances is required in order to better position the concept of bio-based economy. A closer look at the issue of collaboration will be as well offered since this aspect form the central part of this research.

Chapter 3 provides a literature overview on theoretical insights on borders. It deals with the significant dimensions of cross-border regions like the typologies of borders, their effects and meaning for transboundary social-economic interactions. A detailed look is proffered at the conditions of cross-border cooperation wherein the existing bottlenecks as well as chances are discussed.

Chapter 4 provides the theoretical framework on which the cross-border dimensions will be projected. It gives an overview on theoretical insights with reference to cluster and network formation of regional innovation projects as well as a reflection on policy implications. The two perspectives of borders and cooperation strategies establish a specific reference for the central issue, e.g. cross-border innovation coalition.

Based on the theoretical reviews chapter 5 explains the conceptual framework and presents assumptions for the conduct of the empirical inquiry.

Chapter 6 describes the applied methodological structure while chapter 7 (Ghent-Terneuzen canal zone) and chapter 8 (the possibility of transnational cooperation) analyses the main findings of the empirical research by referencing to the applied theoretical dimensions.

The last chapter (9) concludes on the most important empirical discoveries by reflecting to the research questions and hypotheses. This is followed up by formulating recommendations as well as a future research agenda. Its last section contains personal reflections highlighting the experiences during the research trajectory.

## **2. The bio-based economy: a paradigm shift towards a sustainable social-economic transition**

*‘‘It is 5 to 12. We have a race against time to find a solution for the biggest challenge of the 21<sup>st</sup> century’’* (Scheer, 2010 in Tegenlicht, 2010): the global switch to sustainable forms of the production and consumption system. By 2050 the reserves of oil and natural gas are estimated to run out that will, in the absence of alternatives, lead to the most enormous disaster ever happened to the world (Tegenlicht, 2010; IPCC, 2007). In the last 200 years industrial societies have relied on the combustion of plentiful and inexpensive carbon fuels. However, keeping dependent has hazardous consequences. On the one hand there is the insecurity of relying on the world’s most unstable region (the Middle East) complicated by the nearing of peak oil, the increasing scarcity of non-renewable reserves and their fluctuating price level. On the other hand as evidenced by the climate change, the long-lasting burning of fossil fuels have devastating effects on the environment and human life (European Commission, 2007; Scheer, 2010; EnergieTransitie, 2008).

The solution to stay away from dreadful global scenarios filled with conflicts is to swiftly make the transition to renewable sources of energy. This will provide the base for sustainable production methods. The concept of the ‘green’ bio-based economy, as a major alternative to replace the conventional energy business, is the central subject in this chapter. Since the research field of this study refers to the cross-border collaboration for establishing the bio-based system, it is vital to shed light on its main characteristics. It is of use to understand the very complex feature of building up a completely new innovation-driven production system. Beyond the diverse effects induced by the presence of the state border between the project partners, the cooperation can be severely influenced by numerous externalities. Here below a picture is drawn on the must, implications and opportunities regarding the transition toward the bio-based social-economic configuration.

### **2.1 The drivers**

#### **Climate change**

The intensifying promotion of sustainable development worldwide is being enforced by the growing awareness on climate change driven by many sorts of environmental problematic. Aquatic and atmospheric pollution, urban deterioration, soil degradation, the increase of industrial and domestic waste are mainly being caused by human actions through CO<sub>2</sub> emissions and other greenhouse gases (IPCC, 2007; the Fifth EAP, 1993). In the meantime, there is no serious doubt that there is an urgent call for the rapid and massive expansion of climate protection initiatives. The most important steps are to accelerate the mobilization of renewable energies and the promotion of energy efficiency: In an ecologically sustainable economy *‘‘the polluting innovations of the 20<sup>th</sup> century should make place for the green innovations of the 21<sup>st</sup> century’’* (Smulders et al, 2009, p. 3).

Numerous countries handle governmental subsidy programmes to stimulate CO<sub>2</sub> reduction through investments, technological application and knowledge transfer. The objectives of these programmes are to stimulate the transition towards a sustainable economy and hence to diminish CO<sub>2</sub> emissions. Entrepreneurs and companies from diverse economic sectors can make use of financial support if they fulfil the criteria for using less energy and/or more sustainable resources (Europa decentraal, 2010).

#### **Decreasing fossil reserves : an imminent disaster**

The imminence of peak oil, the scarcity of oil and gas reserves projects a dramatic evolution in the coming decades if no serious measures are taken now. Renewable resources are needed for the solution (IPCC, 2007; Tegenlicht, 2010). The energy reserves from fossil resources are rapidly decreasing due to the growing demand that is largely induced by emerging economies: *‘‘Rising demand for energy, food and raw materials by 2,5 million Chinese and Indians creates an urgent need for a new path of industrialisation: based on new production and consumption technology with low consumption of resources and low environmental pollution, and the optimal allocation of human resources. The resource-intensive model for economic growth can’t work in the 21<sup>st</sup> century’’* (Worldwatch Institute, 2006).

Humanity stands for an enormous challenge in this century and many actors from the academic and political arena as well as from civil and business life warn for a global disaster. This will happen when the decreasing curve of energy resources and the increasing curve of demand for them will cross and overtake each other (Scheer, 2010; Tegenlicht, 2010). Research studies demonstrate that societies are already at the beginning of the process of reaching this crossing point of demand- supply. Arriving at this intersection will foreshadow the absence of energy in the future without which no economies can be run anymore (de Vriend et al., 2008; van der Wielen, 2010).

This energy trap will generate giant implications. The consequences of this situation will be the increase of energy prices due to monopolistic structures as very few and unstable countries in the Middle-East own the resources. Considerable

existential conflicts will emerge worldwide what is already occurring in diverse places. The situation of robustly declining resources and the fight for the access to the last resources will evoke international conflicts (IEA, 2006; Scheer, 2010). This heavy dependency on a limited number of oil supplying regions is as well behind the substantial concern to search for energy substitutes (Bionity.com, 2009).

### **Economic opportunities**

Grasping the economic benefits, provided by this emerging industry, is as well a key incentive behind the global “bio-based” processes. On the long term the potential of sustainable production modes can be turned into economic and employment growth (European Commission, 2007, 2010; van der Wielen, 2010; te Roller, 2010; Tegenlicht, 2010).

Sustainable industrial growth can only be granted if there is a secure supply of raw material input. The use of renewable, plant-based resources for industrial production and energy can address this growing concern. Securing mid- and long-term energy needs also improves the productivity (Tegenlicht, 2010; European Commission, 2007).

In addition, the utilization of green resources is not only justified by the scarcity and the future unavailability of fossil-based reserves. Bio-based production can be much more efficient and in case of a complete evolution cheaper than the existing methods grounded on conventional resources (Hamm, 2010). Also, the impact of bio-based application on business prospects is growing. Despite the fact that the bio-based market is not full-grown there is an estimation of a growth potential of a yearly 5% (Buck Consultants International, 2010). Furthermore an autonomous and decentralized energy supply can promote local and regional economic development (Scheer, 2010; de Vriend et al., 2008).

### **Pushing for an altered mindset**

The above mentioned ecological disadvantages and socio-economical imperatives enforce a fundamental and rapid change of paradigm regarding economic development and societal systems. There is an expanding consciousness to transform the conventional patterns of economic growth into sustainable courses (PriceWaterhouse Coopers, 2010; Aan den Brugh, 2010).

Advocates of a high-speed transition though consider that it is developing at a rather slow pace. In their view instantaneous deeds are required as *‘we cannot wait till the moment that the last drop of oil is consumed. Each postponed year is a lost year’* (Scheer, 2010). This explains the inclination to hurry up to produce the necessary inventive and innovative substitutes. A race against the clock: the must to discover solution before it is too late.

This postponing spirit in international conferences derives from the premise being used during negotiations about the resolution for the global climate problems. According to the still prevailing vision the required measures to be taken for the protection of the environment and climate mean a massive economic burden. This stance at the end results in the principle of “all or none” that creates an antagonistic contradiction between accelerating the transition to the sustainable economy and reaching a consensus (Aan den Brugh, 2010; Tegenlicht, 2010; Scheer, 2010). Also, the competition against the traditional fossil-based business is a hampering in this regard. The complete structural change needed by the bio-based economy breeds resistance from conservative powers to sabotage the transition towards the green economy (Scheer, 2010).

As a result a complete paradigm shift is required wherein the first and most significant footstep is the (coerced) change of the mindset. In the psychological sense and by applying an alternative premise. Under the time pressure this more or less obliged transforming needs another way of thinking in science, industry, politics and the public opinion (Scheer, 2010). Besides, the induced contest against the time requires a concerted way of acting by many economic sectors and disciplinary fields: collaboration is essential to reach a full-fledged economy based on renewable energy (Jenkins, 2008; Beth, 2010).

Pleasers of the “green” economy draw the attention to the widespread disinformation about the bio-based economy. Accordingly there is a total underestimation about the possibilities of the bio-based system and of renewable energy sources. Much more attention should be spent on enlightening its unique opportunities for industrial societies. Raising awareness on and the better communication of the benefits to the general public, the political and the business participants and the consumer is therefore inevitable (Soetaert, 2010; Energietransitie, 2007; Tegenlicht, 2010; European Commission, 2007).

## **2.2 The bio-based economy: a green industrial revolution**

A green industrial revolution is unfolding if one considers the fascination in the academic and public discourses urging a new organization of environment friendly production and consumption system (KNAW, 2008; Jenkins, 2008). Due to the awareness of the issues outlined above the bio-based economy has become a hot item and is gaining ground worldwide as a likely alternative replacing the fossil-based societies.

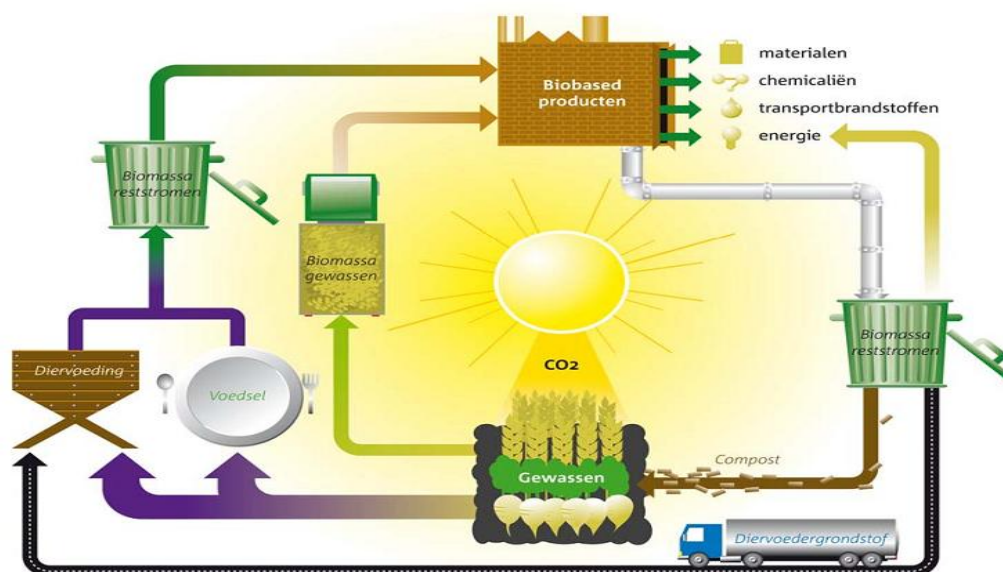
The definition and the major product segments of the bio-based economy are shortly presented below.

## Definition

The model of the bio-based economy aims to establish a society being (partly) independent of fossil-type of resources. The bio-based economy is an economic structure wherein energy provision and the production of transport fuels, chemicals and materials are being made of biomasses such as vegetables, animal products or seaweed.

A survey (2001) carried out by the OECD Task Force (The Application of Biotechnology to Industrial Sustainability) has been the first detailed research study to gather systematic evidence that ‘*the use of biotechnology, bio-based feed stocks and bioprocesses in industrial production can improve industrial eco-efficiency and lower costs*’ (OECD, 2001). The major potential of using biologically-derived, renewable resources hides in their capacity to substitute fossil-based products on the long term. This entails the establishment of a low carbon economy by the neutrality of greenhouse gases and by manufacturing with lower ecological footprint at lower costs (European Commission, 2007; (Beth, 2010; figure 2.1.).

**Figure 2.1: The circular course of the bio-based economy**



Source: Dutch Ministry of Agriculture, Nature and Food Quality, 2007, p.1.

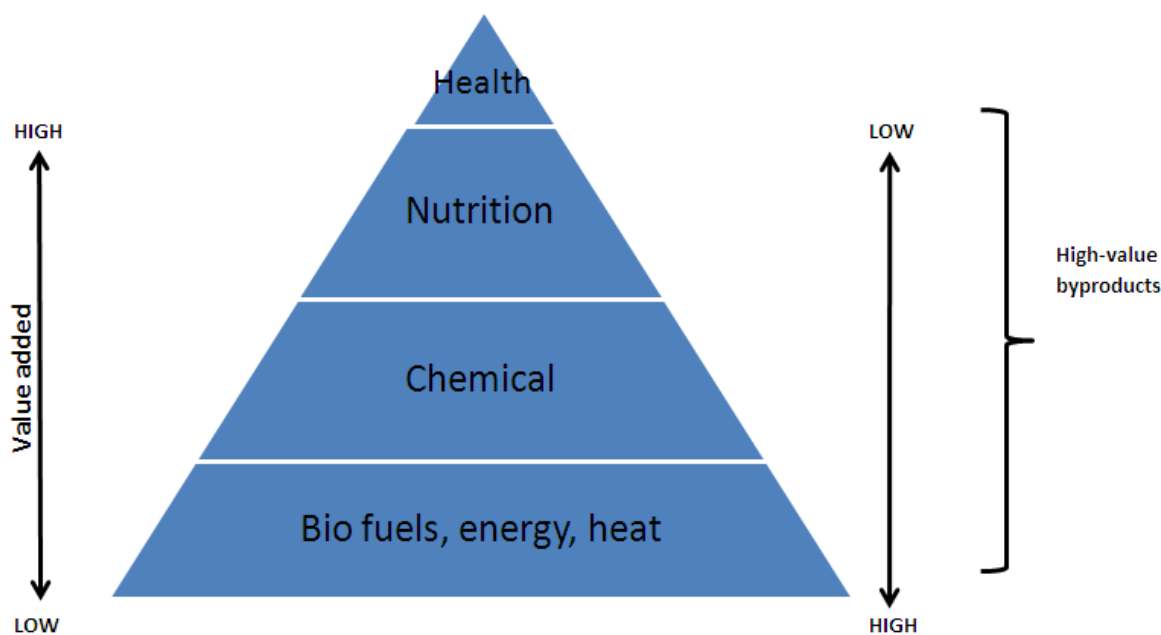
## Major production segments

Three major applications are central to the processing of biomasses in the non-food sector: bio-energy, bio-fuel and high-value bio-based products (Buck Consultants International, 2010; European Commission, 2007; Province of South Holland, 2010).

In particular the last one, bio-based non-food products in the pharmaceutical, bulk chemistry and packaging industry are growing in significance. The diversity of biomasses offers high-value application possibilities to be used in a broad range of products like bio plastics, medicines or clothing. Although their global market share is still insignificant the application of biomasses (biotechnology) in high-value products has in recent years shown a yearly increase by 60 % (McKinsey, 2007).

The bio-based pyramid (figure 2.2.) shows the produced value in comparison of the needed volume of biomasses. The challenge and a huge prospect in the bio-based economy is to create as much as possible added value from a plant. Bio refinery is the central element in the bio-based economy as it serves to fully utilize biomasses on a high-quality level with the help of sustainable processes. From an economic standpoint the uppermost value can be generated in life and health sciences while bio fuels, energy and warmth have the lowest significance of contribution (EnergieTransitie, 2005; 2009)

**Figure 2.2.: The bio-pyramid**



**Source: Buck Consultants International, 2010, p. 37. (own translation from Dutch)**

### 2.3 The stormy way to the bio-based economy

As has been outlined above the search for secure, clean and affordable energy compels societies to find other options to traditional fossil fuels. Still, despite the growing awareness on the need to act as rapidly as possible against the time pressure the transition towards alternative production system is progressing with little speed. In the section below an overview is given on the implicating circumstances that particularly define the evolution of the bio-based economy.

#### Fuel versus food

The production of bio fuels requires resources. A part of these resources relates to food crops that can create an unbalance between the energy market and the food market. The issue of the controversial character of “energy crops” appears regularly in the media that draws attention to the ethical dilemma of ‘*producing for the mouth or for the motor*’ (Ministry of Agriculture, Nature and Food Quality, 2007, p.4; Smulders et al., 2009; ). Biotechnology of the first generation applies resources that are acquired from food crops like corn, sugar cane (bio-ethanol), soybean, palm oil or rapeseed. Reaching a sustainable economy in industrial societies may in this sense carry the risk that hunger in poor regions would spur. The increase in the production of bio fuels can lead to soaring food prices that jeopardize the affordability of food for deprived social groups (One world.net, 2010; Institute of Science in Society, 2006; Ford Runge et al., 2007 ; OECD Insights, 2010). Although there is no hard evidence that shows that the food crisis is entirely caused by the production of bio fuels it still plays a role owing to the public opinion. Especially if one considers the significant exploitation of the agrarian capacities (25 %) for bio fuels in countries such as the USA or Brazil that is in addition heavily subsidized from governmental funds (Buck Consultants International, 2010; van der Wielen, 2010). The guidelines of the European Union and the policy of the member states provides though criteria regarding the production of biomasses in that they accept no competition with the application of food, local energy provision, medicines and building materials (European Commission, 2010; Smulders et al., 2009).

#### Technological development

The bio-based economy will lead to huge changes on the technological field. The great changeover to renewable energies and greater energy efficiency requires a technological revolution brought about on a deliberate and targeted basis. Developing a technology front is vital to integrate new production and processing approaches for generating optimized systems of new economic platforms based on the utilization of plant-based inputs (US Department of Energy, 1998; van der Wielen, 2010). Without better technologies in the relevant sectors the effect of the bio-based economy will remain

restricted by the availability of renewable resources and by the possibility to turn them in a cost-effective manner into energy or products (EnergieTransitie, 2008).

Various generations of biotechnology can be distinguished. While the first generation uses plants as corn, wheat, rapeseed etc. (see above) the second generation will use waste from vegetables that does not compete with the food production. Developing subsequent technologies can therefore give a solution to the ethical quandary “fuel versus food”. While biotechnological applications mean that not only the resources are bio-based but also the industrial processes relate to a more environment friendly operation in comparison to the classical industry.

The technological potential for a fully-developed bio-based economy is however still in an embryonic phase (EnergieTransitie, 2005). Further technological research is very much needed to explore high-grade applications of the intelligent, complete use of resources and to create the right balances between food production, chemicals and bio energy. Only then can the genuine sustainability of a bio-based system come into existence. The importance of fibre rich resources for the chemical and energy sector is also underlined by several studies (EnergieTransitie, 2008; Boosten et al., 2007; Smulders et al., 2009). Although the prospective of these materials is very high there are at the moment no technologies available to process them into bio fuels and chemicals. Without new generations of biotechnology the use of green resources will stall at a 10% level of the energy provision.

Also, for the time being the development of second generation technologies frequently stops in the laboratory without the up scaling to an industrially useful level. This is the so-called ‘*hole in the innovation chain*’ stuck between laboratory and the industrial setting (Het Bedrijf, 2009, p. 18). Large-scale demonstrators and testing facilities are decidedly required in order to allow translating the existing scientific knowledge and expertise towards industrial innovation. The establishment of demonstrators is an expensive implementation that is further intensified by the high financial risks of these research activities. Since they have an inventive and innovative character experiments cannot be granted to be successful in each case. Albeit the expectations from the involved stakeholders are high referring to the opportunities of new technologies the practice still proves how scientific hitches persevere (Buck Consultants International, 2010; Tegenlicht, 2010).

**Figure 2.3: The gap in the innovation chain : a difficult translation into industry**



**Source: Soetaert, 2009. (own translation from Dutch)**

### **The free market: an unfair competition**

The previous sections indicate how the growing motivation to start up and to invest in the bio-based economy is chiefly driven by the societal and political agenda. However the free market at this stage does not truly enforce the stakeholders to take steps to switch into a bio-based system.

The development of the oil market is essential on the development of bio-based applications. In case of decreasing price level and because the reserves are still enormous, there is no stimulating effect for pushing the bio-based market forward (Buck Consultants International, 2010). The interest in bio fuels is furthermore especially dependent of the level of the oil prices. The economic crisis has driven the bio-based development into a difficult situation. This makes the whole progression even more reliant on the provision of subsidies (Vaartjes, 2009; Soetaert, 2010).

Also, the higher costs for the more complex production and value chains of the bio-based economy explain the modest market demand. Hence, for the time being economies of scale in the manufacturing process of bio-based products can hardly be realised. This and the fact that ‘*climate change is the greatest market failure the world has ever seen, and it interacts with other market imperfections*’ (Stern Review, 2006) underlines the need of state intervention. Hermann Scheer (2010), member of the German parliament describes the allusion of being viable on the free market utmost cynical. The completely new system of renewable resources and related activities cannot compete with fossil fuels as the environmental costs are not covered in the latter (European Commission, 2007; Tegenlicht, 2010). The traditional energy business had in the last few hundred years received huge financial backing from governments for stimulating the full development of this production system and hence the national economies. As a consequence the conventional fossil-based



system involve a very well-established and for this reason much cheaper value chains by today. The up-and-coming bio-based economy have to race against this privileged system of high efficiency. In the bio-based industry, on the contrary, completely new and very complex value chains have to be installed, connecting raw material producers in agriculture/forestry to manufacturers (petrochemical or other industrial players), retailers and end users (European Commission, 2007).

Moreover, the deficiencies of the undeveloped bio-based system cannot either grant security of supply – also on this terrain it is not yet competitive in comparison with the well-organized fossil-based economy (Jordan, 2010).

### **Ecologically sustainable bio-based market and products**

Another significant concern and risk involve the question of ecological sustainability of the renewable resources. The large-scale import of biomasses will be inevitable for each application scenario (figure 2.2.) in countries like the Netherlands, Belgium etc (EnergieTransitie, 2005; Het Bedrijf, 2009). The increasing demand for imported biomass resources though could erode biodiversity and the CO<sub>2</sub> emissions would hardly be reduced. These could exacerbate deprivation and poverty in numerous regions of the planet. A responsible bio-based market can therefore only arise if the whole lifecycle of the bio-based products refers to sustainable ways of fabrication. The systemic transformation should refer to legally and institutionally setting up comprehensive economic and ecologic chains (Vaartjes, 2009; EnergieTransitie, 2005) which is a very complicated and challenging task.

### **Stimulating regulations**

#### *Global competition on the rise*

The above revealed conditions that make the transition towards the bio-based economy complicated and filled with barriers justify state support. Moreover, the opportunities to develop (regional) economies and to promote structural transformation of rural areas are as well essential motives for policy makers to stimulate the bio-based approach (OECD, 2001; European Commission, 2010; The World Congress on Industrial Biotechnology and Bioprocessing, 2010).

Governments in many countries therefore are committed to tackle the obstacles and to achieve progression on the bio based transformation of their economies. Being a harbinger in the switch towards the bio-based system will buttress the competitive position of the related business sectors and of the country in the global economic hierarchy. Especially in a period of economic recession realizing first mover advantages is a major driver. Although the concrete launching of the bio based economy is a global process, regional initiatives of bio-based development programmes (such as Bio Base Europe and Be-Basic) are getting widespread (de Vriend et al., 2010).

These processes are featured by massive lobby activities by industrial players (chemical sector) as well as regional authorities towards central governments. The economic prospect, the financial risks and uncertainties regarding drive actors to try to influence the politics for an enhanced support on the bio-based economy.

The policy instruments, fiscal measures and subsidies have the targets to foster research programmes for accelerating innovation results. Each country applies invigorating regulations that make use of its comparative advantages in global markets (Buck Consultants International, 2010). The competition is especially increasing from the side of the US, the Asian and South-American countries where colossal investments are being put into R&D activities and into the support of large-scale demonstrators (van der Wielen, 2010; Tegenlicht, 2010).

#### *EU policy*

Motivated by the increasing rivalry, the diversification and security of energy supplies and by the needed reduction of greenhouse gas emissions the European Union attempts to create conditions to facilitate the development of the bio-based economy (European Commission, 2007, 2010) . In the 7<sup>th</sup> reference program a budget of 1,9 billion euros have been allocated to the theme ‘Knowledge-based bio-economy’ for 2007-2013. An important guideline is that in 2020 all members states should use at least 10 % of renewable energy for transport fuels and a minimum of 20% of the total energy consumption should come from biological resources (European Commission, 2010).

The main strategic objective of the European Union regarding the bio-based development is to create an integrated approach of policy coordination, legislative coherence and financial means. In the view of the European Union industrial biotechnology and life sciences can contribute to increase the rank of the EU in the global high-tech market share and have the potential to fulfil a leading role in the field of science, industry and employment in the future. Advancing the competitiveness of the member states and facilitating European companies to develop a globally leading role in the bio-based economy are outspoken policy ambitions. Reaching these targets will increase of the quality of life and will realize modernisation of the industrial base in Europe (European Commission, 2005).

Translating technological innovations into commercial products is too a main target in this high-priority policy formulation. Due to their innovative nature biotechnological explorations do not grant successful outcomes that significantly raises the financial risks. This explains why innovation is heavily subsidized by the public sector. The recommendation of the Task force Bio-based products (European Commission, 2007) encourages the “Knowledge-based Bio-Economy” network of the member countries that should play an important role ‘*in supporting the development of a strategic European research agenda for bio-based products and help in establishing a number of strategically important bio-refinery pilot plants and demonstrators, bringing together actors and investments at EU, national and regional level*’ (idem, p. 16).

The financial support in the bio-based economy is often converted into the establishment of expensive pilot plants. In these facilities research (by private firms) can be carried out through testing large-scale procedures that should speed up biotechnological developments (te Roller, 2010).

In spite of the formulated goals EU policies still display inconsistencies and are short of momentum. Due to the absence of a shared vision and common goals the current performance of Europe in the rapidly changing fields of life chances and biotechnology is not on track to achieve the objectives: ‘*Europe is currently at a crossroads. It can accept a passive role and bear the implications of seeing these technologies developed elsewhere. Alternatively, it can shape the agenda by forging proactive policies to exploit these new sciences....*’ (European Commission, 2005, p. 1).

Traditionally, the role of the large players such as the chemical and energy sectors are enhanced for the bio-based opportunities. Nonetheless the stimulating programs should also encourage the participation of small and medium enterprises. Potentially new participants should be supported through venture capitalists and banks together with the government in order to make an optimal use of the innovative prospective of all players in the diverse economic segments (Tegenlicht, 2010; EnergieTransitie, 2008; Ministry of Agriculture, Nature and Food security, 2009).

Securing a stable investment climate is an extremely important part of the policy agenda that not always is guaranteed in the members states. A consequential policy mean that the perspectives for new technologies in the guidelines should not permanently be altered due to dependency on fluctuating energy prices. Furthermore the risk should be eliminated that the business life for their investments are being confronted by continuously changing regulative and supportive framework as a result of the international developments, economic crisis or the level of oil supplies (EnergieTransitie, 2008). Long-term and steady support is therefore of the essence.

### **The must of a broad collaboration**

The energy transition cannot take place independently and automatically in the free-market due to the various obstacles detailed in the above paragraphs. The large-scale input of the needed biomasses and the interrelatedness with other sectoral fields like climate, energy, agriculture, food supply, knowledge development, biodiversity, logistics and transport fuels demand concentrated attention on the (inter)national scale (European Commission, 2007; Vaartjes, 2009). The linking of these various fields should be an essential part of the strategic approach of the transition.

In these unique activities and production methods of the bio-based economy new types of collaboration demand completely new working and governance methods for reaching innovative and sustainable objectives in the regional development (Bionity.com, 2009; Jenkins, 2008).

Creating unconventional partnership through ‘*co-creation among government, the business sector and research institutes*’ (Kranendonk et al., 2009, p. 71) is a basic condition for the effective long-term development of the bio-based economy. Only by exchanging ideas through interdisciplinary collaboration can the elevated targets – climate protection and a ‘green’ industry – be achieved. The relevant actors from various organisations establish a mutual working process in which the meaning, ambitions and the identity of the cooperation is formulated in the frame of a broad development strategy (Kranendonk et al., 2009; Koppejan et al., 2004).

The rationale behind public support has been previously explained. In the multi-disciplinary complexity of the bio-based economies a novel and effective model should be developed wherein unique public-private entities play a central role (Scheer, 2010; Boosten et al., 2007). They could serve as “enablers” to facilitate the cross-functional collaboration and partnership to bring local and regional stakeholders together. For instance, regarding bio refinery ‘*there are new consortiums needed among the market players who at the moment do not yet recognize each other as business partners and do have different time horizons*’ (Ministry of Agriculture, Nature and Food Quality, 2007, p.21).

Besides new production methods there is a need for adjustments in the infrastructure and logistics, the institutional regulative systems, the operation procedures of companies and the mentality and behaviour of citizens and costumers (Tegenlicht, 2010; van der Wielen, 2010). Most of these facets have in the previous sections already been alluded to.

Regarding the major objectives and strategic approach, the development of cross-border bio-based clustering fits into the concept of the regionalization and pan-Europeanization of the energy markets (emcc, 2010). The idea of transnational or

transregional partnership is further strengthened when taking the economic structure of North-Europe into consideration. In the estuary of the Rhine some 80% of Europe's chemical industry is concentrated. Due to their strategic position the harbours in this region (can) have an important function in the development of a hub function for the transport of biomasses. Due to their very modest role in the production of bio-masses countries such as the Netherlands or Belgium (the two countries in this case studies) can make use of their logistics advantages through a collaborative move. Transnational partnership is in particular encouraged *“in those areas where a large supply of biomass would fall together with the need for economic development of this region”* (European Commission, 2007; Vaartjes, 2009). This aspect is further elaborated in chapter 8.

## 2.4 Summary

Based on the analysis above this section closes with a brief conclusion. Although the bio-based economy displays a longer historical evolution, its market is still in the initial phase. The development of a full-fledged bio-based system is a complete structural transformation that replaces the traditional configuration of fossil-based production systems. The major drivers of the bio-based economy are the growing environmental awareness (climate change), the price level and scarcity of fossil energy reserves that puts the world under a time pressure. Societies are compelled to develop technological and organizational innovation as rapidly as possible in order to find solutions *“for the biggest challenge of the 21<sup>st</sup> century”* (Scheer, 2010 in Tegenlicht, 2010).

Despite these facets and the recognized huge economic potential the evolution of the bio-based structure occurs in a slow and turbulent manner. The issue of food versus fuel, the heavy dependency on subsidization and on market forces and the (temporary) absence of adequate industrial technologies are complicating factors.

The many uncertainties, barriers and the expected benefits justify state intervention. Although the European Union formulates ambitions to stimulate the development of the bio-based industry a coherent and proactive policy approach is yet to be deepened. This relates to the provision of a stable investment climate and of a long-term and supportive regulative framework.

Moreover, linking of the many relevant sectors is an inevitable strategic approach so that the chain-structure of the bio-based economy can be entirely developed. Setting up (transnational) multi-party collaboration is a prerequisite wherein the stakeholders from the diverse fields and regions create synergies through their complementarities. The unique activities and production methods of the bio-based economy for that reason require unconventional forms of interdisciplinary participation and new types of collaboration. Only by launching completely novel working and governance methods within a broad development strategy can bring the bio-based transition to tangible results. This remains though the most challenging undertaking after having seen the various delaying and hindering factors outlined in this chapter.

The following chapter will focus on the regional surrounding and circumstances where bio-based initiatives in a multi-stakeholder cooperation frame are being evolved. Owing to the specific case studies in this research the centre of attention will be placed on theories of borders and border regions as well as the characteristics of cross-border collaboration practices.

### 3. Borders

For a complete understanding on the influence of state borders on human and economic interaction the essence and effects of borders should be considered. Through theoretical frameworks and a literature review this chapter discusses the multidimensional facets of borders and their role in cooperation. First of all the development of border studies is introduced. This illuminates how academic perceptions on borders have evolved that has impacted the focus and methods of border research. This also explains the subsequent choices of the theoretical approach in this study.

The relation between territoriality and the function of borders is as well an important aspect to be aware of. Borders played a key role in the formation of regions and nation states. Boundaries drawn between territories for different purposes are still determining factors in integration and collaboration.

Since cross-border cooperation forms the central issue in this research a detailed view is provided on its various aspects such as the definition, types and phases of cooperation.

Subsequently the opportunities and barriers of border areas are looked at that may stimulate or hamper closer transfrontiere interactions. As a result of the removal of border restrictions within the EU, the increasing mobility and new regionalism, borders are no longer understood merely as barriers but also as resources, bridges and opportunities. However, transborder areas are still marked by a *'collision of different institutional frameworks, different economic and political priorities as well as different economic and socio-cultural norms of behaviour'* (Krätke, 1998, p. 258). The knowledge of these dimensions is essential for the empirical evaluation of the bio-based collaboration.

The content of this study field, the bio-based economy attaches an additional, challenging dimension to cross-border cooperation. Regarding its novel character and because the production and regulation system of regions determine their competitiveness and capacity for renewal, attention is as well given on cross-border innovation.

#### 3.1 The study of borders

##### *Disciplinary shift*

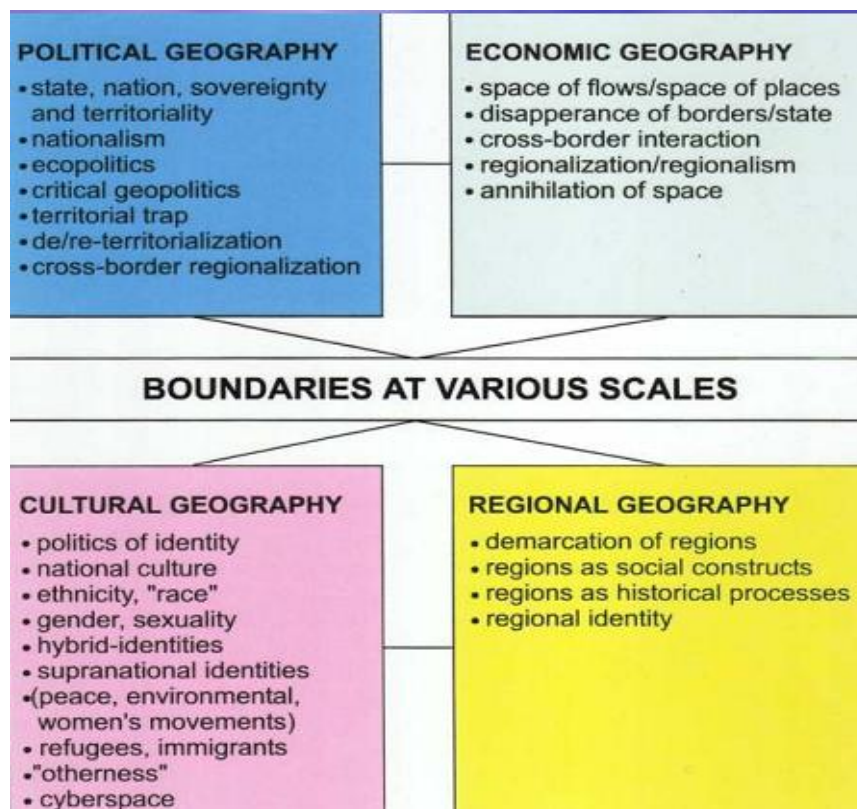
As of the 1980s, due to the major geopolitical and economic transformations in the international system a renewed interest in border studies can be observed. The study of borders has in the past decade become a major growth industry. Besides, notions such as *'deterritorialization'* (Brenner, 2009; Newmann, 2006), *'space of flows'* (Castells, 1996), *'living in a borderless world'* (Newmann, 2006, p. 143) and the *'imminent demise of the national state power'* (Brenner, 2004, p. 1) contributed to the renaissance of border studies.

Another major stimulation for border studies came from cross-border regionalism, driven by specific regional policies of the European Union. The objectives of these initiatives were to advance integration and to tackle regional disparities in member states. These goals were to stimulate the establishment of strong, competitive and innovative regions in the framework of the Lisbon agenda (Leimgruber, 1991; van Houtum, 2000).

Border regions are the places where one can examine how the growing cross-border cooperation and regionalization can change the functions and hierarchies of national borders. They manifest how spatial-economic organizations alongside borders contribute to the emergence of new functional spaces and regional identities.

Since the social constructivist turn in border studies as of the 1990s the constructive potential of the border concept has been widely theorized (Giellis, 2009). That has lead to the growing interdisciplinary character in the study of borders. Through the inclusion of diverse scientific disciplines and the proliferation of focus on diverse areas of human geography, research of a more common terminology could be carried out for *'making sense of the aspiration of cross-border cooperation'* (Johnson, 2008, p. 182) (figure 3.1).

**Figure 3.1.: Some subareas in human geography dealing with border studies**



Source: Paasi, 2007, p. 9.

Although borders are human creations, being lines in the space and serving as functional instruments, their impact stretches far beyond political, military or institutional affairs. The outcomes of the physical dividing lines are much less visible than their significance in space. The realization of it brought an important shift from a discipline examining physical (state) boundaries towards a scholarly field investigating border areas as more abstract and ‘*multi-faceted difference makers*’ (Gielis, 2009, p. 600). The attention has been directed from boundaries as passive lines in spatial ways towards borders having various manifestations that widen their scope and enrich their meaning. The concept of the border has been, as a consequence, unchained from the territorially demarcated state border by adding a broader philosophical significance to it (Bakos, 2000). This standpoint enhances the existence of borders because of people’s need of them. Borders are socially constructed in specific social contexts and may function as (symbolic) representations in images and practices, being enduringly reproduced in the human mind.

*The Janus face of borders*

Through investigating borders as spaces the multifaceted reality of intercultural relations versus binary oppositions of dividing lines can be brought to light. The actual theoretical discussions treat borders as barriers or/and places of contact (Leimgruber, 2005). These ‘*paradoxal binaries and the attracted opposites*’ constitute the bordering processes in dichotomies such as isolate/encompass, separate/meet, confine/approach, circumscribe/connect, inside/outside and inclusion/exclusion (Soja, 2005, p. 33).

Borders create opposing spaces but they simultaneously encourage transgression and move beyond the delineation and limits to open new spaces and places and to ‘*search for reconciling alternatives, create syntheses, resolving hybridities*’ (idem, p.33). Border studies regularly refer to the border as having a Janus face: it is both a barrier (obstacle) between two universes and an opening (opportunity) to another world. This means that the disadvantages experienced by border regions can be offset by the positive location characteristics (Krätke, 1996). The arguments therefore on the scale of extremes ‘*barrier – opportunity*’ reveal the transformation of border studies as ‘*one-dimensional towards conceptualizing them as complex and ambivalent difference makers*’ (Gielis, 2009, p. 602). The examination of border areas therefore demands an open and flexible approach.

This brief overview on border effects evidences the or historically, as reflecting natural/geographical law. This argumentation will be further elaborated in the following paragraphs after giving a definition and main attributes of cross-border collaboration for the purpose of this research.

#### *Research perspectives*

The disciplinary shift in border studies made border classification a rather problematic assignment. Distinct perspectives on theorization result in distinct ways of grouping. In the literature there is a great array of border categorizations like the typology, the function, the meaning or the effects of the border. Herein the type of separation, the hierarchical degree of the division, the psychological and evolutionary aspects are employed (Leimgruber, 2005; van Houtum, 2000; Tripl, 2010).

For the purpose of the present research the approach of the oppositional perspectives will be applied. The multidimensional meaning and impact of borders will be grasped by the use of the opportunity-barrier dichotomy: points of conflict and closedness versus opportunities points of contact and cooperation. By studying the multifaceted character of bordering the surrounding conditions and major bottlenecks can be revealed that are necessary to understand how cross-border projects can be managed in a successful way.

Borders can be studied from various perspectives and on different scales. They use different problem orientation and theoretical/methodological approaches:

Research on transborder interchange and collaboration makes use of the *cross-border cooperation approach* which evaluates the border permeability in terms of economy and politico-administrational arrangement. This mostly entails regional or supranational economic partnerships and a governance type of organization. Cooperation can be examined in terms of frequency, barriers and motives of collaboration. The high frequency and diversity of collaboration indicate or predict strongly developed border integration and identity formation (van Vilsteren et al., 2005; Prokkola, 2008). This approach is rather institutionally-oriented in that it analyses the possibilities and actions of regional authorities for reducing the negative effects of borders by cooperating and harmonizing various regulations.

The *flow approach*, which can be to a certain extent linked to the former, looks at the physical flows of goods, services and people and the (lack of ) integration between regions. This is placed in the context of global networking and the increased mobility.

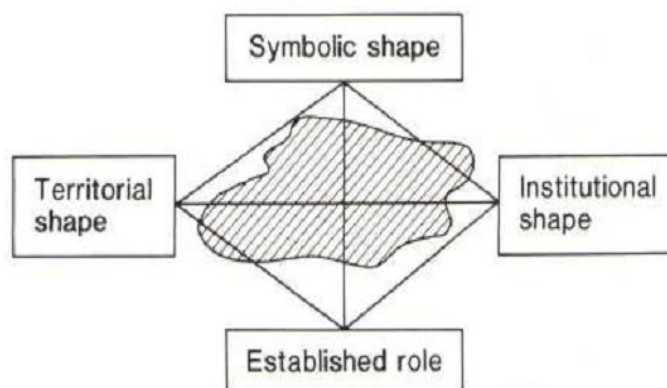
The *people approach* is related to the concept of integrated borders and it focuses on the measure of interaction between individuals in border regions. Socio-physiological and behavioural factors are mostly applied here by concentrating on symbols and perceptions. This approach looks at the border as a mental construct whereby the differences between “them” versus “us” and prejudices/stereotypes give an extra dimension (van Vilsteren et al., 2005). This approach, looking at the meaning of the border by individuals, can provide a different view on the interpretation of the border than the “flow” or “cooperation” approaches. Looking from this angle it seems that cross-border cooperation and flows do not function as the major catalyst in bringing border areas closer together. Labour immobility is a point in case: despite the removal of border restrictions, the emotional ties to the “own” region and the indifferences towards the border have not generated significant border crossing (van Gorp, 2009; Gielis, 2009).

The empirical section of this research is based on the cross-border cooperation approach but is enriched by the “people” approach. The main focus lies at the frequency, motives and hindrances of collaboration in the specific project of the bio-based economy. For researching these aspects information will be acquired on human perceptions. The views of the project participants with respect to their understanding of the border and its effects on the cooperation will be scrutinized.

### **3.2. Territoriality and borders**

To understand borders one has to understand territoriality. Border classification can be embedded in and explained by the complicated process of regional transformation. Herein, drawing boundaries was inevitable. Paasi’s (1996) model on the institutionalization of regions refers to the spatial development trajectories during which specific territorial units are established through the socio-spatial consciousness in the society. The social construction of regions takes place in various stages and can be expressed in territorial, symbolic, institutional shapes and in their established role (figure 3.2.).

**Figure 3.2.: The institutionalization of regions**



**Source: Paasi, 2007, p. 18.**

The existence of borders serves well-indented purposes in the formalization and institutionalization of territories. The territorial behaviour in human interactions, the bounding of spaces and the bordering of life worlds revolve around the idea of spatial governance for providing safety, defence, identity, community, connection, separation and regulation and many other human needs and wants (Paasi, 2005; Soja, 1971; Bakos, 2000).

Official boundaries fulfilled a layered function in building up well defined territorial supremacy. Bordering practices are about the political organization of space created by the basic human need to live in a bounded space (Leimgruber, 1991, p. 43). Borders refer to human and political efforts to ‘*influence and control people by delimiting and asserting control over a geographical area*’ (Sack, 1986, p. 19).

According to the various shapes and meaning of territorialisation borders receive as well different various functions and connotations (figure 3.2.). The interrelatedness of the institutionalization of regions and the functional dimensions of borders can be distinguished as follows (Guichonet and Raffestin, 1974, in: Mezei, 2008; Remmers, 2007):

***Territorial form***

In the conceptualization the territorial form is the most tangible and it manifests itself by the process of the geographical fencing off and bordering. The territorial shape relates to the localization of social practices by which territories gain their shape, structure and boundaries. This is the construction of a distinct territorial unit (van Houtum, 1998; Prokkola, 2008).

The *raison d’être* of borders should consequently also be searched in the interrelation of social cohesion and territorial distinction. The spatial differentiation of various social groups has always been an inherent human desire in the history of mankind. A distinguished territorial formation of a certain group could only be achieved by the control of entry into the spatial unit. States and governments, by way of their controlling power, have played a huge role in drawing demarcation lines to explicitly mark the space between communities (Bakos, 2000; Mezei, 2008).

***Institutional shape***

The institutional shape is constituted by the complex system of all institutes being present in the region. The emergence of institutions intensifies the socialization of individuals and groups through institutional practices at various territorial scales and forms. The media, the education system, the (regional) chambers of commerce and (semi-) public authorities as well as the legal regulations and other administrative measures all belong to the institutional constellation of a bounded territory. The power of the institutional system within a region depends on the position of the regional government in the governing hierarchy of neighbouring (border) regions and of governing bodies at various scales (central government or municipalities) (De Pater et al., 2005). The regional institutional system has a large impact on enduring the regional identity and image forming.

The *legal* function of borders means the delimitation of the scope of legal regulations by circumventing the state territory where the political system exercises authority. This regulative function is a prime task of borders as the legal norms,

institutions and instructions receive validity through the spatial encompassing of territories. These legal functional components direct the life and activities of the whole society. The relative position of a region in the (inter)national power-hierarchy is as well supported by this institutional function. Even when other functions of borders will disappear this function will probably always persist.

The *fiscal or economic* function of borders concerns the ability and will of states to offer protection for the own economy to counter foreign competition. Examples are trade barriers in the form of duties or subsidization of national economic sectors.

The *control* function, as a policy instrument, administers access to the country by scrutinizing immigration, trade or transfer of information, depending on the specific circumstances and of the political regime.

The *military function* is destined to demonstrate the role of the boundary divide in the national defence system. The role of national governments has a great significance by promoting social cohesion within the bounded territory by taking care of the owns' citizens and by protecting them from extraterritorial hostility.

### ***Symbolic form***

The *symbolic shape* attaches symbols and meanings in order to demarcate and express the territory. Territorial symbols refer to a more abstract manifestation of a certain community and of the solidarity among its members. The symbolic form embodies '*the actions of political, economic, administrative and cultural institutions in the continual reproduction and legitimation of the system of practices*' (Paasi, 1996, p. 34) within the bounded territory. Symbolic shapes are important instruments to grant identification for territories and their inhabitants. They evoke emotions attached to the specific space of the community and mobilize actions. A very robust symbol of a territory is the name of the region, combining and associating memories, episodes and histories in the collective heritage. National flags, hymns, community celebration and (invented) traditions are as well key symbolic elements. They strengthen the inhabitants' awareness of the identity and of the place of their region (Bakos, 2000).

### ***The established role of the region***

The established role of a region can be connected to the more abstract notion of 'structures of expectations' wherein the functioning of the region is positioned in a broader socio-spatial context. This refers to the classification of the territory as for instance an area for a specific economic sector (agrarian activities or a tourism destination) as well as to the status and the regional identity in the socio-spatial consciousness of its inhabitants.

This regional form is the most dynamic in the aforementioned institutionalization formations. The transforming functional role of a region can thus on its turn influence the territorial, symbolic and institutional formations: the rescaling of (the tasks) of public authorities and the narrow cooperation of institutions across (border) regions may create the need for new symbolic or institutional formations in a rearranged territorial unit (Remmers, 2007; Paasi, 1996; 2005; De Pater et al., 2005).

The last two institutional shaping processes show that besides the organizational and jurisdictional purposes, the borders as *ideological* expressions play an important role. It can be related to the significance of nation building and national identity. The interplay between the functional and affective nature of borders distinguish the concepts of states and nations. Whereas the state can be attributed to a territorially-based power over a population the nation refers to the territorially-based ideology of people (Van Houtum, 1998, p. 25). Nationalism necessitates and enforces this type of border function since without a dominant sense of national identity within the territorial confines it would become impossible to reign a territory (Van Houtum, 1998, p. 27). Through the institutionalization process, which provides security and identity for the inhabitants, the nation becomes an '*imagined community*' (Anderson, 1991), a mentally constructed nation space where solidarity, trust and internal cohesion dominate the national society. The self-perception of belonging to a certain social group provides the input to nurture individual or mutual social identity.

The dimensions function and affection influence each other. Bordering processes, that is the exclusionary consequences of securing the "own" national economic welfare and identity symbolise the social practices of spatial differentiation or unity (van Houtum et al., 2001, p. 126). The institutionalisation of regions link consciousness, borders and territories since '*various territorial units are produced and manifest themselves in various social and cultural practices, such as politics, economy, administration which in turn will be produced and reproduced consciously and unconsciously by people*' (Paasi, 1996, p. 34).

### **3.3 Classifying cross-border cooperation**

In recent years there is an obvious growth in the number of cross-border organization which attempt to realize transborder initiatives and projects on regional or local level. Cross-border cooperation can take place at several scales, in different organizational forms, intensity and it can cover distinct motivations and purposes. The majority of border studies



investigate the social-economic integration on national or regional scales in the framework of administrative and institutional arrangements.

Analyses on economic collaboration on a micro-scale (firms or projects as units of analysis) are nevertheless rather rare to find. The aim of the present research is to investigate the scale of a particular project for which understanding the context of interregional cooperation is necessary. This paragraph embeds the bio-based transfrontiere alliances in the framework of cooperation characteristics by launching the definition of cross-border integration and collaboration.

### 3.3.1 Typology of border integration

Each border type has certain characteristics of which the aspect of (measurable) collaboration is the most important. Four categories are distinguished with respect to the cooperation among parties in the border region (Martinez, 1994; Mezei, 2008; Prokkola, 2008).

*Alienated* border regions denote the strict political self-isolation in the relationship between nation states. This implies that routine, day-to-day cross-boundary interchange is non-existent. The result is the total lack of human and trading interaction. This tension-filled climate, triggered by warfare, territorial disputes, ethnic rivalry, ideological animosity etc., hinders most efforts of the local inhabitants to lead a normal life.

The *co-existence* between adjoining borderlands indicates that the conflicts are reduced by the national governments to a manageable level. Minimal border stability is created by the resolution of serious disputes and international exchange becomes possible although without significant cross-border cooperation (Martinez, 1994, Mezei, 2008).

*Interdependent* borderlands reveal the symbiotic linkages between borderlands. The stable international relations and the favourable economic climate, allowing borderlanders to simulate development and growth, lead to transborder interdependency. The flow of economic and human resources across the border will connect the two economies with “*the end result of a mutual beneficial economic system*” (Martinez, 1994, p.4).

The most developed type of cross-border interaction is marked by *deeply integrated* borderlands. In this system the national states remove all obstacles which impede the commercial, economical and social movements. There is a strong and permanent stability between the countries by becoming equal partners on all terrains of relations. The two economies are functionally merged and the inhabitants consider themselves as members in the same social system. Today, most of the internal EU borders belong to this classification of border where physical and most of the functional types of bordering has long been abolished (Mezei, 2008).

This concept serves as an interesting point of departure since it indicates contradictions instead of clearly formulated and evident circumstances. For example the specific situation is not handled by the model when the whole national state and the border region have differing relations and attitudes towards the neighbouring state or region. The politico-cultural marginalization of border areas was further intensified by the fact that border regions historically strongly depended on neighbouring areas across the border. This alludes to the situation of bonding the two sides of the border by significant local -“unofficial” - activities like personal border traffic while the national centres maintained alienated or co-existing border spaces (Mezei, 2008; Hardi, 2002).

### 3.3.2. Definition of cross-border cooperation

In the literature many concepts describe the cooperation among subnational authorities or private-public partnerships. A distinction can be made between transnational and cross-border cooperation. Spoomans et al. (1999, p.16) apply the following definition: “*The cooperation among institutes, municipalities and regions, which are situated in the immediate vicinity on both sides of the border*”. The geographical proximity is here an essential distinction when specifying cross-border versus transnational collaboration which is also shared by Perkmann’s (2003, p. 6) conceptualization: “*a more or less institutionalised collaboration between contiguous subnational authorities across national borders*”.

Perkmann adds more criteria for refining the classification of cross-border cooperation:






- The participation of public partners is a condition as cooperation of only private actors would not have broad effects on the regional development.
- It includes “low politics”, denoting the participation of subnational authorities. Agreements between national governments do not exclusively relate to border regions.
- The focus of the collaboration is centred at practical issues as subnational authorities do often have no mandate to decide about general proceedings. Cooperation is therefore oriented towards practical problems, chances and solutions.
- A certain extent of continuous cross-border interaction should exist. A one-time contact cannot be categorized as a cross-border relationship but rather as an incidental exchange. Only in the case of regular contacts one can speak of cross-border collaboration.

Notwithstanding, due to the characteristics of the selected cases a broader scope of delineation regarding the geographical scope of partnership should be delineated. The large-scale feature of the bio-based economic systemic linkages reach further than the immediate vicinity of the border what can be underlined by the perspective of global competitiveness. Looking at the alternative motives and forms of transborder networking (figure 3.3.), the formation of a wider reaching bio-based collaboration could be supported by the purposes attached to the category of transnational regional cooperation (Colomb, 2007; Tripl, 2010). The clustering of enterprises, technological developments and various industrial sectors on a transnational scale emphasizes the need and possibility of functionally interconnected regions. Herein, setting up a virtual networking (figure 3.3.) can be an initial stage. This can form the ground to establish a comprehensive sustainable economic system on a Northwest-European scale.

Applying Perkmann’s definition and criteria cross-border cooperation is referred in this research to territories, belonging to different nation states that can include a larger number of regions or can comprise only two adjacent zones (Tripl, 2010).

Present research examines the transborder/transnational relations between the Netherlands and the Flemish Region of the federal state of Belgium. References in the text to ‘national’ issues therefore apply to the ‘regional’ issues of Flanders.

**Figure 3.3: Types and the driving forces of transnational cooperation networks**

<i>Transnational Cooperation</i>	
 <p>unbalanced</p>	<p><b>Unbalanced cooperation</b></p> <p>Any project in which the great majority of partners belong to the <b>same country</b>.</p>
 <p>virtual network</p>	<p><b>Virtual networking</b></p> <p>Projects aiming at the <b>sharing of experience</b>, gathering together partners undergoing similar problems (e.g. other metropolitan areas), or working with the same issues (implicitly; partners which do not necessarily share geographical contiguity or functional relationships).</p>
 <p>'add-on'</p>	<p><b>Add-on projects</b></p> <p>Well-established <b>national cooperation structures</b> cooperating with one another on transnational projects, implying the need to adapt national forms of interaction to a new structure.</p>
 <p>axial</p>	<p><b>Axial cooperation</b></p> <p>Project based on an existing or planned <b>transport axis</b> or waterway, with numerous possible aims (such as infrastructure development, tourism development, flood protection, water quality preservation etc.).</p>
 <p>regional</p>	<p><b>Transnational regional cooperation</b></p> <p>Projects based on an existing or emerging (transnational) <b>functional region</b>, or on a localized transnational cluster of enterprises – usually characterized by the relative spatial proximity of the partners.</p>

Source: Colomb, 2007, p. 359.

*Cooperation scales and regional development*

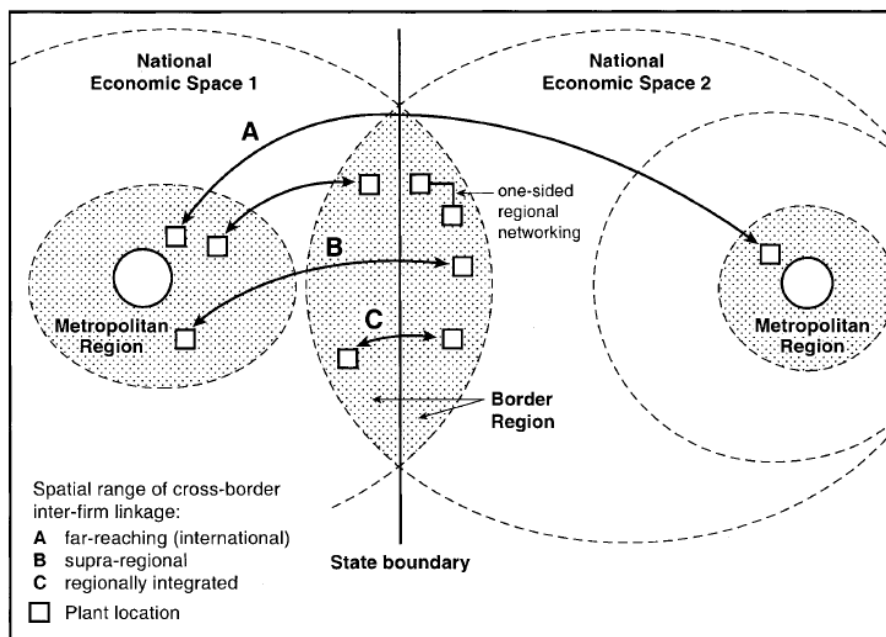
Krätke’ (1996, 1998) describes transborder relationships in which relations on various geographical scales are acknowledged although with varying economic outcomes for the border regions (figure 3.4).

Relation type A relates to far-reaching international and transnational cooperation linkages, spread over a larger distance. The impact of these relations will not affect the socio-economic position and the life of the inhabitants in the border areas. This would be the case in potential cooperation between the regions of Ghent and Delft/Rotterdam without including the region Zeeland-Flanders.

Type B is a supra-regional structure, referring to a cooperation in which one part of the border region is left out. This type of transborder partnership will stimulate the development of only one side of the border while the other side is being overlooked. An abundance of this form of relationship (for instance through low wage export processing industries) will lead to divided development of the borderlands and to socio-economic disparities within the region.

The third type of relation, C illuminates regionally integrated cooperative partnership in which social-economic activities are linked to both sides of the contiguous border area. This category represents regionally-based economic relations in the frame of an integrated transborder economy. This features the cooperation in the Canal zone although not entirely. The adjacent border area of Ghent can be rather characterized as a metropolitan region that with its economic potential the chances of Zeeland- Flanders can enlarge.

**Figure 3.4: Three types of economic linkages in border regions**



Source: Krätke, 1998, p. 636

### 3.3.3. Phases of cross-border cooperation

The various forms of cross-border cooperation can also be regarded as distinct phases from unattached and loose structure to firm collaboration. Based on the literature the following major stages of cross-border cooperation can be differentiated (Buuron, 2006; van Houtum, 1998; Spoormans, 1996):

1. The expression phase means the initial period wherein possibilities for cooperation have just been recognized. The intention for collaboration is officially announced where a declaration has been signed. In this phase there are only the politicians and the strategic management are involved.
2. The next stage covers exchange of information and ideas among the partners. The participating organizations are getting to know each other. There are often symposia and conferences are being organized and the partners make contact with research institutes.
3. In this phase the actions, ideas and initiatives lead to mutual production. Organisations deliver mutual services such as the launching of trainings facilities, the building of bike routes or the mutual promotion of the region.
4. The last and most developed phase of cooperation means that power, competencies, instruments and influence are redistributed. Organisations leave a part of their supervision to the collaboration. This can be the dispensing of a part of the own mandate to the cooperative organisation or on the longer terms this can involve the fusion of organisations.

The next paragraph turns to the content of cross-border cooperation wherein the recognized opportunities of border regions are enhanced. In this case the border-crossing collaboration serves as a bridge for tackling mutual problems or creating added value by combining their separate local features and capacities.

### 3.4. Border regions as opportunities

This paragraph provides details on the opportunities and motives for cross-border collaboration. The gradual intensification of the European integration has been an instrument for opening the borders by removing trade tariffs and institutional, legal differences. Physical borders within the internal borders of the EU have disappeared (Colomb, 2007; Newman, 2006).

Furthermore, the generous subsidy programmes of the European Union, the proliferation of euroregions and the awareness of the potential to mutually solve interregional problems stimulated public and private cooperation across borders.

A genuine shift and transformation have been taken place in cross-border traffic on many terrains like the choice of company location, doing business, working, living, shopping and studying etc. As remarked earlier the many transborder actors have also become conscious on the opportunities offered by cross-border interaction (Smallbone et al., 2007). The notion of open borders signals the outward-oriented, flexible movements where a zone of contact and chances is evolving.

#### *Historical ties*

A frequently described argument for cross-border cooperation has been the reinstallation of old historical ties among neighbouring regions. Borders were experienced as ‘‘the scars of the history’’ (Moser in Buuron, 2006, p. 9) and the approaching initiatives mirrored the wish to let regions, separated by the border, operate as one entire territory again. In relation to the historical development of border regions regionalization can be seen as a counteraction to decades of state-driven development and integration policy (Prokkola, 2008; Mezei, 2008).

#### *Economic advantages: different views on similar aims*

The recent changes in EU discourses with reference to borders go against the earlier verbal and economic polarization of these areas. Border areas should not necessarily suffer from permanent disadvantages as these can be places where highly dynamic economic developments can occur. These spaces are not exclusively viewed from the perspective of the national economy. Instead of treating them as ‘‘peripheral regions with specific developmental blocks’’ they are placed into the global economic structure with a potential in the transnational division of labour (Krätke, 1996, p. 650).

#### *Removing constraints*

The main thrust and the message of the EU measures interpreted the borders in a negative light as a bottleneck and barrier. Therefore everything had to be done to remove the obstacles in order to foster regional growth and prosperity. Creating networks in which ‘‘neighbours’’ are brought together has been a main objective of the supranationalizing structure, propelled by the Single European Act (Akinwuni, 2006). Establishing a unified and borderless economic space to encourage prosperity to all members has been the main driving force behind relaxing national borders (Gielis, 2009; Prokkola, 2008).

Getting rid of the borders has been highlighted in most regional and (inter)national policies aiming to reduce border-related inefficiencies. Eliminating border-crossing infrastructural difficulties and mutually readjusting regulatory regimes were major supporting tools to intensify cross-border public and private interlinkages (Colomb, 2007; Ernste, 2005). Physical integration in Europe was by countries and regions experienced as a must in order to prevent degradation into a peripheral position in Europe (de Vries et al., 2007; van Houtum et al., 2005).

Establishing cross-border infrastructure to reduce the barriers and to soften the ‘‘unnatural’’ borders though is not a new phenomenon. In the Flemish-Dutch region for example the river Scheldt has always been a point of departure for negotiations and cooperation since the foundation of Belgium in 1830. Also, the building of the Canal between Terneuzen and Ghent made the physical integration of the two city regions possible (de Vries et al., 2007). The axial type of cooperation (figure 3.3) applies to the Canal zone wherein this logistic waterway axis connects the Ghent and Terneuzen areas.

#### *Cultivating diversity*

Later on, an alternative political discourse to the ‘‘border viewed in a negative light’’ gave way to the cultivation of borders. The integration discourses were replaced by the new perspective of the border as an economic asset and by policies focussing on the endogenous potentials of the whole border region.

Borders also created geographies of advantages due to the high levels of economic disparities. Cross-border relations are often based on these asymmetries and complementarities (Mezei, 2008; triple, 2010). The variations in housing prices, work opportunities, health services, taxation rules and other national regulations are all drivers in transborder spatial forces (Schmidt, 2005; Terlouw, 2007).

Borders in this context are also thought of as places of diversity which can generate social-economic beneficial traits. This view entails the reinterpretation and remarketing of borders and border regions: a shift is taking place from the ‘peripheral’ and ‘backward’ territories towards ‘newly central’, ‘connecting’ and flexible regions in which borders are ‘celebrated and seen as positive dimension of the product and services’ to be developed (Ernste, 2005, p. 107). For example, tourists may prefer to visit a region in which several countries can be explored or certain companies may be interested to locate in a multi-language environment (Buuron, 2006). The elimination of border controls, as in the European Union, enables people and business actors to benefit from these differences.

The diversity at the border is an elementary component allowing and enforcing a need in which new partners and actors will collaborate within networks (Brons, 2005; Lagendijk, 2005; Mezei, 2008).

### ***Economies of scale***

The economic advantages to be gained at border areas can be further supported by the wish to create rescaling of economic activities and services. This is an important factor for searching new ties across borders. Through the emergence of borders markets became separated from each other. Its hampering consequences can still be discerned on the labour market and in health services. By bundling their forces border areas can maintain or strengthen their economic position on higher geographical scales (van Vilsteren et al., 2005). Cross border cooperation can lead to scaling up for companies and organisations through which the labour potential can be better utilized and other services can operate on a more profitable manner (van Vilsteren et al., 2005).

These perceptions also attach to less tangible problematic issues such as the decline of the regional competitiveness and intensifying global rivalry with the emerging (BRIC) regions. The strengthening of cross-border spatial-economic integration and the awareness of interwoven attributes is a strong motivation for collaboration. Many times the private sector is the driving force behind the realization of the intertwinement across borders. The liberalisation and privatization of many sectors offer an appealing outlook on territorial-economic interconnectedness on a transnational scale (de Vries et al., 2007; figure 3.6).

### ***Regionalization***

The top-down promotion of border regions by the European Union connects to the ongoing integration process within Europe and to the ‘*building of the Europe of the regions*’ (Prokkola, 2008, p. 24). Transferring decision-making capacities onto the regional level was driven by the political vision that whole Europe should form a network of functional and harmonious border regions. Regions are considered as more natural and valuable entities than the nation state in terms of governance, competitiveness, sustainability and identity. These processes of ‘new regionalism’ made collaboration across borders a development factor for the region (Bakos, 2000).

Cross-border cooperation and regionalization can be seen as a readjustment to the ‘border-free rationality’ due to global processes. At the same time the regionalization tendencies have a territorial logic resulting in strong regional activism. Border regions in Europe have become political arenas in political decision-making and in economic and socio-cultural domains. Regional actors display a strategic behaviour in national and transnational arenas to pursue their interests (Prokkola, 2008; Newman, 2006).

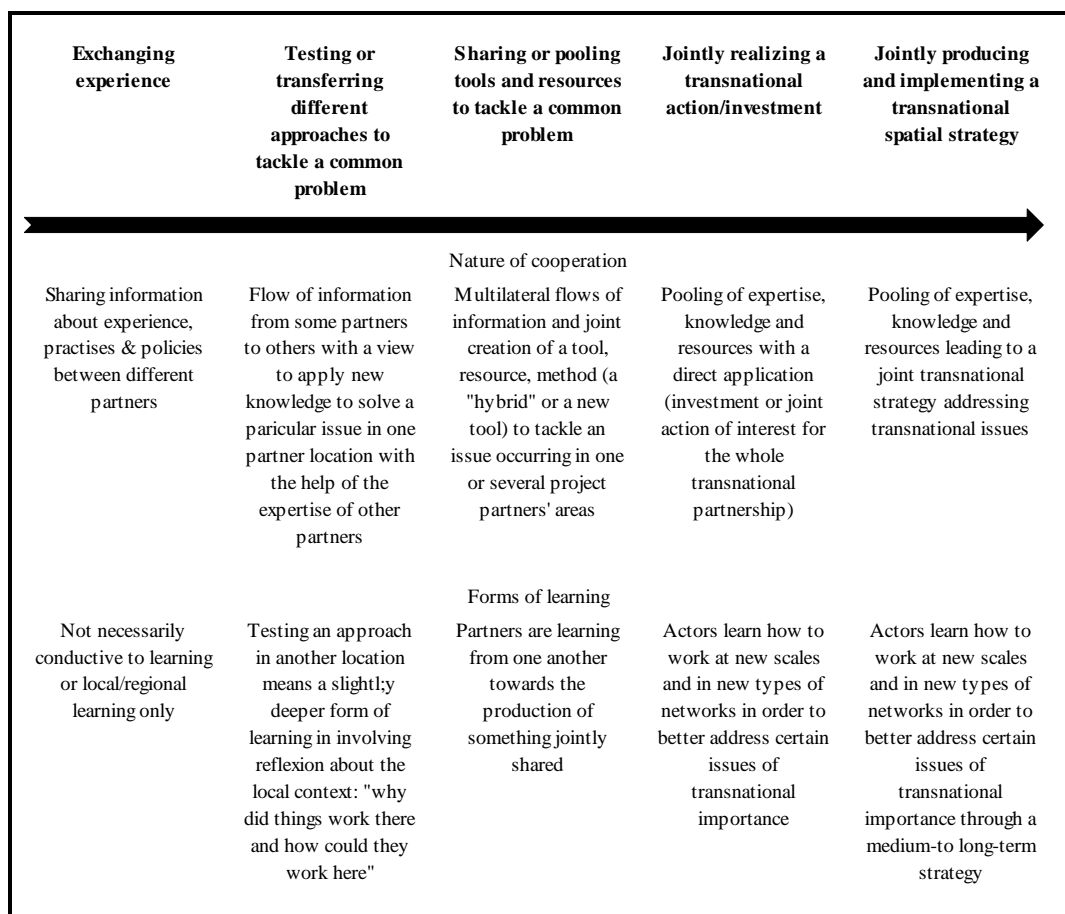
### ***Globalization and the network society***

The influence of the intensifying European integration and globalisation has drawn even more attention to the construction of mutual border-crossing infrastructural networks. This enabled the realization of the one-market principle in Europe and to become a successful region. Globalization processes and the emergence of the networked and borderless societies have broken up the rigidity of state borders. These forces reduce the importance of separate places and form territorially divorced societies into interconnected systems (Spoormans et al., 1996; de Vries et al., 2007; ).

### ***Solving borderless issues***

These developments enforce the engagement in subjects that are as cross-border problems experienced such as environmental and infrastructural matters. Many complex issues and difficulties do not stop at the border (Colomb, 2007; MOT, 2008). Some issues can only be solved by cooperation at a transborder or transnational scale. Here, transnational cooperation can have an added value by tackling particular strategic development issues at a new scale and hence in a more efficient way than without collaboration. The learning processes are centred on finding joint solutions by addressing the transborder region as a whole. Depending on the type of topics dealt with, the scope of the collaboration between partners in specific projects varies with differing learning processes and activities (Colomb, 2007; figure 3.5). The issue of developing the bio-based economy can be considered to have such a ‘borderless’ character.

**Figure 3.5: A scale to define the scope and intensity of the transnational cooperation**



Source: Colomb, 2007, p. 358.

### *European subsidies*

The discourses and policy orientation of the European Union, as has been detailed earlier, have been complemented by financial instruments for realizing the social-economic targets at border regions. The thought of the 'Europe of the regions' helped as well to promote the interests of border regions. Certainly, the availability of EU subsidies to stimulate cooperation has been a strong practical reason for initiating cross-border alliances. Since the start of the Interreg programmes in 1990, cross-border initiatives have been strongly stimulated. Through this support numerous possibilities were created for border regions.

Moreover, the emergence of the euroregions -the cooperation between regional authorities- also had an encouraging effect on cross-border cooperation by bringing the initiatives together and by facilitating them (Buuron, 2006; Spoormans et al., 1996; Prokkola, 2008). The growing attention in regional policy and programmes (such as Interreg) for innovation and the knowledge-economy encourage innovative transborder projects. These subsidies are the first stepping stone to innovative collaboration across the border.

### **3.5. Immovable borders? : the barriers**

In this paragraph a more specified overview is given with regard to the impeding effects of borders. The consequences of territorial institutionalization (3.2.) on regions as well as the major hindrances in cross-border collaboration are discussed.

### 3.5.1. Regional consequences of bordering

#### *Cut-off regions*

As a consequence of territorial institutionalization (paragraph 3.2) the materialization of functional borders meant an orientation towards the interior of the state territory segregated by concrete, physical boundaries (Prokkola, 2008, 2007; Leimgruber, 2005). This centripetal direction (figure 3.6) can be associated with the closed nature of borders countering the open border situation.

Regions alongside borders often used to form a social-economic unity with interdependencies on many areas of life. In earlier times inhabitants experienced the border much less as a dividing line than now. After having drawn official boundaries citizens on both sides of the border maintained connections with their neighbours on numerous social-economic terrains. By creating firm and definite borders between regions that became part of distinct national states, the historical relations were often broken down. As a result border regions became to stand with the back to each other (Spoormans et al., 1999; Prokkola, 2008).

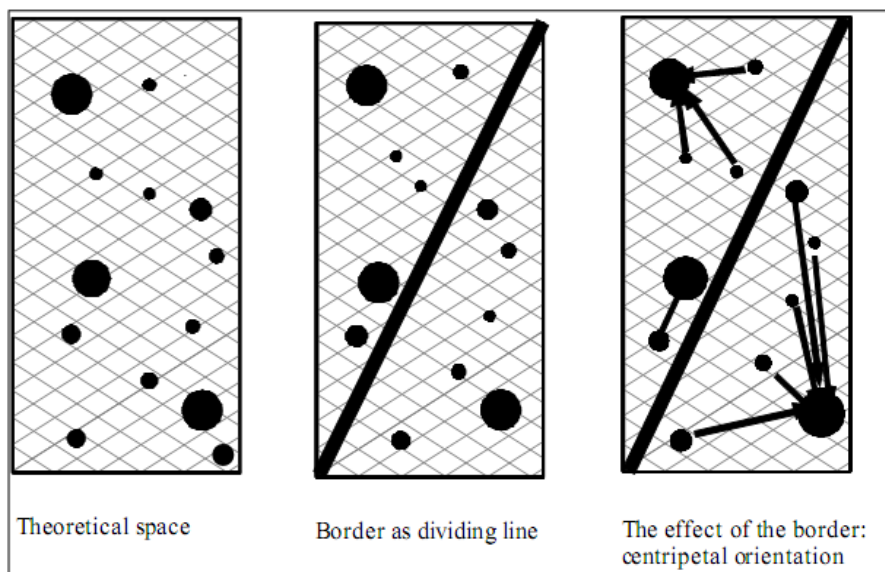
#### *Periferization*

The sources as well as the results of the centripetal forces manifests themselves in practices of generating peripheral borderlands on the edges of the national economic and political centres. In geopolitical interpretation border areas supply as zones of security against external influences which may threaten the centre of the state. Besides, borders may also be considered as cultural peripheries in the eyes of the inhabitants of the home country and of the neighbouring community across the border. Such a centre-periphery approach may further be exacerbated by the political neglect from the side of central state authorities (Ernste, 2005; van Houtum, 1998, 2005).

#### *Low economic performance*

The consequences of the centripetal forces were always stressed in classical economic analyses: border regions were seen as places negatively impacted by the presence of the state border (figures 3.6.& 3.7). They are hindrances in establishing international trade and mobility of production factors. Therefore border regions experience lower growth rates due to the lower economic spillovers from the neighbouring regions. Territorial borders result in their lower performance while non-border regions would not suffer from such drawbacks (Lösch 1944; van Gorp, 2009).

**Figure 3.6.: The centripetal working of borders**



**Source: van Houtum, 1998, p. 17.**

As a consequence, the economic position of borderlands often manifests itself in the unbalanced distribution of wealth between the peripheral and centre regions of a country.

Another disadvantage to be found in the characters of border location involves the insufficient communication and traffic infrastructure at the ‘outskirts’ of the national system. The economy of a certain (cross-border) area can be seriously suppressed by the strong segregation effects of state borders. Mutual cooperation to solve the identical problems in the border region can be seriously hampered by these spatial obstacles of borders (Martinez, 1994; Newmann, 2006)

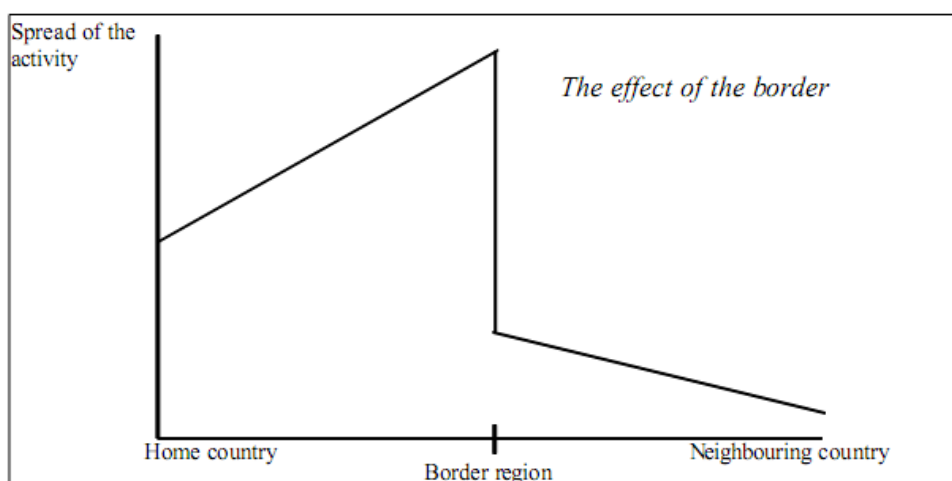
**Weak European integration**

Notwithstanding the different efforts and development to eliminate the physical borders and the negative border impacts as well as to exploit the opportunities many collaboration initiatives and activities are still confronted with serious problems in the practice (figure 3.7.). These ‘soft’ borders and difficulties should fundamentally be countered in order to arrive at successful and genuine cooperating activities and fully integrated regions (Buuron, 2006; Newmann, 2006; de Vries et al., 2007).

Recent scientific literature and empirical analyses conclude on the weak social-economic integration in West-European border areas (Buuron, 2006; van Gorp, 2009; Schmidt, 2005; Tripl, 2010). Invisible borders still seems to impede the relations between and among firms, education, research institutes and (local) governments that are utmost important for regional development.

Such findings are rather remarkable if one considers that they relate to regions where relatively developed cross-border linkages exist in the politically and economically more stable part of Europe. Among the reasons for the perpetuation of poorly integrated borderlands various factors are named such as the lack of economic spillovers, the existence of obstructive asymmetries alongside border environments and the dissimilar willingness to cooperate (Bucken-Knapp, 2001).

**Figure 3.7: Barriers impeding cross-border interaction**



Source: van Houtum, 1998, p. 21.

**3.5.2. Hindrances of collaboration**

**Competition**

*Colliding national interests*

Centripetal forces of national(istic) politics (figure 3.8) and the centrifugal power of economic possibilities lead a paradoxical phenomenon (figure 3.8) at borders, despite the political encouragement on integration. Although the internal borders within the European Union on many terrains have disappeared, the idea of the sovereign state with its palpable national interest still strongly dominates. This explains the incongruities between national and regional political authorities. In national power centres decisions are often made without taking the consequences for the border region into consideration (de Vries et al., 2007; Leimgruber, 2005).

Owing to the common European currency and the liberalisation of the world trade, the economic competition among regions has immensely increased (Brenner, 2009). Nation states have less and less possibilities to protect their economy

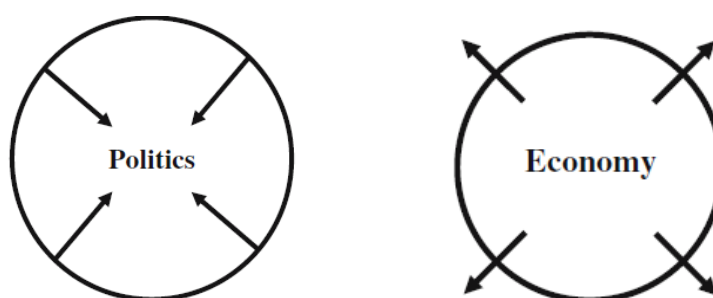


against the international competition through separate legal measurements. Moreover, due to the ICT-revolution companies have become footloose and free in choice regarding their location of operation. The creation of attractive living spaces, economic and creative top environments as well as good accessibility are considered by regional politicians and developers as the most important instruments to improve their competitive position (van Lagendijk, 2005).

As a consequence spatial-economic policies are based on the basic principle that regions and places compete each other. The concept of territorial rivalry doubtlessly plays a huge role in the attitude of participants in cross-border projects. For that reason negotiations are often obstructed and opportunities are lost. This mostly occurs since the parties depart from the idea of competing national matters and because an insight into the mutual interests is regularly absent (de Vries et al., 2007).

Herewith contradictory movements and orientations are produced at border areas. The model of border opportunities is set against the centripetal effects induced by the politico-institutional and ideological restraints (figure 3.8.) of the border. As a result these colliding directions may generate equating or nullifying effects that lead to or maintain the social-economic stagnation of border communities (Leimgruber, 2005; Schimdt, 2005).

**Figure 3.8: Border regions amidst collision courses: zero-sum games?**



**Source: Leimgruber, 2005.**

The sources of these ambiguous processes can be searched in the interpretation of the borders by politicians as an agency for protecting a territorialized economy. Borders are still a means to symbolize place-making and ‘*despite or indeed because of the EU integration discourse, the issue of the territorial demarcation of economic interests has in fact become more prominent*’ (van Houtum, 2002). According to this view the integration process of Europe was not only a top-down way of orchestrating it on supranational level but it was initiated and formed by the member states:

*‘‘ The formation of the European Union was not a process of....building the European federal state of the future, but the construction of a political cartel, the Brussels cartel, in which the European nation states can still care out collectively some level of sovereignty from the new global disorder and then distribute the benefits among its members under endlessly negotiated rules’’* (Castell’s, 1998, p. 267).

The issue of economy was also launched between integration policy and the spatial differentiation of entities. Member States became entangled in negotiations on territorial sovereignty regarding economic affairs, ‘*national and regional competitiveness, marketing and identity*’ (van Houtum, 2002, p. 38). A twofold political discourse has emerged: the celebration of borders as mutual European economic assets and as bridges to the neighbours confronted with the firm concentration on national interests like identity and the ‘own’ economy.

Besides, national interests may oppose those on the regional level of cooperation. This can be caused by national legislation, being an obstacle for solutions on the regional scale. It can also refer to the matching of miscellaneous cross-border projects by national governments. The coupling of issues can create a better negotiation position in which regional agreements for collaborations may be pushed aside for the sake of other projects (de Vries et al., 2007). This is how regional ambitions are become overshadowed by the significance of the ‘mutual’ interest of the whole nation.

In order to prevent the zero-sum result of contradictory ambitions for border regions, national governments should take efforts to keep the balance between competition and cooperation. Regions are not exclusively competitors. As outlined in the former paragraph, the creation of agglomeration effects and the formation of clusters reinforce the need for a mutual strategy. Approaching the rising competition from a global perspective could make regional actors more aware of their interwoven spatial and economic prospects (de Vries et al., 2007; Colomb, 2007).

### *Regional and local rivalry*

The partners' inability to leave their perception of rivalry behind can be a major hindrance to the establishment and development of cross-border business alliances. This can be connected to the intensifying competition between places at all levels due to the globalizing economy as previously mentioned (Prokkola, 2008; Newmann, 2006; de Vries et al., 2007). Economic competition also takes place within national territories but the border context emphasizes it even more. Regional preferences on economic domains are a collective and historically grown vision. Regional and local orientation and rivalry are rooted in the distinction between the own and others' interests that follow the spatial segregation of the boundary. This leads to various perceptions, ideas and actions on regional developmental issues (Buuron, 2006). Moreover, the interest in collaboration is not always equal on the both sides of the border. Often political priorities focus on various aspects and many times a problem is experienced as a transborder issue only from one side of the border (Smallbone et al., 2007; (Spoorman et al., 1996).

A fear of competition can also be exaggerated by socio-cultural blockages (more details on it follow later) and by the threat of a divided economic development. Feeling uncertain due to unequal possibilities on receiving financial support for development projects may also trigger a sense of contest. This frequently originates in the asymmetry in the economical potentials of two regions alongside the border. The level of urbanization, the diversification of the regional economy and the infrastructural quality enforce the effects of unevenness. (Smallbone et al., 2007).

### *Economic viability*

The sheer fact of cooperation among public and private actors in border regions does itself not mean advancement and success in integrating regions. Regional policies and initiatives will only function as a bridge between border regions where economically interesting partners for networking are attracted (Van Geenhuizen, 1996, p. 8; van Gorp, 2009; Akinwuni, 2008).

This aspect is relevant for the economic feasibility of the projects that aim to progress the bio-based economy.

Being initially supported by public funds these programmes should on the mid and long term be commercially viable for a sustainable operation. External conditions are the responsible factors that make these innovative cooperations fragile and the transition towards the bio-based economy turbulent (chapter 2).

### *Administrative and juridical aspects*

The institutional shape of regional forming and the working of borders (paragraph 3.2) in this function limit the jurisdiction of the national state. Even in linguistically coherent border regions, as is the case at the Dutch-Flemish border, administrative and legal restrictions create obstacles. The context of cross-border cooperation is predominantly characterized by separated political-administrational and legal worlds which operate in very different ways. Although jurisdictional and administrative agreements are often made between states, subnational governments still have to figure out to what extent their initiatives may cross the primary objectives of international cooperation. A complicating factor in cross-border cooperation is thus the limited mandate and competencies of subnational authorities for transborder relation building.

This impeding factor can further be intensified by the differences in competencies of municipalities, provinces and regions. Through these variations a subnational authority on one side of the border has the right to make decisions on cross-border assignments while the partner has limited room for policy development since the national government keeps control on the related terrains. One local or regional party can operate less independent than the other one. These structures make it also difficult to develop mutual policy vision and ambitions (de Vries et al., 2007; Buuron, 2006).

Dutch organisations often have difficulties to find their way in the complicated administrative hierarchy of the federalised Belgium. The Flemish region is one of the federal states and possesses far-reaching, partly exclusive, mandate with respect to economical and spatial development. The Flemish region has therefore the right on several domains to conclude international agreements without the intervention of the federal government of Belgium (de Vries et al., 2007).

The jurisdictional vacuum has the effect that the scope of many cooperation initiatives remains rather narrow. It is very often impossible to reach an autonomic cooperation leading to cross-border collaboration with a character of international politics (MOT, 2008).

Another source of conflict often arises from unfitting governmental administrative systems. This means that administrative configurations do not match each other and decisions should be taken for the own constituencies being strictly separated by the state borders. Bringing all parties together will necessitate considering the interests of various support groups as well as the needed scale for negotiations (de Vriest et al., 2007; Trippl, 2010).

The nuances in legal systems frequently lead to hindrances between institutions over the borders. These include regulations and instructions that are defined by authorities on a higher level and that cannot be changed by the collaborating parties in the border area (Spoormans, 1999; van Gorp, 2009; Ernste, 2005).

Being unaware of the political culture and administrative hierarchies in the neighbouring region can slow down the mutual projects. This arises because irritations are evoked by the perceived inefficient behaviour of the partner. For instance, governing in Belgium includes much more politics than in the Netherlands. In the Netherlands the stakeholders try to form a broad coalition while in Flanders the permanent political contest between the governing and opposition parties influence the decision making process (ERAC, 2010, p. 42). Being mutually unfamiliar with these procedures can lead to accusations and tensions between the transborder partners.

### ***Abstract borders: cultural-psychological issues***

Territories and boundaries are also mentally conceived by humans that create abstract and cognitive borders. Border scholars often enhance the importance of the socio-cultural and mental differences, the symbolic dividing lines and their effects on the integration between border communities (Schmidt, 2005; Lundquist et al., 2007; Krätke, 1998; Van Gorp, 2009). Individual and collective identities have become interlinked that resulted in varying spatial identities and behaviour on the opposite sides of the border (Prokkola, 2008).

### *Social-cultural differences*

Cultural aspects do often play an essential role in forming obstacles for cross-border relationship. Important barriers in international learning processes in a cross-border setting are typically related to language problems and cultural differences, opinions, beliefs, educational background and attitudes of the participating individuals and groups (Smallbone et al., 2007, p. 91).

As a result of the ideological function of territories and borders the spatial socialization meant that inhabitants of even the most peripheral border regions became integrated within their "own" national idea and territory. With the help of education, science and other state-directed socialization practices the national integration and the existence of the border have been engraved into the mindscapes of people. So became individual and collective identities interlinked that resulted in varying spatial identities and behaviour on the opposite sides of the border (Prokkola, 2008).

Culture refers to civilization and its expression forms. Cultural borders are generated by the many aspects of the social milieu and socio-cultural patterns driven by the education system and the shared norms and values among a certain group of people. The core of culture is determined by dominating ideals and habits which are related to assumptions and convictions in the society. It is strongly linked to the symbolic dimensions in a community. Daily or occasional (ceremonial) rituals have a deeper meaning as shown by Paasi's model explaining the symbolic shape of territorialisation (3.2). These differences are time and again observed regarding informal rules in working relations and the institutional culture within a community. The divergence in interpretation can affect even the partners' definition and the perception of problems (Brons, 2005).

Also the inhabitants' spatial orientation is driven by the symbolic power of bounded spaces. People's direction regarding living, working and social relations shows in which culture they feel at home. If the border becomes irrelevant in this respect it proves that human or economic cooperation is not hindered by these facets understood as very evident and not bothering (Spoormans et al., 1999).

### *Mental boundaries: "us" versus "them"*

Despite the open character of the internal borders of the EU nowadays for many inhabitants living alongside the border, the neighbouring state remained a sort of outside space. For centuries, communities in the immediate vicinity of borders orientated towards their own nation state so the other side of the border has never become the part of their lives. In the minds of many borderlanders the border keeps existing which endure a mental barrier and impede cross-border interaction (van Vilsteren et al., 2005). The border paradox in the European Union is that raising cross-border integration coincides with decreasing cross-border mobility.

Also, the attitude of indifference towards the border and its irrelevancy explain why routinised daily life in regions does not orientate to cross-border movements. Inhabitants' internalized habits lead frequently to indifference toward market opportunities at the other side of the border. For a large number of people, the other side of the border does not even exist in their mindset that induces programmed and unconscious ignorance of the border (Ernste, 2010). Behavioural patterns thus do not necessarily align with economically realistic or desirable objectives. The rationality of economic actors is endogenous in that it is not only physically but also mentally bounded (Strüver, 2002).

As borders are still stubbornly etched in the minds of many residents, people's vision and perceptions about borders still obstruct borderless interaction in these regions (Akinwumi, 2006; Ernste, 2010). The mental borders are more difficult to overcome than *'those drawn according to international treaties and they impede the free movement of the people because they are also present in the minds of politicians and civil servants'* (Leimgruber, 2005, p. 243).

As a consequence the cultural distance in itself is not sufficient to explain the (negative) outcomes in transborder exchange. It is many times not the objective difference between cultures that is crucial to the development of cross border relations but the *perceived divergences* between the two distinguished communities. This socio-psychological phenomenon is culture in the broad sense that includes all kinds of social transfers in human thinking, feeling and proceeding. This is the mental pre-programming that distinguishes a category or group of people (Spoormans et al, 1999). Despite of a common culture in the narrow sense, e.g. speaking the same language and hence sharing the same cultural heritage, the most important dividing lines occur according to the mentally programmed features.

Cooperation may be hindered and lead to confusion by the perception on the behaviour of actors from the other side of the border. A specific characteristic of border landscapes is the distinction between "us" and "them" in the differing countries. A spatial demarcation takes place between the "our" known space "here" and "their" space "there" across the border. The nation state, with its sovereignty and ideological function, plays an essential role in these perceptions. The states meet at the border under these mental circumstances. Said (2003, p.54) expresses these affective deviations in his book *Orientalism*: *"It is enough for "us" to set up these boundaries in our mind; "they" become "they" accordingly, and both their territory and their mentality are designated as different from "ours"*. These are the results of partition - by imagining a community through territorial institutionalization and demarcation (paragraph 3.2.)

Attitudes towards "the other" and the self-evaluation are often based on social comparison which helps to value certain characteristics – performance, intelligence or status- of the own community. This contrasting or "othering" needs others to sharpen the own identity and to accentuate the own positive features above the other group (Said, 2003; Bakos, 2000; van Houtum, 1999). Frequently actors anticipate on the "strange behaviour" of the other party based on rather negative stereotypical images. Beyond pervasive stereotypes the individual members of the out-group, e.g. "the other", are supposed to have more homogeneity than that of the members of the in-group. Simplified beliefs depersonalize the members of the other group: that is necessary to strengthen the social cohesion and socio-cultural identity among the community members of the "own" region (Paasi, 1996).

The mental distance also indicates the individuals' estimation of the differences and their consequences in business conventions between the own and a foreign country. Business conventions are the *'socio-economic conditions for doing business, socio-cultural conditions and legal-administrative preconditions'* (Van Houtum, 1999, p.332). The related attitudes are created by judging the similarity of doing business and their possible outcomes. Decision-making and the level of cooperation between the two groups in the border region is often determined by the judgments regarding the clichéd characteristics of the other group (Paasi 1996; Bakos, 2000). Van Houtum (1998) shows in his dissertation how strongly the number and the frequency of inter-firm relations at the Dutch-Belgian border depend on the actors' perceptions and images of each other. Despite the emergence of the Benelux and the EU, the mental gaps still persistently block smooth interaction. The success of sustainable cooperation is dependent on the like-mindedness of the entrepreneurs and the mutual trust towards each other (Atzema et al., 1998).

Furthermore, the loosening of state borders has not accelerated the emergence of a global identification since the cognitive beliefs and perceptions (stereotypes) do not harmonize with the official removal of state boundaries. The global and supranational processes of defunctionalisation combined with the integration pressure of the EU are experienced by people as threatening for their cultural identity and hence encourage the re-emergence of strong national or regional feelings (Terlouw, 2008; Perkmann, 2003).

Generally speaking, cultural factors and mental boundaries are not merely additional aspects to the economic and political features mentioned above. As explained the various shapes of regional formation are interconnected and influence each other. Cultural issues, fed by the national ideology, are organic part of the political and economic sides of border integration and cooperation. Culture is also decisive in political objectives since issues, competencies and instruments are allocated according to the values and expectations within the cultural (national) community. Therefore social-cultural causes including the mentally programmed perceptions provide the basis for what people or communities think, say, do and feel in the political and economic arena's (Spoorman et al., 1999).

### **Support from authorities**

The lack of effective business support may form an obstacle too in achieving cross-border entrepreneurship. This involves the creation of basic conditions in order to offer a good investment and innovation climate in the region. The improvement of transport and communication infrastructure for facilitating an efficient and productive transborder entrepreneurial cooperation makes part of this field.

What is more is that regional authorities are often not able to communicate the business opportunities towards entrepreneurial communities. The passive role of local governments may be explained by their limited professional skills

and knowledge. This is often worsened by the absence of functional interaction between private actors and the public sector (Smallbone et al., 2007). Development agencies can play an important role in cross-border innovation as they can initiate projects, stimulate and manage collaboration and take care to find an entry towards the business sector (Gijzen et al., 2008).

The last two paragraphs elaborated on the chances and bottlenecks in cross-border integration and collaboration in which the aspects of innovation were slightly brought up. The next paragraph discusses this facet in more details since the bio-based initiatives embrace the idea of a completely new and innovative technological and production design. Attention is simultaneously given on the obstacles as well as on the prospects that influence the emergence of transborder innovation spaces.

### **3.6. Innovative cross-border collaboration**

#### **3.6.1 Border regions as assets for innovation**

In an increasingly global and technological complex universe, *‘economic success and even more social survival is based on innovation which is nurtured in interactive settings of firms and other knowledge agents’* (Lagendijk, 2005, p. 131). Technological change –and innovation at its heart - is increasingly seen and promoted as the most important component for regional economic development (Fischer, 2006).

The newest economic programme (Europe 2020) of the European Union has made place for the *‘smart, sustainable and inclusive growth’*, replacing the original aspiration of the Lisbon strategy to become the world’s most dynamic and competitive knowledge-economy (European Commission, 2010c). Still, the focal point remains on the issue of competitiveness and enhanced economic performance of the EU. Smart economic growth means the accentuation on innovation, knowledge, education and the digital society. Sustainable development by the application of *‘greener’* production methods and the sparing use of natural resources should contribute to more economic power for Europe and its regions. The flagship initiative *‘Innovation Union’* wishes to strengthen the role of EU instruments to support innovation. These centre at the promotion of knowledge partnerships and links between education, business, research and the endorsement of entrepreneurship (European Commission, 2010c; Hudson, 1999; Fischer, 2006; Rees, 2004).

As a consequence of the enlarged attention to enhancing regional competitiveness and to the intensifying neo-liberal economic course worldwide the region has become the ideal setting for innovation. The concept of territorially-based innovation systems was first studied on the national level which has gradually been exchanged by supra- and subnational contexts. The increasingly borderless economic system is identified on the (trans)regional rather the national level as the relevant scale to organise competitive business environments. In the race to become an *‘up and coming’* region in the global hierarchy and to escape marginalization, regions are forced to strengthen their local comparative advantages (Rees, 2004; Krätke, 1998; Visser et al., 2007).

Technological advancement and economic integration processes make competitiveness a cross-border issue. Economic structures become more intertwined across borders and increase in size and knowledge increasingly diffuses across borders, generating international spillovers (Ecorys, 2008). Border regions are given enforced political interest so that they can transform their unique local possibilities into globally competitive assets. Policy goals contain the enhancement of cross-border co-operation in areas with EU value added and the adjustment of national funding procedures to enable technology diffusion across the EU territory (European Commission, 2010c). *‘There is a widespread agreement in the academic literature that in the emerging globalized knowledge economy the long term competitive strength of these border regions ..... increasingly rests on their capacity to create an integrated innovation space’* (Lundquist et al., 2007, p. 1).’

#### **3.6.2 Trajectories of cross-border innovation**

Although the study of the regional scale in innovation has been growing in importance in the scientific literature not too much theoretical frameworks exists on innovation systems in border regions. Most theoretical debates and empirical inquiries apply innovation systems that fall within the territories of national borders (Tripl, 2010; Lundquist et al., 2007). However, as underlined above, the exclusive focus of innovation-related issues on regions within national context has become increasingly inadequate if one considers the growth of the importance of regional competitiveness and cross-border regional interaction.

Cross-border innovation regions lack the attention despite the fact that scholarly works admit that different kind of habits, rules, conventions and shared practices seriously impact the interaction patterns. Analyses of economic geography fall short in studying collective learning systems or the socio-cultural and institutional proximity. These dimensions are assumed to be important prerequisites for localized innovation systems (Lundquist et al., 2007). This is a missing link since the tacit knowledge, skills and capabilities are embedded in people and not in information systems. Empirical research still often lacks the ability *‘to dig into the specifics of hard-to measure-issues, such as trust building, coalition*

*building, control relations or culturally loaded (industrial) practices*” (Fischer, 2006, p. 185). Even though these dimensions are influential in any innovation system, they can even more be articulated in border-regional circumstances.

The model of Lundquist et al. (2007) is one of the few publications which look into cross-border innovation regimes. This conceptual framework is placed in the regional innovation system approach. The theory identifies the crucial preconditions and key determinants for the emergence of transborder innovation systems. Accordingly, three ideal types of cross-border integration are named that represent the various stages in the evolution: weakly integrated, semi-integrated and strongly integrated transborder regions (figure 3.8). Linkages to other geographical scales as well as the effects of the border obstacles are decisive in the character and level of the integration across adjoining border areas.

Empirical inquiries (van Geenhuizen, 1996; Perkmann, 2005, Regen et al, 1997 in :Tripl, 2010; Krätke, 1999) indicate though that transfrontier economic linkages and technology cooperation offer a rather sobering picture. This is though not that surprising if one considers the weak social-economic integration across internal EU borders (paragraph 3.5).

Inter-firm contacts and relations between companies and universities are seldom by which cross-border innovation linkages and cooperation seem to be more the exception than the rule (Tripl, 2010; van Gorp 2009; Hamm et al., 2009). The lack of cross-border interplay might be the result of the specific socio-institutional conditions. Interesting is Tripl’s remark (2010, p. 154) saying that even nations ‘*which at first glance appear to have many similarities in common*’, enormous differences can exist in economic structures, socio-institutional set-ups, R&D systems and thus in innovation performance.

Before going on to the attributes of the diverse phases of innovative integration the notion of proximity is shortly illuminated.

### ***Forms of proximity***

#### *Geographical /cultural proximity*

The notion of proximity is a key component in theories of innovation systems wherein the complex interplay of processes takes place at different spatial scales (Tripl, 2010; Lundquist et al., 2007). The functional distance or regional proximity refers to the ability of actors to arrange face-to-face contacts but it also points to stimulating cultural and social factors since the actors are embedded in the same (border) region. Being physically close to partners is important in the exploitation phase of the innovation network (Moodysson et al., 2007; Visser et al., 2007; Lundquist et al., 2007).

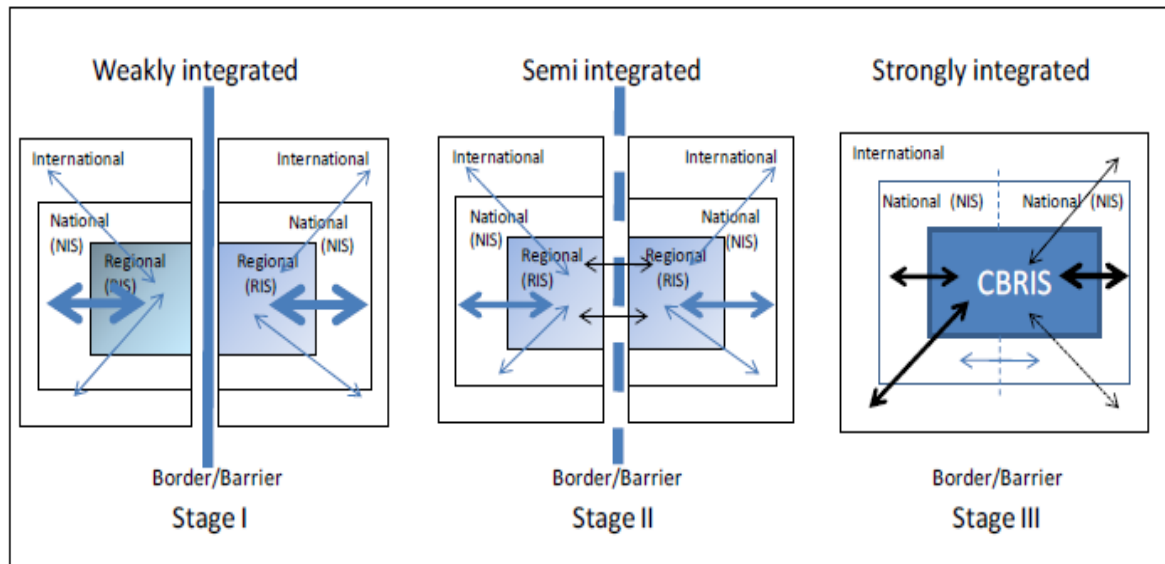
A strong regional cohesion including a robust regional identity is in academic literature often indicated as one of the economical success factors. These social, psychological and cultural aspects encourage achieving common objectives, to improve regional competitiveness and innovation. These processes further accentuate the attractive characteristics of the area. In the absence of inner cohesion and shared identity a region may not be able to adapt external influences to its own particular traits. The incoming effects will merely bypass the region without having an impact on the life of its inhabitants (Nárai, 2009). According to this argumentation borders regions are profoundly disadvantaged. The socio-cultural differences and the mentally pre-programmed attitudes create separate cultural and place identities and a divergence in orientation (paragraph 3.5).

#### *Relational proximity*

Regional (physical) proximity though is not necessarily a basic demand: relational or cognitive proximity, referring to non-tangible characters as affinity and similarity, is important during the exploration phase of the innovation. In case there is an absence of certain knowledge and skills in the region, partnerships and networks can be formed outside the region on translocal or transnational scale. Especially in cases of radical innovation projects becomes (regional, economic, cultural etc.) nearness less important.

In addition, the structure and the spatial scale of networking matter even more (Visser et al., 2007) which is an interesting thought for the purpose of this research. The impact of the border may be an addition when moving beyond localized cross-border cooperation onto the transnational level. The need for transnational scale of the radical innovation scope and economic opportunities can be offset against the benefits of physical and socio-cultural proximity that may characterize contiguous cross-border areas. The empirical evidences in this research can reveal the (lack) of relevancy and the meaning of the border when shifting the geographical scale in the interactions.

**Figure 3.9. The different stages of innovative cross-border integration**



Source: Lundquist et al., 2007, p. 6

#### Weak integration

Stage I demonstrates a weak integration due to the low level of economic relations, the lack of knowledge interchanges and innovation linkages. The dominance of asymmetric, mainly cost-driven relations, making use of internal price and cost differences, can be observed in this phase. Krätke (1998) and Tripple (2010) define it as a low-road way of regional development whereby the partners on both sides of the border exclusively rely on competitive advantages.

A main factor behind the weak cross-border connection can be explained by the lack of synergies due to too much cognitive proximity, making impossible to learn from the interaction. Another major reason for the low level of integration is the unexploited synergies due to a high degree of geographical distance or cognitive distance (Tripple, 2010). In this latter case no interaction will emerge due to the high variations in the regional capacities, performances and receiver competences: *“for the strong region little can be learnt from the weak region, whilst weak regions might potentially learn a lot but might miss the absorption capacity”* (p. 7). The unbalanced spread of research institutes across border regions is a source of this problem (Gijzen et al., 2008).

The weak integration can also be caused by the diverse manifestations of institutional distance. Hard institutions like legal regulations and administrative measures as well as soft institutions such as the lack of common socio-cultural background or language are examples. Poorly integrated regions across borders are featured by institutional thinness, having very few cross-border institutions and the lack of a trustful cross-border leadership. The absence of legitimacy and the presence of conflicting goals among cross-border actors further exacerbate the low level of connection. These facets have been detailed in the former paragraphs.

#### Semi-integrated border region

Stage II shows an emerging knowledge-driven system in border regions. In the interaction the asymmetrical cross-border linkages are still dominant though there are already visible windows of opportunities. Economies of scale and more integrating learning processes in certain economic fields and science bases are being established. The semi-integrated innovation space means geographically concentrated sectors -‘islands of innovation’-, leaving others out. These interactive patterns are driven by good levels of functional proximity, entailing the non-tangible dimensions like organizational, cognitive, social, cultural etc. proximities. Institutional distance though (Tripple, 2010, p. 152) can still form a challenge in the progression of an integrated innovation space. This signifies that the innovation-related infrastructure is only adjusted to the regional or national context. This often results in an ill-equipped form of system for transferring

competencies across border areas. In order to remove the institutional hurdles more flexible structures in the knowledge infrastructure of the neighbouring regions and specialised ‘‘bridging organisations’’ are required (Hoekman, 2008; Koschatzky, 2000 in Tripl, 2010).

### *Strong integration*

Stage III displays a significant flow of expertise, knowledge and skills across the border. This deeply integrated innovation space means that substantial synergies and learning processes have been established, with high levels of functional and institutional proximity and optimal levels of cognitive distance. This is the high-road way of regional development whereby on both sides of the border technological and industrial competencies are strongly developed (Krätke, 1999).

Beyond pursuing innovation capabilities and competitive strategies, certain degree of complementarities in the industrial structures, specialisation profiles and knowledge bases seem vital for an innovative cross-border region. Differences in industrial structures and knowledge bases imply advantages for cross-border interaction as long as these sectors show a potential for interrelated complementary activities (Tripl, 2010). The created synergies, in contrast to Stage II, can be found in many scientific and economic sectors. This will result in the emergence of numerous cross-border clusters and networks with intense collective learning mechanisms and knowledge transfer.

Excellent transport and communication infrastructure and even the emergence of a common culture and identity favour strong interaction (Lundquist, 2007). A crucial part of this phase is the new institutional path creation through which solving common problems becomes a routinized activity. Establishing associational forms of governance is a prerequisite wherein intensive communication and consensus building between all stakeholders take place (Tripl, 2010).

However, the sheer existence of an excellent knowledge infrastructure and interaction within the scientific system will not automatically lead to regional growth of innovation. In order to mobilise synergies and to strengthen the capabilities, diverse forms of partnerships between all parties are necessary (Tripl, 2010). An intensive knowledge flow from the academic towards the industrial world is inevitable. A significant threat during the evolution of innovation programmes is that the project participants foster the idea that the created knowledge and services would generate market demand. In order to produce market-induced applications the need from companies should be put centrally (Boekema et al., 2009).

In the case of the bio-based ambitions though, the aspect of supply-demand is a more complicated issue. Although showing a growing recognition on the need to switch into a production system based on renewable resources the traditional, fossil-based economic system still strongly dominate the market and the business sector. For that reason project participants should promote this all-encompassing sustainable system for the successful realization of the long-term strategy. These include activities that spread information and knowledge towards the economic sectors as well as towards the general public.

For the visualisation of the above discussed factors figure 3.10. has been added. The most critical features in various dimensions are classified according to the obstacles and the driving forces in advancing innovation systems across borders. These also include aspects from the former paragraphs dealing with the impact of borders on collaboration.



**Figure 3.10 Hindering and favouring factors for developing cross-border innovation spaces**

	<b>Factors inhibiting the development of a cross-border RIS</b>	<b>Factors favouring the development of a cross-border RIS</b>
Knowledge infrastructure dimension	Deficits regarding research organizations, educational bodies and transfer agencies  Weak orientation on the needs of the regional economy Exclusive adaptation to the own regional/national context	Advance set-up of research organizations, educational bodies and transfer agencies  Strong orientation on the needs of the regional economy Adaptation to multiple institutional contexts
Business dimension	Dominance of a 'low road' development path based on low wages/costs in one or more areas forming the cross-border region  Low level of complementarities in industrial structures and knowledge bases (too much cognitive distance)	Dominance of a 'high road' development path based on continuous innovation in all areas forming the cross-border region  High level of complementarities in industrial structures and knowledge bases ('optimal' level of cognitive distance)
Relational dimension	Dominance of asymmetric transboundary relationships Low levels of cross-border knowledge interactions	Dominance of symmetric transboundary relationships High level of cross-border knowledge interactions
Socio-institutional dimension	Significant cultural and institutional distance between neighbouring regions Significant differences between NIS	Minor cultural and institutional distance between neighbouring regions Minor differences between NIS
Governance Dimension	Centralist political systems Casual co-operation for specific purposes Lack of governance mechanisms/loosely-coupled governance settings	Federalist political systems Coherent innovation strategy Stabilised institutional governance settings

**Source: Trippi, 2010, p. 156.**

### 3.7. Concluding remarks

This chapter has inventoried the most important features and aspects with reference of borders, bordering processes, and cross-border (innovative) cooperation. The aim was to establish a sound basis for the empirical part of the study according to which the cooperation dynamics of the transborder bio-based alliances can be assessed.

The thread line of the conceptualization looked at the border in its multidimensional significance as borders are no longer understood merely as barriers but also as resources and opportunities. The prospects emerge from creating synergies and scale economies due to the complementarities and asymmetries of border areas. Partnership and collaboration across borders is today a keyword in EU discourse. Policy making enhances the innovative and competitive potential of border regions for reaching economic development in an ecologically sustainable manner. Subsidies from public funds stimulate joint action and are the first setting stone to enter into collaboration.

At the same time the intensity of interaction at borderlands depends on still existing dividing lines. Non-linear discontinuities stay alive due to the collision of dissimilar social and institutional systems, languages, political and cultural traditions as well as various economic structures that hinder efficient communication and operation within cross-border territories. Moreover the paradox of opposing interests on various scales and rivalry are decisive elements too. Although

cross-border initiatives are considered as instruments for regional development their advantages are mostly assessed at the national level. Regardless of the acknowledged economic possibilities of transborder ties the idea of the sovereign state with its own national concerns still delay borderless linkages and development strategies.

Regarding the evolution of integrated innovation spaces cross-border regions differ enormously from nationally-delineated areas. The emergence and development of cross-border innovation system require specific conditions and co-operative efforts from the borderregional actors. The critical factors and the significant variations between border regions in respect of their capacity to form an integrated innovation system clarify the limited number of border regions that will be able to create strongly integrated spaces of innovation.

In this research the focus is given to a multi-actor economic collaboration in the project of the bio-based economy. The next chapter therefore pays attention to the most crucial elements of cooperation and strategic coalitions. The dimensions of the border, introduced in this chapter, can be in the empirical phase be projected on the tangible object of relationship.

## 4. Theory on cooperation

While the former chapter analyzed the role of the border in collaboration this chapter focuses on the characteristics of the cooperation itself and its major determinants for successful outcomes. Efficient cooperation knows a number of prerequisites regardless whether or not the partnership takes place in a cross-border area. Cross-border cooperation contains more facets than barely the issue and impact of the border. It is a strategic, institutional, social-cultural and cognitive learning process.

These aspects are further stressed by the must and the complex character of multi-party cooperation in the innovation intensive bio-based alliances. Moreover, the cooperative initiatives to create a clean economy are aggravated by a “cross-bordered” context. Including collaborative rules as complementary attributes to the border-related dimensions (chapter 3) is therefore valuable for the evaluation. The application of these aspects makes the assessment of the transborder project in the intricate bio-based transition more directed and comprehensive.

### 4.1 Cooperative networks

#### *Definition and types*

Tijssen (in Fischer, 2006, 101) captures the most important characteristics for the network mode of organisation that applies to the cooperation in the present study: ‘‘*A network is an evolving mutual dependency system based on resource relationships in which their systemic character is the outcome of interactions, processes, procedures and institutionalisation. Activities within such a network involve the creation, combination, exchange, transformation, absorption and exploitation of resources within a wide range of formal and informal relationships*’’.

Networks can be associated as intermediate or hybrid types of organization between markets and firms though others view them a completely different type of organization wherein also institutions play a greater role (Fischer, 2006; Arias, 1995) Strategic alliances can be distinguished as a special type of network organization (Fischer, 2006). Alliances may concern specific times, markets, products and processes and competition on certain business field is not excluded. Strategic alliances are more difficult to manage and coordinate than other classes of networks, especially when organisations are competitors. Also, when partners originate from different cultures, what is applicable to cross-border areas, obstacles often arise as such a situation can be a potential for misunderstanding and disagreement. The accomplishment of such networks and alliances depends of soft transaction costs like the institutional context such as common norms and values as well as relational conditions such as trust empathy etc. (Atzema et al., 2009, p. 32; Hendrikse et al., 2008).

A remarkable feature of the dramatic growth of strategic alliances, networks and cooperative partnering in the last few decades is their enormous diversity. Cappellin (2004, p. 211) implies that ‘‘*there is no such thing as a network, but networks with specific structures*’’, indicating their differentiated shapes and natures.

The nationalities of the partners, their motivations, objectives for entering into a partnership, the governance structure of such alliances have all become extremely varied. The characteristics and aim of cooperative networks greatly vary with the type of technology, the related industrial sector and the regional or national context (Bröcker et al., 2003; Atzema et al., 1997; .Hendrikse et al, 2008; Boschma, 2005; 2007 ).

#### *Technology-driven collaborations*

Technology and innovation are typically key drivers in the formation of cooperative alliances as the research cases in developing a “green economy” illustrate. The interactive regional setting for innovation is emphasized by the proliferation of conceptualized notions such as ‘‘*industrial districts, regional innovation systems, clusters and learning regions with prosaic variants such as intelligent regions and other self-acclaimed “Silicon regions”*’’ (Lagendijk, 2005, p. 131). Collaborative innovation processes have been extensively accentuated wherein (research) institutions, business actors and the public sector intensively co-operate in order to generate the use, the diffusion of economically useful new knowledge in production processes (Fischer, 2006; Bröcker et al, 2003; Rees, 2004; Gulati, 1998). Collaborative innovation processes should be hence seen as the result of the interplay between various parties, in other words, it is ‘‘*the product of a network of actors*’’ (Arias, 1995, p. 52).

The bio-based strategic ambitions refer to the emergence of a complicated production and organization system in which innovation and collective learning are key elements. Increasing complexity, costs and risks in innovation processes as well as the need to reach critical mass emphasize required role of collaboration for the bio-based systemic transition (chapter 2). As the conventional methods for addressing such complex issues and uncertainties are no longer adequate alternative operational ways are needed. Cooperation and network forming alongside horizontal ties are more suitable to deal with problems in a more efficient manner. The dependencies of horizontal relationships are though not restricted to national public or private domains but transcend territorial boundaries as well (Koppejan et al., 2004). These thoughts can be

associated to the bio-based projects: they demand the contribution of public and private players as well as a borderless approach owing to the ecological and economical nature of the problem.

## **4.2. Evaluating collaborative processes**

### **4.2.1. Fundamental collaboration rules**

The evaluation of the processes and dynamics within collaborative partnerships is not without complexities. The implication of joint action includes the tension between dependency and a variety of objectives and interests. Cooperation processes mean cognitive, strategic and institutional learning processes between actors regarding the nature of the problems and the possibility of solving those (Kloppejan et al., 2004). It is also about transcending boundaries of organizations and in other cases literally boundaries of nationally defined territories. The central question is how to achieve successful cooperation

The implicated character of collaboration is extremely true for cross-border cooperation which is not a linear process but the outcome of “*fall and rise*” (Spoormans et al., 1996). The multifaceted reality of partnership reflects an arena in which diverse stakeholders influence each other, driven by various components like their position, their interests and strategic approach within the network. Theoretical and empirical analyses expose that under certain circumstances cooperation initiatives and projects of alliances can result in excellent outcomes. They may bridge institutional gaps as they benefit of generating new ideas, ensuring greater accountability, effective management of human and natural resources and display new forms of governance structures (Fadeeva, 2004; Hendrikse et al., 2008; Fischer, 2006).

However, many scholarly works reveal that results of collaboration often fall short of expectations (Fadeeva, 2004). The ability to deliver satisfactory results, e.g. efficient and well-functioning processes, depends on multiple factors which are very frequently ignored by the cooperating partners. Some aspects of it have, in chapter 3, been highlighted on the inadequate degree of cross-border cooperation. The focus in this section addresses the most relevant factors influencing collaboration and the required circumstances for a sustainable and efficient operation.

A main criticism on the under-performance of collaboration and projects concerns the unawareness or neglect of the effective use of basic collaborative rules. The ignorance of the following set of requisites is often the reason for failure in cooperative interlinkages (Fadeeva, 2004, p. 168):

- Credible commitment
- Clarity of goals
- Clearly distributed responsibilities
- Involvement of relevant stakeholders
- Setting intermediate targets – do not allow the targets to become diluted and to keep the stakeholders motivated
- Monitoring progress toward achieving objectives
- Establishing and using incentives and sanctions

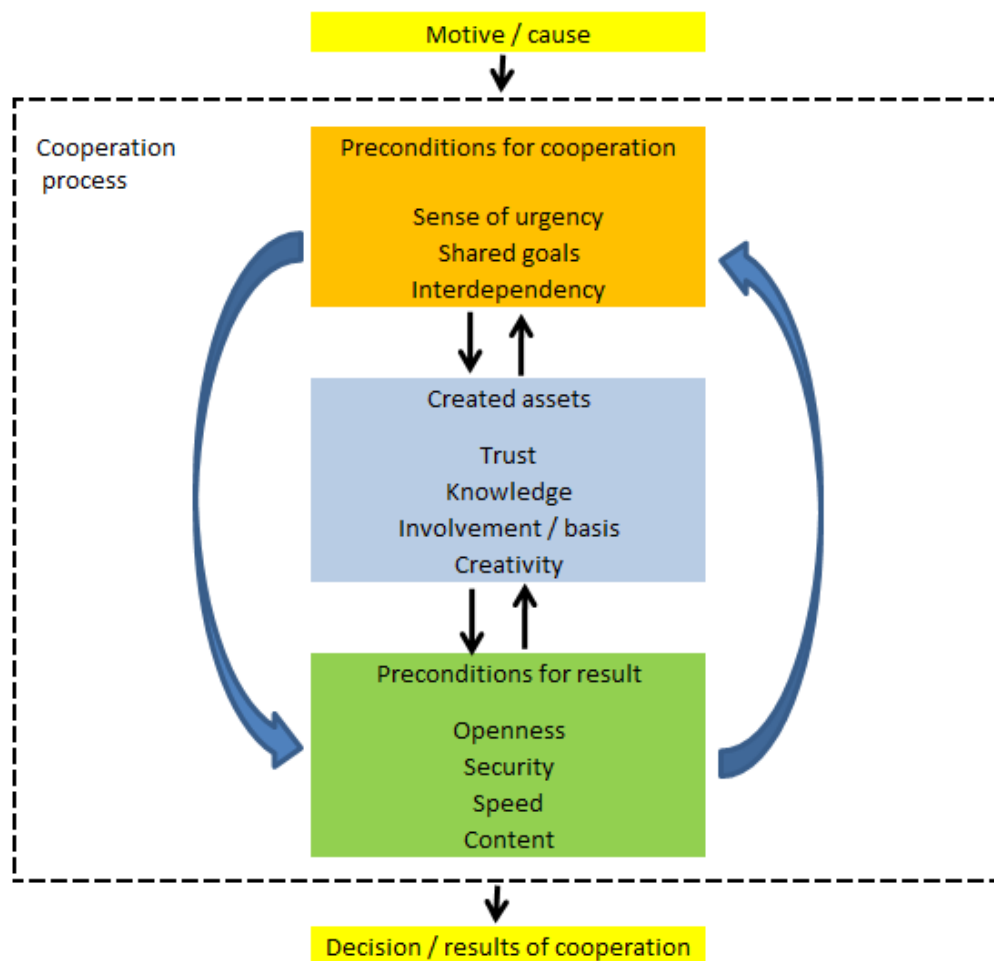
### **4.2.1. The model of cooperation**

It is important to be aware that even the right way of application for collaboration rules cannot grant always superior results. For this to achieve the consistent use of correct principles for cooperation should be employed.

These requirements and the above indicated system of collaboration rules will be further clarified with the model of cooperation of Verbout et al. (2008) (Figure 4.1) that will be enriched by theoretical insights from other authors.

The concept of cooperation presents the necessary cooperation components in sequences. The authors utilized their model for the analysis of water management in the Dutch public sector, but due to its clarifying structure, it can be applied for any types of collaboration or alliance networks.

**Figure 4.1.: The model of collaboration**



Source: Verbout & Travaille, 2008, p. 11. (own translation from Dutch)

### ***Motives and preconditions for cooperation***

Identifying the *motive/cause* for the cooperation project is the first step in the monitoring. This can be determined by the official and general definition (the mission) of the project.

The next phase indicates the *preconditions for the cooperation* in which the motivations and the rationale for entering the collaboration is further elaborated. In this stage the participants' expected values of the collaboration can be exposed. All three basic conditions – the feeling of urgency; shared goals and interdependency – are underlined by other authors as well (Walter et al., 2007; Wenger et al., 2000; Fadeeva, 2004; Remmers, 2007). These basic conditions are prerequisites for starting and retaining a cooperation project at all. If one of these elements is missing, the process may be pursued by negotiations and discussions, sooner or later it will break up. Especially when the phase for financial commitments will be launched, the absence or existence of these fundamentals will be determinant and very noticeable. The understanding of these prerequisites in bio-based programmes is vital since these mostly relate to voluminous public investments. Setting up heavily subsidized enterprises without solid launching base and returns on the longer term is doubtlessly an issue to consider.

### ***Mutual benefits, shared goals***

The rationale behind the partnership shows the individual interests as well as the mutual benefits or expectations by engaging in the cooperation. (Cross-border) cooperation is not a target in itself and it has only merit and will lead to long-lasting results if it brings surplus value for all involved (Spoormans et al., 1999).

Networks and partnerships will only have value when the various efforts, costs and dependencies imposed on each partner are balanced by the advantages and gains to be achieved by the collaboration (Fadeeva, 2004; Arias, 1995). The drivers for

entering into partnership must be positive, referring to future opportunities. Sharing similar objectives and believing in mutual benefits and value added associate to the notions of mutuality and reciprocity (Cooke, 1992; (Wenger et al., 2000). The network paradigm (Cooke, 1992, p.160) typifies reciprocity and partnership as ‘*the willingness to exchange information, know-how, proprietary knowledge and goods*’ and the preparedness to solidify the reciprocal relations in the cooperation.

Conflicting and competing aims of the various stakeholders may mean a challenge in the implementation of large-scale projects. This is mainly caused by the time and energy (and thus money) needed for making compromises and balancing interests (Taşan-kok, 2010). It is better to develop stepwise and to evolve the project further based on the achievements than to formulate giant scenario’s which will at the end lead to nothing (Spoormans et al., 1996). Cross-border projects that fostered giant ambitions and included many institutional layers had substantially smaller chances to succeed than small-scale projects.

The more institutions and organizations take part in the cooperation the more complex decisions can become and the less transparent organizational responsibilities and competencies turn. Smaller trajectories with strictly defined goals show more likelihood for good achievements (MOT, 2008; Smallbone et al., 2008; Spoormans et al., 1996).

### *Power and sharing competencies*

The above described matters have link to the power relations within collaboration. Cooperation or alliances may be used for promoting vested interests of resource-rich actors, trying to promote their own agenda. Even by seemingly symmetrical communicative, collaborative and equal cooperative networks a certain power connotation can be recognized. Opportunistic behavior of certain stakeholders can damage trust that can lead to cooperation difficulties (Boelens, 2010). The first question therefore should always be: ‘*what is the purpose of this collaboration and whose interests does it potentially serve?*’ (Fadeeva, 2004, p. 173).

Moreover, the studies of cross-border cooperation illustrate how important for each participating organization to retain as much possible autonomy and freedom of choice. Chapter three showed that the redistribution of power, means and competencies between transborder organizations is a sensitive issue. The willingness to do it is easier when other parties are needed to reach the own objectives. Sustainable cross-border relationship will for this reason will only take place when advantages can be booked to the major parties on juridical, social, economic, cultural, infrastructural or technological terrains (Spoormans et al., 1999).

Cooperation partners should ensure that there is at least a perceived equality of contribution and benefits from the various actors involved. Inequalities may lead to dissatisfaction and resentment; hence the creation of a win-win situation should once more be stressed for a mutual apprehension of success.

In the bio-based development the ‘obligation’ of a multi-actor joint action assumes the partners’ need of each other in order to realize the widespread transition to a fossil-free economy. Giving up some mandates within the cooperation for the sake of mutual (societal collective) benefits of an environmentally durable system is required. Individual benefits follow when the fundamentals of the system are mutually laid. Recognizing the systemic and comprehensive character of the bio-based transformation though presupposes an altered mindset of actors on all fields as alluded in chapter 2

### *Feeling of urgency*

At the same time, recognizing the mutual benefits of collaboration will not result automatically in cooperation if the feeling of urgency is not shared by all partners. Urgency is experienced for instance if reaching of a primary goal becomes endangered. The actors’ perception of urgency can be inventoried through the definition of their goals and interests. This dimension is exceptionally valid for the bio-based activities. Only the a genuine sense of urgency vis-à-vis the popular rhetoric and slogans on sustainability will drive actors and organizations into (joint) accomplishment. Moreover, the realization of the mid- and long-term objectives of the cooperation does not only depend on the partners’ sense of urgency. The awareness of external players – industrial actors- and their readiness to take action will determine the viability of the project as they are the potential users of the cross-border facilities. Besides, the pervasive experience of urgency will accelerate the evolution of the bio-based economy. Again, the widespread change in view and attitude is inevitable to identify the pressure.

The various stakeholders can have different perceptions at a certain moment because they pursue varying goals or have varying interests (van der Marel, 2008). Cooperation processes can become complicated due to the shifting aims and goals of actors during collaboration. As a result of external factors, changing market and societal conditions, the aims of the stakeholder may change over time. Each organization has its own priorities and main targets which during the whole process may transform. The major challenge is to keep the divergent goals concentrated on the main common goal within the cooperation project (Taşan-kok (2010). In the case of the bio-based ambitions this is crucial because its evolution strongly depends on externalities such as the level of the oil price, market conditions or negative attitudes in the general public etc. These uncertainties make the transition stormy (chapter 2) and strongly influence the position and commitment of the cooperation partners.

### Interdependencies

Only in the existence of some degree of interdependency and the awareness of it among actors can network formation gain strength (van Marel, 2008; Walter et al., 2007).

Dependence is an inherent feature of networks since in all alliances the participating organizations lose some control. Dependency, however, can also be connected to the complementing characters of the location, the economy and institutional facets. As illustrated in chapter three border regions can especially be characterized by dependencies. Assimilarities and complementary assets are provided by their nationally-defined social-economic territories.

Resource dependency is the exchange of resources needed by certain actors from others. The political-economic approach adds that a network organization can be seen as an arena with internal and external interest groups, possessing resources needed by the whole organization, which stride with each other to reach their objectives through cooperation (van der Marel, 2008).

On one hand it can be referred to the frequently occurring cross-border situation in which partners from both sides perceive each other as rivals. Joining up though combines competition with cooperation for reaching recognized opportunities (chapter 3). On the other hand the establishment of a matured bio-based economy needs the set-up a whole chain-like system linking a multitude of parties. This requires a network-way of thinking in order to integrate sectors, areas and organizations in a cross-sectoral and multidisciplinary manner. It can be therefore stated that players in the bio-based system have a high-degree of interdependence: resources on the terrain of finances, production, competencies, knowledge and legitimacy possessed by certain actors are important for other actors to reach their objectives. In this understanding each actor depend on another actor for certain types of assets (Koppejan et al., 2004; Mouthaan, 2010; van der Wielen, 2010).

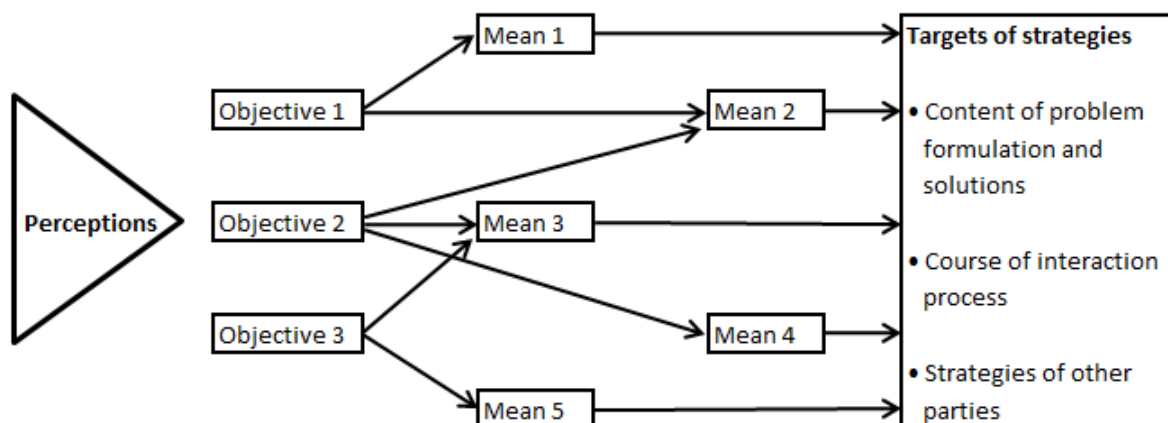
It is important to realize that partners are not always conscious of their mutual dependency or it can also occur that they overestimate their own position and potential. This strongly influences their strategic behavior and can lead to the negative effect that the (mutual) objectives of the partners in the cooperation are not achieved (Koppejan et al., 2004).

### Perceptions

Before discussing the participants' various strategic behaviors it is of use to share thoughts on the existence and role of perceptions in cooperation networks. Actors do not choose strategies by coincidence. They are guided by the perceptions of the collaboration, by their own stakes and the strategy of the partners.

Perceptions can be connected to the actors' definition of their own position, their environment and their interests. On the ground of their perceptions (or images) they evaluate the outcomes of possible strategies. The goals as well as the strategic choice originate from the parties' perceptions: *"Objectives are concrete translation of (parts of) perceptions"* (Koppejan et al., 2004, p. 48).

**Figure 4.2. : Strategies for objectives and means, based on perceptions**



Source: Koppejan et al., 2004, p. 49.

The formulated objectives are more specific than the assessed or perceived circumstances. Figure 4.2 shows the combination of objectives and means based on perceptions and which try to effect the definition of the problems, solutions, the cooperation development and the strategies.

This is a sort of “bounded rationality” wherein the guiding motivation to cooperate is driven by the realization of one’s own objectives although these objectives are inspired by perceptions and by the “*limited information and non-rational elements such as sympathies and antipathies, loyalty, rules etc.*” (Koppejan et al., 2004, p. 49). Substantial variations in perceptions among the stakeholders may hinder the processes or may lead to stagnation.

This understanding is not only necessary for the qualitative research method that applies the “people approach” of cross-border cooperation (paragraph 3.1). Perceptions in transborder relations are furthered burdened by the divergence of cultural traits and mental divisions of the various communities. The “us” and “them” means of perception translates into spatially defined development strategies that are rooted in the “own” national concerns. Finally, the importance of perceptions also connects to the awareness of urgency detailed above.

### *Strategy*

As has been elucidated earlier the strategy for forming an alliance can depend on the industrial or technological scope of the network as well as the innovation phase it is placed in. Tightening cross-border relations enlightens the emergence of the border as an economic asset for regional development while the bio-based program also entails strategic alternatives for grave societal and ecological challenges.

An overview of stakeholders’ strategic action is provided below which combines various cooperation aspects as detailed above. Strategic choices reflect the (dis)similarity in the degree of mutual dependency and of the vision for the stratagem. Partners within cooperation show a strategic behaviour in order to bring about their own objectives. The planned conduct of a stakeholder within a network can be defined by the targets, instruments (resources) and by the identification of mutual dependencies and perceptions.

The following strategic behaviour are distinguished (Koppejan & Klijn, 2004 in van der Marel, 2008, p. 17.):

**Go-alone:** a stakeholder, despite strategic dependency from other actors, attempts to carry out his own solution for an issue/problem. This can result in a one-sided resolution or in the refusal of other partners (at thus no solution).

Go-alone strategies, especially in the case of difficult societal, technological problems, generally lead to ‘*sub-optimal, substantively poor and ineffective problem solving*’ (Koppejan et al., 2004, p. 114). Knowledge is scattered across many actors and in case of go-alone policies, the knowledge available in other places is not utilized. Therefore a go-alone strategy is considered the inadequate answer to tackle complex issues such as the bio-based transition.

**Conflicting:** the strategy of the actor focuses on blocking the working/solution methods proposed by other actors. Notwithstanding it can be claimed that in many situation of collaboration, it is difficult to observe open conflicts among the participants. A decline of activities, the loss of interest and emerging passivity are more noticeable due to differing opinions, interpretations or perceptions (Fadeeva, 2004).

**Avoiding:** the actor takes a passive attitude in order to avoid conflicts. This can be the case due to the irrelevancy of a problematic issue/project for the actor or due to the unwillingness by an actor to share the costs. Fadeeva (2004) notes that non-conflictual or conflict avoiding partnership can carry serious drawbacks. It diminishes the possibility to tackle problematic areas or to address them in an effective way. The absence of conflicts can induce the pushing of fundamental issues to the periphery as such conflict-prone issues are then sacrificed for the benefit of the consensus.

In cross-border cooperation this is often the case in order to avoid that the partners should make sacrifices for the joint project. Agreements are made fast in situations in which activities are reduced to general formulations, friendly contacts or cultural exchanges. However in case a ‘price’ should be paid for the common project many collaborations prove untenable. This has many times to do with the unwillingness to make concessions on mandates and self-authority (Sporman et al., 1999; MOT, 2008).

**Cooperative:** the actors recognize their mutual dependencies and do their best to involve as many a possible stakeholder into the project for booking results during the negotiations.

**Facilitating:** cooperation is a must so that a solution can be found that is satisfactory for all involved actors. This strategy is directed at bringing partners together and to mediate between them. An actor for example who does not want or cannot make too much costs but wants to get involved in the solution of issues may choose for this type of strategy.

The latest two strategic behaviours are the adequate way of handling complex issues like the bio-based transitional trajectory. The complicated feature of this multi-party system innovation should be resolved by mutual adjustment and cooperation. It covers the interests of multiple and interdependent actors in the process development. Moreover, the mutual efforts involve all relevant stakeholders by generating the combination of resources, activities and ideas and leading to better cooperation results.



## *Preconditions for results*

### *Coordination*

The presence of a great variety of actors creates a complexity which should be efficiently coordinated. Especially highly hierarchical structures of governance can impede a smooth operating process as no decision and action can directly be taken. Therefore a new plural form of leadership should take place in large-scale projects of public-private cooperation. Stagnation in cooperation or deadlocks emerge when the strategies of the partners are in conflict and uncoordinated and when there is limited or no interaction among the actors. This may come from differing perceptions and targets or the insufficient awareness of mutual interest and dependency. This is often driven by uncertainty on approaching the problem and the related costs (Koppejan et al., 2004).

The importance of an efficient way of coordinating the project, by for example appointing an organization agency the project should be therefore underlined. A dedicated network management indicates whether there is an autonomous entity for coordinating and directing the network activities (Walter et al., 2007). The lack of a systemic management leads to the poor functioning of the partnership. The integration of the various network institutions is demanded for the sake of efficiency and can be animated by a ‘*primus inter pares*’ stakeholder such as a major business, development agency or research institute (Cooke, 1992).

A united coordinating body in cross-border area can be difficult to reach due to the issues of sovereignty, differing political and institutional systems and variations in long-term territorial development. Thinking in national lines hampers the creation of alternative forms of leadership.

### *Institutional set-up with an open culture*

The need for innovative leadership requires specific institutional forms in order to break the fragmented decision-making that arises of the institutional complexity (Taşan-Kok, 2010). Institutional difficulty and uncertainties mean that above the actors’ differing perceptions and targets the differing institutional backgrounds hinder cooperation. This is especially valid for border regions. At the same time, challenges cut across existing institutional and national demarcations. As a result interaction becomes quite difficult as the actors are guided by their own (institutional) language, culture, rules and opinions.

In order to reach a fruitful cooperation all partners should take great efforts to build up a strong mutual institutional culture (Bucken-Knapp, 2001; Atzema et al., 1997; Schmidt, 2005). However as the former chapter explained it is rarely possible to directly influence the existing institutional frameworks in cross-border areas as they have grown historically and are fastened in formal legal structures or deeply rooted in formal institutions or societal processes.

Rutten (2002) classifies *network autonomy and shallow hierarchy* as prerequisites for the favorable working of networks and for successful development of projects. Accordingly, participating actors possess no control on teams of which they are part while the shallow hierarchy refers to the basis of the participating stakeholders: their capacities and skills. Information gathering and decision-processing take place in an efficient way if the shape of the network is decentralized (Cooke, 1995).

The ideas of openness and feeling secure (figure 4.1.) can be placed in these concepts. The involved actors in a cooperation of open culture have the feeling to reveal their opinions and visions without negative consequences.

### *Communication and interaction*

Communication is extremely important to identify the conflicts and barriers. An essential question herein whether the actors do share the same types of obstacles and if they see the relevancy of a joint action to remove those obstacles. In case of cognitive deficiency, no agreement can be reached for these issues as the nature, the causes and the solutions for the problematic subjects appear to be obscure (Cappelin, 2004; Remmers, 2007; Verbout et al., 2008).

A good level of interaction among the collaboration partners is a crucial component. If this is not optimal and misunderstandings are created coordination problems arise (Remmers, 2007). The various cultural models of collaboration then deserve attention. The diversity and the number of the involved parties, the geographical distance or the physical complexity of the product or technology can negatively affect this dimension. Lack of sufficient interaction among the partners may also be generated by varying socio-cultural and institutional arrangements (chapter 3). The beliefs, attitudes, values are important factors in processes of learning, communication and interactions. The way the participants view their partners from the neighboring country has been previously stressed as decisive elements in establishing intensive interchanges (Ketels et al., 2008; Fadeeva, 2004).

With reference to communication the mutual promotion of the cooperation is essential to reach synergies in the alliance. This is interesting from the perspective of acquisition for the economic activities for the whole partnership and the entire region and it can be considered by the actors as a non-threatening activity (van Kranendonk et al., 2009).

### *Speed and content*

The notions speed and content are related to the design of the process and the application of knowledge and experiences of the involved partners. Speed can also be understood with reference to decision making in the cooperation. The more units (actors, organizations) are present in the partnership, the more time consuming may decision-taking become. The interplay of fast implementation and slow, bureaucratic decision-making should therefore be thoroughly monitored.

### *Created assets during the cooperation*

The model of cooperation assumes that in case the above mentioned aspects are efficiently filled in, the so-called ‘in-between’ products (trust, knowledge, basis for involvement and creativity) arise. They are similarly decisive for the processes and the results of the cooperation.

### *Trust*

Trust between partners is a fundamental requirement for the development of any cooperation but it is even more a prescription in the case of cross-border relationships. Trust does not only have a positive effect on cooperation but it is an elementary component for realizing innovative solutions where the outcomes of innovation are mostly unsure (Koppejan et al., 2004; Fischer, 2006; Cooke, 1992). In particular in unforeseeable and continuously developing circumstances and processes confidence is vital. The presence of trust drives actors to make investments in new and innovative solutions that include high-level risks and uncertainties. In the lack of sufficient amount of trust partners focus on economic perspectives, costs that make them refrain from financial engagement.

The undertaking for the large-scale transformation of the industrial system based on fossil reserves is a case in point. Due to the risks and uncertainties surrounding the bio-based transition (chapter 2) the partners’ trust in each other and in the success of their enterprise is of the essence. Perceptions of trust assume that collaboration will bring benefits and gains for the participating organizations.

Cooke (1992, p. 160) defines trust as ‘*the willingness to risk placing faith in the reliability of others*’. The social network model (Granovetter, 1985) places a premium on close collaboration and trust between participants. The level of trust can also be defined by the belief in the honesty of the other partners that they will not carry out opportunistic behavior for the sake of their own interests. This can be related to strategic uncertainties as strategic behavior of actors are highly unpredictable and the assessment of their impact on the future evolution is difficult. Trust enhances predictability and good faith in each other through which the opportunity of unpredicted interactions is diminished.

Opportunistic behavior can hinder the achievement of common targets. For instance it can occur when partners are not willing to invest in solutions by themselves but instead they leave it to others (‘free rider’) or when actors delay their full commitment and investment in solutions and in the collaboration until it becomes sure that realization can in actuality take place (‘wait and see’) (Koppejan et al., 2004, p.51). Trust fortifies the belief of the players that all participants will refrain from opportunistic behavior. Trust is provided to the partners within certain limits. In case expectations are repetitively violated the trust towards the actor needs to be appraised but it can also entirely wane.

Social attitudes, interpretations and the socio-cultural environment are important which may even be more stressed for cross-border partnerships. Trust may be strengthened by the social embeddedness of the network: local common identity, tradition and spatial proximity (Cappellin, 2004; Granovetter, 1985). Shared cultural and social values are inevitable in order trust in the informal institutions is gained (Atzema et al., 1997). Border regions can be thus places where historical ties in social- economic dimensions, the nearness and knowing each other create trust vis-à-vis other, farther and less known regions.

The inter-organizational dependency intensifies fostering trust towards each other because this is the only way to reach results. This may also have the beneficial consequences that partners complete each other’s capacities and capabilities instead of competing with each other (Koppejan et al., 2004; Remmers, 2007).

### *Involvement and commitment*

A high level of involvement from the stakeholders is a requirement in collaboration. This covers the mechanisms, commitments and identification with the project that glue the nodes together that make up the network. The degree of commitment depends on the experienced urgency. Long-term commitment from the partners and its forms play a major key in the project development (Verbout et al., 2008; Fischer, 2006).

Rigorous resource planning and (financial, human, technical etc.) commitment of resources to the cooperation project are helpful in order the cooperation (project) succeeds (Arias, 1996). Finding agreements on the principles of sharing the costs is often the most difficult part. Allocating responsibilities and establishing accountability are considerable imperatives as

well. This phase illuminates the solidity of the fundamentals of the whole project alliance and whether they are sound enough to set a durable partnership forth. Clearly distributed responsibilities are required for an innovation architecture so that the institutions within the cooperation form a network and not a “*jungle*” (Cooke, 1995, p. 168). The partners’ identification of the cooperation forms a base for the critical factors in innovation collaboration: a high degree of self-identification, political and strategic coherence, commitment to the project strategy and to the capacity to deliver. High involvement increases the effectiveness and produces more relevant results within the alliance (Walter et al., 2007; Cooke, 1995).

This chapter clarified the most important determinants for creating a successful and efficient strategic alliance. These traits are considered as a suitable vocabulary that can assist to describe the internal dynamics and actors’ attitude within the bio-based cross-border cooperation. These dimensions are also of value as a base for the interview questions and the empirical inquiry. The combination of the cooperation features and the theoretical insights into the meaning and influence of borders enable to establish a conceptual framework that will be elaborated in the next chapter.

## 5. The Conceptual Model

The conceptual framework based on the theoretical facets discussed in the earlier chapters will be explained below. This theoretical model illustrates the layered contextual setting in which the main focus of the present investigation - the bio-based transborder cooperation - is situated. The study field and its most important components are visualised on several scales that contain determining factors and their relationship regarding the evolution of the cross-border interlinkages. Based on the interrelations of these aspects and the previously discussed theories assumptions (in italics) are formulated with regard to the expected research outcomes.

### 5.1. The macro level: external factors of the wider context

The in-depth analysis of the broad contextual features, their interplay and effects related to cross-border cooperation falls outside the scope of this research. Still, the complexity of the bio-based expansion demands their consideration in respect of the project evaluation.

The effect of the wider, macro-level context on the social-economic position of border zones and on the ambitions of their stakeholders (the meso-level) is illustrated by arrows in the model. The external factors on the global or national level evidently shape the regional and local circumstances, possibilities and performances. These contextual components are responsible for the retarding or encouraging affects on the arrangement of the bio-based network. The inventory of elements on macro scale also indicates the various relations a (border) region has outside its immediate territory and local embeddedness.

#### *Imperatives of the bio-based transition*

Chapter 2 has dealt with the different aspects of drivers and impediments to the emergence of the bio-based economy. The growing awareness of climate change, the consequences of the use, the limited availability of and dependency on fossil-based resources have brought away a massive politico-societal concern. The issues of sustainability and the security of production resources have become central in this acknowledgment (WorldWatch Institute, 2006; OECD, 2001; IEA, 2006).

#### *Economic pressures*

Even though ethical controversies (fuel vs. food) exist in the transition, the early advancement and integration of bio-based processes intensify the returns of daring strategic alliances (Bionity.com, 2009; PricewaterhouseCoopers, 2010; Verburg, 2009). As a result, places under global economical processes and market pressures, can carve out their position in the worldwide hierarchy. Other economic pressures such as the factors price and market viability are as well crucial aspects especially in relation to the antagonism regarding the well-developed fossil-based production system (Stern Review, 2006).

#### *Policy making: borders, innovation, sustainability*

The increasing number of stimulation policies on the governing level of states and the EU induces a positive impact on cross-border cooperation. Border regions are currently seen as economic assets and therefore receive growing political attention and financial incentives (Prokkola, 2008; Ernste, 2009).

This is fortified by policy objectives to create a "green" economy and a sustainable society. Transborder bio-based networks are in several regards encouraged by policy means to tackle "borderless" environmental problematic and enlarge economic returns by innovative applications. (European Commission 2007; 2010; Lundquist et al., 2007). For this, policies and investments in innovative technology (R&D), procedures and organization systems are prerequisites. The creation of large-scale application of biomasses and the numerous bottlenecks (chapter 2) delaying the transition towards the bio-based economy further buttress the need for substantial political support and financial commitment (van der Wielen, 2010; Tegenlicht, 2010). "It is therefore supposed that the financial possibility allowed by the Interreg subsidy program was a major driver to establish Bio Base Europe".

#### *National interests, rivalry*

Despite of encouraging competitive and innovative cross-border zones national interests and strategies impact border regions and cross-border collaboration (paragraph 3.5). Objectives and policies set up according to national (economic) orientation can have damaging consequences on cross-border border areas and cooperation. Figure 3.8. shows how the centripetal power of national ideology, identity and the protection of the national economy impedes interaction across the border (de Vries et al., 2007; Castells, 1998). Rivalry between territorially differentiated nation states therefore negatively impact regional development ambitions of border communities. This is aggravated by the (perceived) fierce competition

between places as a result of the globalizing economy (Brenner, 2009). *“Consequently it is assumed that in the Canal zone, regardless of the inter-national subsidization, regional and national contest will be sensed among the interregional partner”*. The empirical results will illuminate the extent and bearableness of this rivalry: can this turn to enmity or does it remain a ‘healthy’ combination of competition and cooperation (‘coopetition’, MOT, 2007)?

#### *The impact of border regions*

On the other hand, as signified by the reciprocal arrows, border regions or cross-border alliances also influence facets on the macro level (Prokkola, 2008). *“Based on the conceptual descriptions of borders (chapter 3) it is expected that a joint cooperation in a border zone, such as the bio-based network in the Canal zone, gains more power and command in the political arena”*. This can be converted into policies or measurements favouring the collaboration.

Furthermore, bundling the forces of both sides of the border may accelerate the necessary biotechnological development (on the macro scale). The Pilot Plant part of the project in the Canal zone has the target to further innovation on an industrial scale.

## **5.2. The meso-level: borders and their effects on cooperation**

The meso-scale in the conceptual frame shows the circumstances supplied by the local features of the border region. Based on the theoretical conceptualization of border regions and the influence of borders on cooperation, the most relevant factors for the purpose of this inquiry are attached. The border impacts in the model are depicted by distinguishing ‘soft’ and ‘hard’ factors as key determinants (Trippel, 2010).

### **Hard factors**

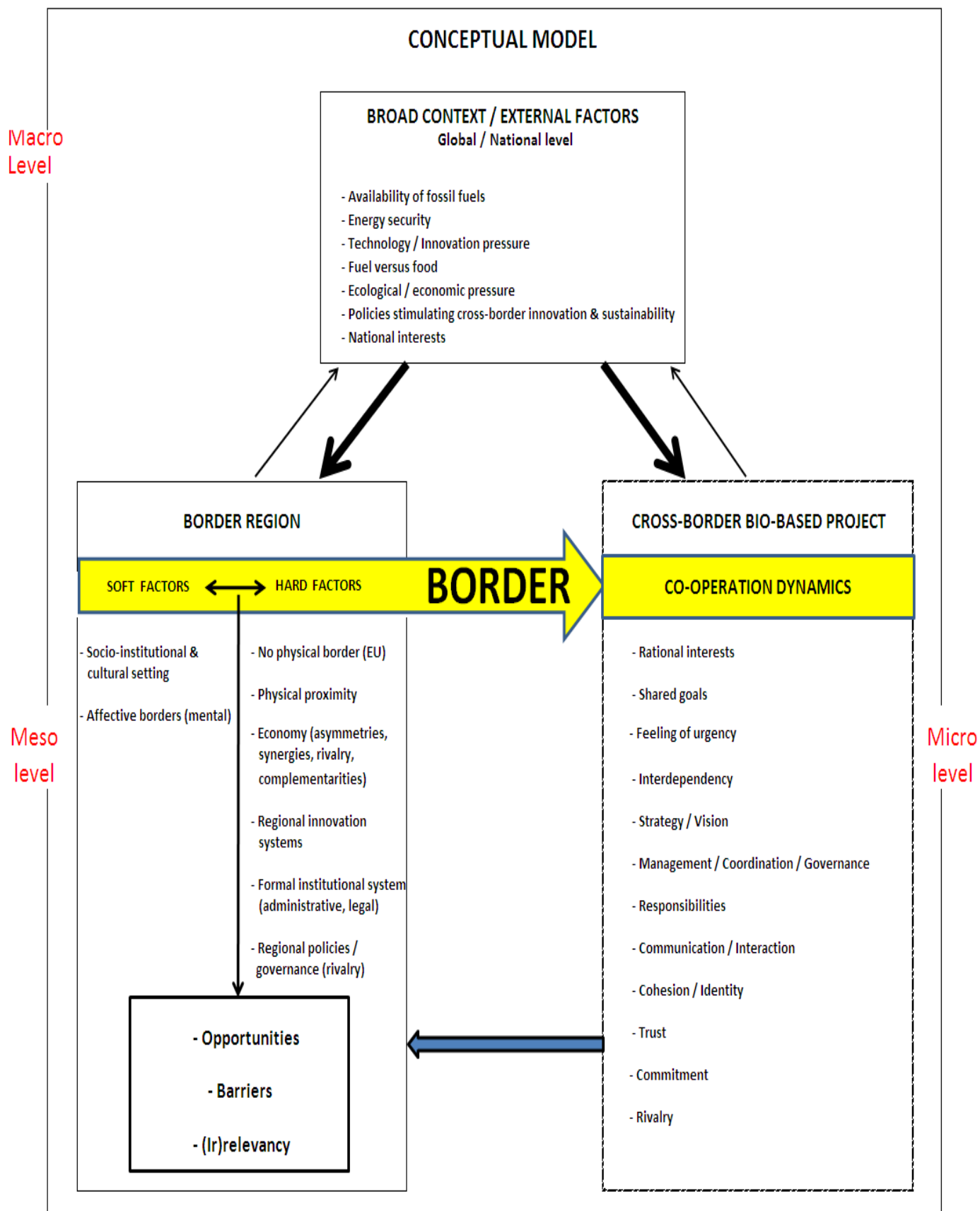
#### *Zones of contact*

The ‘hard’ factors of bordering are the locational tangible aspects that stimulate or hold back transborder interaction. The dismantling of the physical and functional borders across national territories in the European Union means border-free rationality and the reinterpretation of borders from blockades into zones of contact. Cross-border regions (can) benefit enormously from tearing down these types of borders through which integrated spaces are constructed (Colomb, 2007; van Vilsteren et al., 2005). *“According to Martinez’ typology it is estimated to have a deeply integrated borderland in the Canal zone where functional borders have long been abolished”*.

#### *Economic assets*

The elimination of physical borders and the rhetorical promotion of border regions regarding economic gains have led to the grown awareness of social-economic opportunities. The physical proximity, the socio-economical position in the form of asymmetries and complementarities often contribute to the intensification of cross-border interaction. This involves the mobilisation of synergies and shared effects of growth that are expressed in the exchange of goods and knowledge, labour mobility and direct investments (Schmidt, 2005; Krätke, 1999; Mezei, 2008). During these processes of regionalization throughout Europe border regions are more and more considered as natural entities than states in terms of governance, competitiveness, sustainability and identity (paragraph 3.4.).

**Figure 5.1: The conceptual model**



### *Innovation systems*

However, with reference to transborder innovation, cost-driven relations using the border exclusively for competitive advantages, frequently result in low-path development trajectories. Functional (cognitive) distance hampers border regions to integrate due to variations in capacities, performances and receiver competences (Trippl, 2010). Also, the spatial spread of the knowledge infrastructure and research organisations are determinant for the development of genuine ‘borderless’ innovation spaces (figure 3.10.). The uneven diffuse of research institutes in the Flemish-Dutch border zone may lead to development disparities. *‘Still, it is expected that in the Canal zone exactly these asymmetries foster the inter-territorial collaboration to advance a green economy’*. Although R&D in biotechnology is the precondition for the transition towards the bio-based system, the diverse sectors and economic fields (agriculture, industry, harbours etc.) should be involved and integrated for a mature bio-based system.

*‘The assumption is that the various economic and governmental partners in the Dutch-Flemish border region along the common canal have recognized the importance of integrating their complementary characters’*. The awareness of these matters and the consideration of the Canal zone as a natural (economic) entity probably moderate the regional and local competition (paragraph 5.1.) between the project partners.

### *Formal institutions*

A representative attribute of border regions is the collision of differing institutional and legal systems and the political organization of societies that make cross-border cooperation difficult and complicated (Buuron, 2006; de Vries et al., 2007; van Houtum, 1998; 2005).

This also relates to the regional policy system that is an important element in the promotion of regional competitiveness and of innovation networks/clusters. The aspect of governance touches upon the ability of regional authorities and highlights the degree of their mandate and competencies for transborder relation building. Their role is significant for communicating transborder business opportunities towards entrepreneurs and for playing a coordinating and stimulating role for economic development (Trippl, 2010; van Gorp, 2009; Perkmann, 2003). Besides, the existence of a mutual coherent cross-border innovation strategy, as shown in figure 3.10., is a favouring factor for advancing transregional innovation spaces.

The realization of this large scale Interreg project, Bio Base Europe and the Canal zone as a fixed link and a natural economic entity lead therefore to the following hypothesis: *‘the Province of Flanders/East-Flanders and the Province of Zeeland have mutually developed a joint umbrella program for building up the bio-based economy in the whole region’*.

## **Soft factors**

### *Socio-cultural features*

Notwithstanding the efforts put into a full-fledged European integration and the elimination of official boundaries socio-cultural barriers keep steadily existing in border regions. The rationality of economic actors is endogenous meaning that it is not only physically but also culturally and mentally bounded (Atzema et al., 1998). Behavioural patterns do not necessarily align with economically realistic or desirable objects but are formed by socialization milieus. The shared norms, values and habits among a certain group of people are the expression of these variations.

Specific socio-cultural settings act frequently as barriers in transfrontier interlinkages (Atzema et al., 1998; Spoormans et al., 1999). Cultural differences determine institutional customs and informal rules in working relations (van Houtum, 1998; chapter 3).

### *Affective (mental) borders*

Despite of a common culture in the narrow sense (sharing the same language and cultural heritage) civilization in the broad sense means the mental pre-programming of the minds. Psychological borders appear to be more difficult to overcome than physical boundaries or socio-cultural differences: they impede interchange as they are present in the feelings, thinking, perceptions and proceedings (van Houtum, 1999; Newman, 2006). These ‘monocultures of the mind’ (Leimgruber, 2005, p. 240; chapter 3) enlarge the affective influence of borders by estimating differences of ‘*the other*’. The mental distance can be understood as the perceived divergence of business formalities, conventions between the countries and their impact on the mutual cross-border project (van Gorp, 2009; Ernste, 2010).

These characteristics, driven by the national ideology within the bounded state space and the symbolic meaning of the territory (paragraph 3.5.), grant individual and collective identity for the community members. *‘The hypothesis in respect of the partners in Ghent and Terneuzen is that due to social and cultural differences, no joint cross-border identity exists’*. The sense of place and territorial identification is probably merely interpreted in the own national/ethnic framework that

goes not beyond the dividing line of the border. *“Accordingly, the spatial demarcation will also be represented by the affective divergence of ‘us’ and them”*.

*“On the other hand it is also expected that under the influence of the joint project and the mutual promotion of the cluster there are signs that a common regional identity is slowly evolving”*.

*“However it is also hypothesized that the cooperation in the Canal zone is not seriously hampered by the cultural and mental differences”*. Despite various mental pre-programming according to the Dutch and Flemish (Belgian) culture it can be expected that the common linguistic and cultural heritage grants good communication and a smooth collaboration. It is assumed that these neighbours, being always connected to each other in history, are aware of the cultural and mind-set dissimilarities and that these play no relevant role in the cooperation. *“Furthermore it is presupposed that the partners of various nationalities in the Flemish-Dutch border zone, despite their divergences, feel more belonging to each other in comparison to less known and further located places”*.

The above mentioned informal and formal institutions are key factors in the behaviour of actors and their dynamic interrelation with each other. The conceptual model therefore also connotes this connection between ‘hard’ and ‘soft’ characteristics. Their interaction is additionally enhanced by the interplay between the cultural - mental borders and other areas. As mentioned in paragraph 3.5. economic and political objectives are determined by the collective vision of a cultural community.

### **Opportunities, barriers and (ir)relevancy**

As this study concentrates on the perceptions and opinion of the partners in the bio-based project, the empirical examination will particularly look into their understanding of borders as opportunities, barriers or as irrelevant. The conceptual model illustrates these main (perceptual) classifications into which the aforementioned ‘soft’ and ‘hard’ factors are placed, in harmony with the respondents’ estimation.

The notion of irrelevancy may be perceived both as an obstacle and a possibility in constructing relations across the borders. Although this aspect is in chapter 3 signified as a factor as an affective border influence, due to the importance of it for this research, it is separately distinguished. Moreover, dealing with the irrelevancy of the border is valuable in the inquiry into supraregional/supranational relations that transcend the immediate vicinity of the border. A subquestion in chapter 1 refers to the (changing) meaning and effect of the border in case collaboration is raised onto the transnational level. The research results will confirm the degree of the actors’ willingness and inclination for entering into intensive transnational partnership.

Irrelevancy due to indifferent attitudes towards the border produces a fence in cooperation as it entails the (unconscious) ignorance of the other side of the border’ (Trippel, 2010; Strüver, 2002). *“This is not highly hypothetical in the case of the Canal zone when considering the growing awareness of the business opportunities and interdependencies in the subject of the bio-based economy”*. *“At the same time indifference to the socio-cultural boundary is expected from potential partners on the transnational level”*. Due to the lack of narrow collaboration and working experience between Bio Base Europe and the Be-Basic Consortium partners are not in the phase wherein the (differing) socio-cultural features and their impact on the collaboration are evaluated (as will be the case in the Canal zone).

An irrelevant border though can also be reckoned as a potential in a specific situation: cooperating actors, not judging the border as relevant, assess their spatial economical collaboration in the perceived context of a contiguous, natural and matching region. This situation points to the ideal, fully integrated border region wherein the natural way of living and working together is not hindered by any sort of boundaries. *“In the region between Ghent and Terneuzen the border has hypothetically become such an irrelevant issue”*. This is underlined by the fixed link (canal) and hence the naturally grown economic area as well as the close cultural links in the narrow sense of culture.

The key regional factors as well as the participants’ judgment on the opportunities and obstacles of the border vary in diverse contexts. Borders are not static but contextual phenomena - the changing external and local circumstances transform the reciprocity between these factors and effects into a dynamic and interdependent process (Prokkola, 2008; Spoormans et al., 1996).

*“For that reason, the hypothesis can be formulated that the state border may gain another function when examining the placement of cooperation from cross-border to transnational scale”*. As per the anticipation a sort of cross-border regionalization process in the whole interwoven Canal zone will be exposed.



### 5.3 The micro level and unit of analysis: cross-border cooperation (network) for the bio-based economy project

The significant factors on the meso-level that offer prospects and challenges in border regions will be projected onto the main unit of this analysis: the cooperation (network) characteristics with reference to the bio-based cooperation project. The multi-actor collaboration project will be assessed in connection with the border-regional characteristics as well as with its internal dynamics. The incorporation of the meso-level into the micro-level aspects in the evaluation is therefore necessary.

In order to evaluate the internal dynamics of the cooperative organization the most pertaining aspects are summed up in the conceptual framework. The literature review (chapter 4) has clarified these ones as major components and preconditions for successful networking and cooperation processes.

The model displays the relationship between border and the structuring elements of cooperation. The empirical evidences should reveal whether and to what extent, in which form bordering features (paragraph 5.2.) influence the bio-based project collaboration. Where possible, the various collaboration elements will be coupled to cross-border aspects by way of identifying a relational context.

The research will seek to define to which degree the preconditions for cooperation (shared goals, feeling of urgency and recognized interdependency) are present in the bio-based project (Koppejan et al., 2004). As formulated in paragraph 5.1. these dimensions are expected to be present due to the border characteristics in the Canal zone and the very ambitions of the project Bio Bas Europe.

These aspects will be applied as well for the inquiry into a possible cooperation on transnational scale between the region Ghent/Terneuzen and the partners in the Province of South-Holland (Be-Basic Consortium). The interviews will enlighten the perceptions and the potential meaning of the border in this regard. *‘Regarding the ambitious and competing goals of the clusters (to become Europe’s leading bio-based region) it can be expected that these aspects of cooperation prerequisites are more or less absent in the partners’ vision’.*

It is important to distinguish certain elements belonging to each actor as well as to the collaborating organization as a whole. Aspects like the rationale, goals/motives, strategy and vision will be observed for each node (a participating actor) and for the common intentions. The level of convergence and divergence between them indicates the quality and the process of the collaboration. The research aims to explore whether the collaborating partners in the Flemish-Dutch border zone could build up a strong mutual institutional culture, trust and cohesion which function as backbones for a sustainable partnership.

*‘Hypothetically the partners in Bio Base Europe logically display a cooperative approach: collaboration is a must for an Interreg program as well as for reaching the targets of the joint action. Notwithstanding one can also anticipate that a truly cross-border governance and coordination has not yet developed in the projec’t.* This is difficult to realize due to clinging to the national sovereignty and to a nationally-defined strategic approach.

The depicted elements of the conceptual model serve as a fundament and guideline for the empirical research. The following chapter (6) explains which methodologies are used to carry out the practical part of the inquiry in which the circumstances and relationships, explained in the conceptual model, and the resulting assumptions will be outlined.

## 6. Data & Methodology

In this chapter an explanation is given how the theoretical concepts are methodologically elaborated for conducting the empirical part of the investigation. Previously it has been mentioned that various technical and methodological approaches exist in research on cross-border cooperation. The present study applies the combination of the cooperation and people approaches (chapter 3) by looking at the institutionally-oriented motives, intensity, and the barriers etc. of the collaboration as well as the mental constructs and perceptions of the participants. In fact, participants' objectives and strategies within cooperation are predominantly grounded on perceptions (chapter 4). Combining different methodological views provides a more comprehensive and nuanced understanding on the processes.

### 6.1. Using case studies

The empirical core of this research is the case study in the Flemish-Dutch Canal zone Gent-Terneuzen with reference to the specific cross-border project Bio Base Europe. For answering subquestion 6 (chapter 1) another case, the Dutch Be-Basic programme and the relevant initiatives in the Province of South-Holland have also been included.

Using case studies for analysing transborder transformations and collaboration is an often applied method in border studies. The application of particular cases in the present study has been on the one hand chosen by the complexity and specific character of the research field. On the other hand it is evidenced by the specific objectives of this research – the evaluation of the nature and processes within a multi-actor economic collaboration across the border.

In addition, the novelty of and the growing awareness of the need to install a (global) sustainable economic system more or less force the researcher to examine specific enterprises in this field. Considering the particular features of the cases, the contextual components and the strong relation to practicality, a case study is a relevant and adequate manner for the inquiry.

The employment of case studies is though often critiqued as it lacks the power to be able to formulate general scientific conclusions due to the limited samples and the particular character of the cases (Buuron, 2006; Perkmann, 2007; Alper et al., 2008).

However, cases studies are extremely useful to convey the unique circumstances of cooperation in a specific border region. Borders are contextual phenomena as cooperation takes on different forms and intensities in various regional contexts. Different border regions produce different outcomes in integration and interaction that necessitates the study of specific cross-border projects (Prokkola, 2008).

Alper et al. (2008) also counter the arguments that the examination of different cases of border zones makes conclusions on the whole impossible as each border area is distinct from each other. On the contrary, using case studies through an interdisciplinary approach enlightens many dimensions of transboundary zones. Applying specific cases broadens the horizons of the study field and increases the theoretical and explanatory power for understanding the dynamic processes of borderlands (Alper et al., 2008). The examination of cooperation projects and their progression can tell how the regionalization processes, supra-national institutionalizations are mediated in local environments and how the role of the national border is being renegotiated.

Furthermore, the empirical outcomes of the examination of case studies can serve as points of departure in a subsequent research agenda. Especially in the particular case of cross-border cooperation in an innovative economic partnership, the findings may be employed for other geographical settings. Moreover, using specific enterprises in border regions provide the possibility to include a more bottom-up manner of accounting the partnership: the everyday experiences and perceptions of the participating actors from the public and private sector can be set against the official rhetorical language and the symbolic message of EU institutions encouraging cross-border integration in general.

### 6.2. Qualitative research methods

The present research concentrates on the (potential) cooperation and strategic partnership among various stakeholders. For that reason the application of a qualitative research methodology appeared to be the most efficient approach for data collection. Quantitative network analysis is in scholarly works frequently applied and preferred in order to identify central actors and the measure/ frequency of their interaction. However, these are rather limited to discover the human-related nuances that are crucial to understand how a cross-border strategic partnership truly operates. Sociological approaches assist researchers better to analyse how actors use their knowledge in networks and cooperation and which factors provide (dis)incentives to collaborate.

Qualitative research through interviews and observation are the appointed ways of data gathering when one wants to learn to know about attitudes, perceptions, opinions, thoughts or knowledge (Baarda et al., 2006). Chapter 4 has in more details explained the importance of perception among cooperative partners. The role of perceptions is substantial since the participants' objectives and strategies are rooted in them. Also, the foremost components of cooperation and strategic networks apply more subtle concepts like trust, power relations, the various interests/rationales and the strategic behaviour of the participants. The collection of this wide range of dimensions informs the implementation and management qualities of the relationship (Fischer, 2006).

Strategic cooperation in the explicit research subject means the involvement of many actors from both sides of the border. The interaction and communication between actors, making up a network, reflect not only market conditions but also the wider socio-cultural and institutional contexts, particularly the social rules, cultural norms, business routines and conventions. As depicted in the theoretical framework on border effects, the "soft" aspects of the differing socio-cultural differences and affections play a determinant role in transfrontiere collaboration. Gaining insights into the dynamics of relationship necessitate a refined investigation approach as such 'hidden' aspects are difficult to measure.

Therefore, beyond the "objective reality" of borders attention on the "subjective reality", such as personal experiences and actions confronted by the borders, should be paid. The social production of borders and the mental boundaries cannot be captured in a quantitative scrutiny: *'international contact and interaction is a confrontation of different socialisation processes, of different kinds of rationality'* (van Houtum, 1999, p. 330). The human experiences related to the border and to the neighbours should be incorporated into the economic rationality of actors.

The main methodology types of this research - literature study, interviews and observation - will be introduced in more details in the following sections.

### ***The study of literature and documents***

The former chapters have not only dealt with theoretical concepts on borders and cooperation but also with the specific conditions of the transition to the bio-based economy. Attaining preliminary information on the the specific cross-border partnerships, the development phases and the (potential) cooperation linkages was required before undertaking the empirical research.

For that reason a thorough study of documentation was accomplished that made up a complementary part of the whole research project. Various types of documents, like policy visions, reports, scientific researches and papers, official websites, news from the media, discussions on television programmes, official letters, working plans and strategic policy documents etc. have been studied in order to identify the content of the projects, background information on the evolution stages and the perspectives and interests of the participating stakeholders. This was also a necessary step for choosing organizations/representatives for the personal consultations. During the interviews a great deal of material (brochures, newsletters, magazines, and leaflets) was received that provided supplementary data for the analysis.

### ***Observation***

Although the core section of the research consists of personal interviews information was gained as well by observation at the location. The bio-based activities demand a substantial spatial adjustment and planning in the allocated territories. Although the projects in both regions are still situated in an initial stage, the more advanced development in the Ghent-Terneuzen Canal zone is already fairly well perceptible in the spatial setting. Observation can assure additional understanding on the spatial structure and regional context of the border area and on the territorial evolution of the bio-based activities. Riding alongside the Canal zone enhanced the experience of its ambiguous position of being a link and still showing the bounded reality of states. This waterway connection gives a borderless feeling that was notwithstanding contrasted by visible signs of the invisible border. Road quality, differing structure of the built-up environment and traffic signals indicate the political-territorial division between the two sides of the Canal.

### ***Depth interviews***

#### ***(Dis)advantages***

Semi-structured deep-interviews were applied in the research that enabled to emphasize the importance of the vision and views of the respondents. Conducting interviews with the use of half-open questions offers more perspectives on the ongoing processes and the judgment on them by the involved actors. This kind of qualitative inquiry allows the respondents more room to reflect on the various dimensions of the cooperation. On the contrary, strictly-structured interviews with closed questions could create the feeling by the interviewed that the researcher pushes prefabricated answers on them or have less interest in the own expression of the respondents.

Interviewing has though disadvantages as well. The received information can mirror only one part of the ‘reality’ due to social desirability: people can tell information or behave in a certain manner in order to show the more positive aspects of themselves or their organization (Baarda et al., 2006). Responding in a politically correct way can be another pitfall for the interview. People, representatives of organizations can talk about issues in a way that is from them socially expected due to their role. A particular way of responding can also be evoked in the studied project cooperation. Because the bio-based project is in its very beginning phase and its foundation is supported by public means, the participants may feel more or less obliged to react enthusiastically and positive about the collaboration.

### *Questioning*

An in-depth way of interviewing is an interactive, spontaneous manner of exchange of thoughts and only vague anticipation can be done on the nature of the outcomes. Therefore the needed information can only be won by having an open and flexible attitude. The flow of the conversation and the results are determined by the answers.

The questions, where possible, were asked in approximately the same order to allow for consistency of the topics and to ease the comparison of the responses in subsequent analyses. Additional questions or prompts were applied so that more information could be drawn out.

However, not all questions were obligatory asked since during the conversation issues, formulated in other questions, came afore. Moreover, the generally prepared questions were for each interviewed reviewed and tailor-made according to the specific role or position of the organization and the respondent. Evidently, from the Deputy Chairman of the Province of Zeeland on certain subjects different aspects are asked than from the commercial director of the Port of Ghent. Owing to the standardized character of the interview questions this flexible type of adjustment could easily be realized.

Moreover, information from earlier interviews gave input for the following interview sessions in order to confront the respondents with alleged issues and to verify them. This learning effect made it possible to touch upon actual or urgent matters or sensible subjects in the cooperation.

### *Structuring the questions*

The semi-structured list of questions (Attachment 1) was categorized in a topic-list with the major themes, based on the applied theories and actual literature on the specific cases. The number and the nature of questions reflect an instructive character and they serve predominantly as a supporting tool for the interviews.

The interview questions concentrate on the content and dynamics of the cooperation (as described in chapter 4) though keeping a sharp view on the potential border dimensions. The choice of not overall applying topics explicitly dealing with borders is further supported by the fact that other external factors play a role as well on the bio-based coalition. The structure of the interviews contains the most important categories and components of the strategic alliance that will too be analysed on border effects.

Questions which explicitly refer to the border and its effects are used to verify or refute responses given earlier during the investigation. This approach advances the confirmative power of the relevance of border issues in the bio-based cross-border cooperation.

In the *first section* questions were asked on the relevant aspects of the cooperation in the Ghent-Terneuzen Canal zone and the role/influence/meaning of the border. Explicitly requiring about the impact of the border was not a basic requirement for each question. Very directed questions may distort the picture as they lead to obscure or avoiding responses, driven by socially correct behaviour. Or they may push the responses to a certain direction by giving the answer “in the mouth” of the interviewee. The affects and functioning of the “soft factors” often cannot be disclosed by a focused inquiry: it is exactly the refined way of interviewing that provides better insights into the socio-cultural dimensions in the cross-border cooperation.

The *second section* concentrates on the potential cooperation on transnational level between the Delft/Rotterdam and Ghent-Terneuzen bio-based initiatives. There is no existing collaboration on this scale as is the case of the Canal zone. Consequently, the consultations could only allude to the future possibility of and to the willingness of the potential partners for such collaboration. Their inclination for creating a strategic bio-based Northwest-European regional alliance is tested throughout the interviews. This included the perceived difficulties and disadvantages that hold back the advancement of supraregional interlinkages.

The main aspects refer to issues, complementarities, interdependencies and the need that are signalled or not by the involved parties. These dimensions were used as input for evaluating the meaning and impact of the national border for transnational partnership. Moreover, as explained in chapter 5, it was also expected that this dimension could shed more

light on the function of the border in the cooperation in the Canal zone. When considered necessary, certain questions from section 1 were as well be used during the meetings with partners from the region South-Holland (The Hague-Delft-Rotterdam). This enlightens central aspects on the cooperation features within this regional project.

The interviews were transcribed and the acquired data were analyzed for the consistent major themes. Each question/answer has been coupled to the matching research question and assumption that made the grouping of the various subjects possible. The interview outcomes and the empirical evidences are provided in the next chapter in a descriptive manner. Selected extracts (quotations in italic) are used to demonstrate specific or commonly expressed views and experiences among the participants with regard to the cooperation.

### **6.3. Selecting the respondents**

The respondents were selected on the ground of participation of their organisation in the bio-based projects. A scrupulous inventory took place through literature study and search on internet and in some cases by making use of the experiences and network relations of ERAC (the author's traineeship organization). Conducting dialogues with various parties in the pre-selection period took as well place, for instance, by attending a symposium on the bio-based economy in The Hague or by contacting relevant organizations by phone. Consequently, decisions were made to select organisational parties which are relevant and genuinely involved in the specific bio-based initiatives. The stakeholders' motivations, the measure of their role and their weight in the partnership were decisive for the selection process. Subsequently the most important persons participating in the activities were defined for carrying out the interviews.

A chief concern was to include parties from various sectors or work fields in order to prevent a one-sided approach. In the Bio Base Europe Interreg project a limited number of direct participants are present - public authorities such as the harbours, the cities of Terneuzen and Ghent, the University of Ghent and the Province of Zeeland. Still, considerations were given to approach organizations outside the strict project line. This is needed concerning the longer term goals of the bio-based projects: to advance the transition of the (regional) economy into the bio-based system. It requires a long-term vision and the involvement of new partners. The progression of this new industrial-economic system can only succeed if the business sector and other commercial parties will wholly commit to the bio-based production concept. The role of companies is in the region for this reason decisive. Interviewing people from business organisations give broader perspectives and interpretation on the research field. They can tell how they perceive and judge the regional processes and cross-border collaboration in general and in the issue of the bio-based transition.

Accordingly, people from authorities, research institutes, intermediary institutes and from the business sector have been chosen for the interrogations. Receiving a more complete range of standpoints and more bottom-up accounts of the cross-border relations became on this manner possible.

The interviews took mostly place at the location of the organizations though in some cases, due to lack of time or because information was asked only for certain aspects, questions were also discussed on the telephone or sent through e-mail. The personal interviews lasted for about 1, 5 hours. The below list summarizes the details of the interviewed and consulted persons:

#### Bio Base Europe (Ghent-Terneuzen Canal zone)

Organisation	Name	Location
Province of Zeeland	Mr. Martin Wiersma Deputy ; Chairman of Bio Base Europe	Middelburg, Zeeland Province (NL)
ROC Westerscheldt	Mr. Peter van den Kieboom Project manager Bio Base Europe Training Centre	Terneuzen, Zeeland Province (NL)
IMPULS, Economic development agency for Zeeland	Mr. Arie van der Maas Senior Projectmanager	Middelburg, Zeeland Province (NL)
Municipality of Terneuzen	Mr. Ruud van Leest Advisor	Terneuzen, Zeeland Province (NL)
YARA (Sluiskil)	Mr. Jos van Damme Manager External Relations & Communications	Sluiskil, Zeeland Province (NL)
Zeeland Seaports	Mr. Peter Geertse Commercial Manager	Terneuzen, Zeeland Province (NL)
Bio-Energy Valley Ghent/ University of Ghent	Professor Wim Soetaert University of Ghent	Ghent, Flanders (BE)
Projectbureau Canal zone Ghent	Ms. Veerle de Bock Project coordinator	Ghent, Flanders (BE)
Provincial Development Agency (POM) of East Flanders	Ms. Linda Verdonck Project Manager Business Development	Ghent, Flanders (BE)
Port of Ghent	Ms. Sandra de Mey Customer Relations Manager	Ghent, Flanders (BE)
VeGHO, Association of harbor related business entrepreneurs	Mr. Peter Van Severen Director	Ghent, Flanders (BE)
DOW Chemical	Mr. Rob Rutjens Development Manager Valuepark Terneuzen, Dow	Terneuzen, Zeeland Province (NL)
Genencor International	Mr. Frans van Londersele Plant Manager	Brugge, Flanders (BE)
Association of Employers of Canal zone (Dutch side)	Mr. W. Saman, director	Sas van Gent, Province of Zeeland (NL)
Bio Base Europe	Ms. Veronique van Hoorickx Corporate Communications	Ghent, Flanders (BE)

#### BE-BASIC Consortium (The Province of South-Holland, Delft-Rotterdam-The Hague area)

Organisation	Name	Location
Port of Rotterdam	Mr. Pieter van Essen Projectleader Rotterdam Climate Initiative	Rotterdam, Province of South Holland (NL)
Municipality of the Hague	Mr. Ton Overmeire Programme manager	The Hague, Province of South Holland (NL)
Deltalinqs	Mr. Chris Jordan	Rotterdam Province of South Holland (NL)
Municipality of Rotterdam	Mr. A. van Veelen Development Company Rotterdam	Rotterdam Province of South Holland (NL)
Municipality of the Hage	Mr. Hans Spijker Department of Economic affairs	The Hague, Province of South Holland (NL)
InnovatieNetwerk	Dr. ir. J.G. de Wilt	The Hague, Province of South Holland (NL)
Science Port Holland Partner in the Be Basic Consortium	Mr. W. Trommels, director	Delft, Province of South Holland (NL)
Ministry of Agriculture, Nature and Food Quality / Group Bio-based	Ms. I. Mouthaan, programme leader Mr. M. Hamelink	The Hague, Province of South Holland (NL)
Symposium : The Bio-based economy in the Province South-Holland & Be-Basic Consortium	Various regional stakeholders (public sector)	The Hague, Province of South Holland (NL)

The results of the empirical investigation, carried out the above presented methods and techniques, are presented in details in the following chapter.

## 7. The cross-border collaboration in the Ghent-Terneuzen canal zone: Bio Base Europe

In this chapter the cooperation between Ghent and Terneuzen, in the Canal zone, is analysed. The collaboration within the project Bio Base Europe is scrutinized on the base of the empirical findings and literature study. The evaluation is structured according to the main components of cooperative alliances (chapter 4), enriched by the aspects of border theorization (chapter 3). The chapter starts with introducing the regional characteristics in which the transborder cooperation takes place that is followed by the outcomes of the research.

### 7.1. Regional context

Border regionalization is a contextual phenomenon: different regional environments produce different forms, intensity and outcomes of cross-border cooperation. To understand the creation of new transborder spaces and linkages one has to look at the material, economic and socio-cultural surroundings. The empirical research confirms this view as the informants constantly referred to the regional conditions to underline their reasoning. This section provides a contextual outlook on the region and on the Canal zone by shortly introducing some historical aspects, the social-economic background followed by a description on recent Flemish-Dutch development initiatives.

#### Historical relations between Belgium and the Netherlands

The relations between Belgium and the Netherlands can be considered as excellent, certainly in an international comparison. In particular in the period after World War II a strong approach in interaction and economic integration could be observed. The economic union of the Benelux can be seen as the harbinger of the EU: the elimination of border control and the free movement of persons were in the supregion of this intergovernmental economic cooperation in 1960 already accomplished (de Vries et al., 2007; Benelux, 2010).

Figure 7.1.: The regions Zeeland-Flanders and East Flanders and in-between: the border and the canal



Source: Interreg Flanders-The Netherlands, 2010.

However, the relationship between the Netherlands and Belgium till the end of World War II was burdened by tensions and conflicts. Till the interbellum the definition of the territorial borders remained a major source of disagreement. The treaty over the Canal of Moerdijk, the sea access of Antwerp to Hollands Diep, was by the Dutch government not ratified due to a strong Belgian movement for the annexation of Zeeland-Flanders and Netherlands-Limburg. This cold war between the two states was terminated by concluding a bilateral agreement on the canal, the realisation of which both Belgium and the Netherlands economically equally profited (Engelfriet, 2002; de Vries et al., 2007).

The discussion on this canal project illustrates the liaison between the two countries regarding spatial planning and the sentiments of the Belgian/Flemish towards the Dutch. In the history Belgium very often was dependent on the Netherlands in order to secure its international accessibility. From a Belgian perspective the Dutch authorities were often seen as unreliable that solely focused on their own economic interests. Already as of the 16<sup>th</sup> century the Scheldt Estuary has always been the largest issue of political discord (Peeters et al., 2009).

The latest developments around the deepening of the Western Scheldt appear to be a test case for the credibility of the inter-national cooperation. According to the former minister president of Belgium, Leterm: “ *You are neighbours through the geographical location. But you become and remain friends through making and keeping agreements*” (Janssens, 2009). With the development of new infrastructural systems such as highways and rail the one-sided dependency of Belgium has though been replaced by reciprocal connections (de Vries et al., 2007).

### The Canal zone Ghent-Terneuzen

The region on which this study predominantly concentrates is the Canal zone on both sides of the Dutch-Belgian border. The canal spreads from the Belgian (Flemish) city of Ghent to the Dutch city of Terneuzen and flows into the Western Scheldt a few hundred metres away from the Western Scheldt Tunnel (figure 7.2). Since the separation between Belgium and the Netherlands in 1830, the state border runs between (the Belgian/Flemish) Zelzate and (the Dutch) Sas van Gent (Buuron, 2006).

The canal is vital for the harbours of Ghent and Terneuzen as it is the only direct connection with the North Sea. Both Ghent and Terneuzen can be categorized as medium-sized harbours in the Hamburg-le Havre range. Regarding their economic position these harbours are clearly far below the global players such as Rotterdam and Antwerp (Van Severen, 2010; Geertse, 2010).

The natural barrier of the Western Scheldt provides the geographical position of the Dutch region Zeeland-Flanders a unique border character. It emphasizes its natural connection with the Belgian region of Flanders. This apparent spatial linkage is further accentuated by the inland road infrastructure through which the Flemish areas are more accessible than the places towards the North in the Netherlands (Smulders et al., 2009; Municipality of Terneuzen, 2006). Zeeland-Flanders is geographically connected to Belgium although institutionally it is part of the Netherlands (van Houtum, 1998).

**Figure 7.2.: The geographical position of the Ghent-Terneuzen Canal zone in the Scheldt Estuary**



Source: VNSC, 2010.



In the regional development of the Canal zone the border has always played a crucial role. In 1823 the Dutch King William I decided to connect the city of Ghent with the open water through a canal between Ghent and Terneuzen. In 1927 the new connection was in a celebratory manner inaugurated. Two sluices in Terneuzen and one in Sas van Gent were laid down. Shortly after the realization of the canal, Belgium separated itself from the Netherlands (in 1830). This has brought away the dependent status of Ghent for its access to the sea through the canal and the Dutch entry of the sluice in Terneuzen. The accessibility of the Flemish harbours to the sea was though regulated in the declaration of the state separation (Acke, 2002; Peeters et al., 2009).

As of the 1870s several improvements of the canal were conducted at both sides of the border by making it broader and deeper. In the 1950s new rounds of negotiations between the two states led to the Agreement on the Canal Ghent-Terneuzen that resulted in the construction of two new sluices in Terneuzen. The waterway passage was made suitable for larger ships up to 65,000 tons. These developments resulted in a considerable economic growth in the region in the years of 1960 with a relative high level of value added and employment. The arrival of large corporations had a visible impact on the spatial and economic structure of the region. Agricultural activities and nature have been more and more forced back by the industrial expansion (Buuron, 2006).

These processes have defined the actual spatial structure of the Canal zone. Alongside its whole length there are various harbour areas with a great diversity of business and industrial activities where approximately 50,000 people work. According to previous research studies (Kamann et al., 1990; Allaert et al., 1990 in: van Houtum, 1998) the cross-border Canal zone forms an economic ‘*conglomeration unique to border regions*’ (p. 139). The authors enhance the intensive common economic relationship between companies and the strong presence of deliveries, outsourcing, information links among the economic actors in the district.

In the last two decades the Canal zone has received renewed political attention that has led to numerous mutual projects (more details follow later). The maintenance and development of the economic activities are put centrally albeit with the combination of a good living climate (KGT 2008, 2010; Buuron, 2006).

### **Social-economic context in brief**

#### *The region Zeeland-Flanders/ Terneuzen*

The economic development of the region stood for a long time behind the Dutch economy as a whole. The lower growth of the economy, entrepreneurship and employment indicate a rather peripheral position within the national configuration. A stagnating/decreasing level of the regional population, combined with ageing processes, make this ‘backward’ situation even steadier. The low economic position puts a large pressure on the existence and the level of services like health, education and culture (Smulders et al., 2009; van Leest, 2010).

The demographic composition of the region shows a proportionally higher share of older and less-educated inhabitants in comparison to the rest of the Netherlands. Many young citizens, in search of higher education opportunities, leave the region. They head for other Dutch or, to a less extent, to Flemish cities (van Leest, 2010 van der Kieboom, 2010). The regional and local authorities, by putting the stimulation of the economic growth as number one priority, attempt to fence off these negative future processes. The opportunities for economic vitalization seem particularly dire for the region Terneuzen/Zeeland-Flanders. Collaboration with the Ghent region on diverse fields is necessary to grant basic services for the population (Smulders et al., 2009; Municipality of Terneuzen, 2006; van Peeterssen, 2007). In this light it is explicable why the Province of Zeeland considers the cross-border project ‘Borderless Canal Zone’ as a prioritized issue for the whole province (more details in paragraph 7.1.4.; Province of Zeeland, 2007).

#### *The region East-Flanders / Ghent*

Oppositely, the region of Ghent and East-Flanders can be viewed as an economically dynamic and growing area (East-Flanders, 2010). Ghent is a member of the ‘Flemish Diamond’ the economic centre of Belgium in the urban agglomeration Brussel-Ghent-Antwerp-Leuven (Buuron, 2006; De Mey, 2010). In the city and port of Ghent there are huge investments, leaving those in the Dutch border region behind. Large and smaller companies have invested in new production facilities and logistic activities. This is also expressed in the increasing added value and employment possibilities. The future developments of Ghent as an industrial harbour and a logistics intersection are positively estimated (Smulders et al., 2009).

The illustration below (7.3). summarizes the regional context of the Bio Base Europe project, by comparing the most relevant features of the Flemish and Dutch areas.

**Figure 7.3. : Comparing the social-economic contexts in the Canal zone**

Comparison of the regional contexts	
Zeeland - Flanders/ Terneuzen	Ghent region/ East-Flanders
- Low sectoral diversity	- High sectoral diversity
- Few growth pole companies	- Many growth pole companies
- Low investment level	- High investment level
- Increasing participation	- Surplus in jobs
- Strong in shrinking sectors	- Strong in growth sectors
- No university	- University of Ghent
- Strongest aging and reducing number of youngsters in the NL	- Aging, but Ghent binds young people
- No increase of labor force	- Increasing labor force

Source: Smulders, 2009.

### Regional complementarities

In this section attention is given to the key features of interdependencies that are based on the previously outlined socio-economic character of the cross-border area. The development potential and trajectory of Bio Base Europe can be entrenched in the contextual framework for creating cross-border synergies.

#### *The synergy of sectors*

The basis for Flemish-Dutch cooperation is formed by the existing interdependencies and complementarities offered by the geographical regional features. The open water, space, a developed logistics system, the strong presence of the process industry and the agro-industrial activities in the Province of Zeeland can be combined with the high level of technological and knowledge system, the industrial activities and the service economy in the Ghent area. Regional actors do not only see the border as a chance but a must for making use of the mutual character (Province of Zeeland, 2009; Province of East Flanders, 2010; van der Maas, 2010) : “*Making a connection between sectors like energy, agribusiness, food industry, petrochemistry and fishery will deliver a common powerful economic region*” .

#### *Space*

The need for cooperation can be also be explained by the nearly full utilization of the harbour alongside the Flemish side of the canal while the Dutch section still possesses room for spreading out. The Flemish expansion of industrial and maritime activities can only take place in case of an optimal hence common exploitation of the entire Canal zone (Buuron, 2006; van Leest, 2010).

Moreover creating qualitative surroundings for the whole Canal zone will only have results if Flemish and Dutch partners cooperate. Managing industrial and logistics processes in an ecologically and economically sustainable manner requires a coherent joint strategy. Collaboration equips stakeholders with learning possibilities by getting acquainted of each other’s work methods (Wiersma, 2010; van der Maas).

#### *The reliance of Zeeland*

The perspectives from the Dutch region for a narrow cooperation is motivating due to the economic potential that the region “Flemish Diamond” can offer. The peripheral position, seen from a national view, of Terneuzen en Zeeland-Flanders can be transformed into a strategic one by connecting to the economically strong Flemish region.

Often, there is a reference to the negative demographic developments and the low density of inhabitants in Zeeland Flanders. The emerging consequences are mirrored by the difficult situation of the schooling facilities of ROC Westerschelde, which is a provider of professional and higher education in the region Zeeland-Flanders. Due to the lack of sufficient students and financial problems, the education centre is fighting to survive. Exactly the social-economic position

of the region necessitates the maintenance of local education services. In the absence of well-skilled inhabitants enterprises in the chemical industry and the harbor sectors will experience difficulties in finding qualified personnel (van der Kieboom, 2010; Rutjens, 2010). On the longer term this would make them reconsider keeping up their position in Zeeland –Flanders and Zeeland. The interviewees stressed that without the border between Zeeland and Flanders the problem of demographic shrinkage would hardly exist in the region.

The respondents are aware that the whole region has one common hinterland which renders them a significant prospective: *“ We need people here for the industrial sector and they come from Flanders. There they have a relative high unemployment. So we are happy and Ghent is happy in this win-win situation”*. *“The whole region of the Scheldt is actually one labour market”* as respondents put it.

#### *A long dispute: second sea sluice in Terneuzen*

The interdependency between the two city regions alongside the canal is unmistakably illustrated by the dragging issue of the building of a new sluice in Terneuzen. Most respondents spontaneously mentioned this aspect as one of the most important pending issues in the region.

In the Ghent-Terneuzen Canal zone the construction of a second sluice in Terneuzen is a major challenge in the expansion of the economic collaboration. The harbour of Ghent is for the time being connected through one sluice which is relative dated after 40 years of service (Port of Ghent, 2009). Another problematic aspect relates to the limited capacity of the sluice that makes the traffic to Ghent for larger boats impossible. The Flemish policy document on the Network of the Ghent Canal Zone (2009, p. 27) argues that the liveability of the Ghent harbour on the longer term depends on *‘one essential guarantee, namely the choice for an improved nautical access and especially for an additional, bigger sluice in Terneuzen’*.

**Figure 7.4: The entry to the Canal zone from the Western Scheldt: the sluice complex in Terneuzen**



**Source: Scheldt Information Centre, 2010.**

The improvement of the waterway access and its capacity would offer certainty for the big industrial players in the region that would enforce their intentions to retain and further extend their activities in the canal area. Moreover, the second sluice would boost not only cross-border cooperation but would contribute as well to the diversification of the regional

economy. The centre of economic gravity on industrial activities could be to some extent pushed towards the maritime and logistics sectors making the Ghent harbour less vulnerable. The extension would also magnify the chances for the development of the inland navigation (hvbl.be, 2009; Port of Ghent, 2009).

Negotiations on the ‘sluice issue’ between the Flemish and Dutch national governments have not yet resulted in concrete agreements. The Flemish partners were afraid of a negative outcome due to the diplomatic struggle on other politico-economic terrains between Flanders and the Netherlands. At the end of 2009 though a new round of consultation was initiated for sharing the construction costs for a new sluice (Van Severen, 2010). The intention is to realize the new port access by 2015.

Although both the Dutch and the Flemish partners do agree that a new sluice is the solution to enlarge the potential of the region, the main bottleneck is driven by the question ‘who pays and how much?’ (Van Severen, 2010; Port of Ghent, 2009). The respondents gave their perceptions and opinion on the resolution. Paying equal amounts by both countries in the launching phase is a logical measure but with a corrective act since ‘we simply have to define which party will have the most net profit of the extension. After 5-10 years we will look if the Dutch or the Flemish will have gained the most. An adjusted bill should be then issued for the realization charges’. The estimation on the expected benefit varies according to the nationality of the respondents. The Flemish point to their rather limited availability of space to create new business sites while the Dutch canal banks still possess plenty of space: ‘It is very clear by now who will earn money on the longer term’, Flemish interviewees argue. The Dutch respondents see the state of affairs in another dimension by stating that ‘it is not really that much useable space what one thinks and moreover we cannot fully build the zone due to binding agreements with inhabitants and environmental organizations’.

The subject of the new sluice though goes further than this sole topic as it touches upon the general problematic of mobility in the Canal zone. That demands a coordinated accomplishment for the upgrading of the entire infrastructure system (Vegho, 2006; 2010). Solving such ponderous questions will justify the power and the genuine intentions behind the transborder cooperation.

**Figure 7.5. Complementarities of the border region Ghent- Terneuzen**

Complementarities	
Zeeland - Flanders	Ghent
<ul style="list-style-type: none"> <li>- Agricultural component</li> <li>- Access to deep fairway</li> <li>- Partly independent from innovations in Ghent</li> <li>- More space for development</li> </ul>	<ul style="list-style-type: none"> <li>- University of Ghent</li> <li>- More facilitating activities</li> <li>- Ahead in development</li> <li>- Dependency of sluice in Terneuzen</li> </ul>

Source: Smulders, 2009.

### Uniting for a borderless canal zone

Although cooperation seems logical due to the interwoven geography and the historical and economical interdependencies, the border often used to form a major obstacle for the regional authorities. Decision-making in spatial-economic planning requires the involvement of numerous institutional parties from both countries. This and the differing regulative systems makes the character of planning projects is very complex and the procedures slow (Buuron, 2006; van Houtum, 1998; de Vries et al., 2007).

The varying role of the authorities is another complicating factor in the collaboration. Attempts have been made to operate in a network environment in order to realize common objectives. However, the guidance of such operations remains difficult: ‘The future is being made and by many planned but the connection between the plans and what is being carried out remains limited. Many plans that are made become never realized and the issues that are realized have never been planned’. (Teisman, 1997, p. 1 in: Buuron, 2006, p. 1.

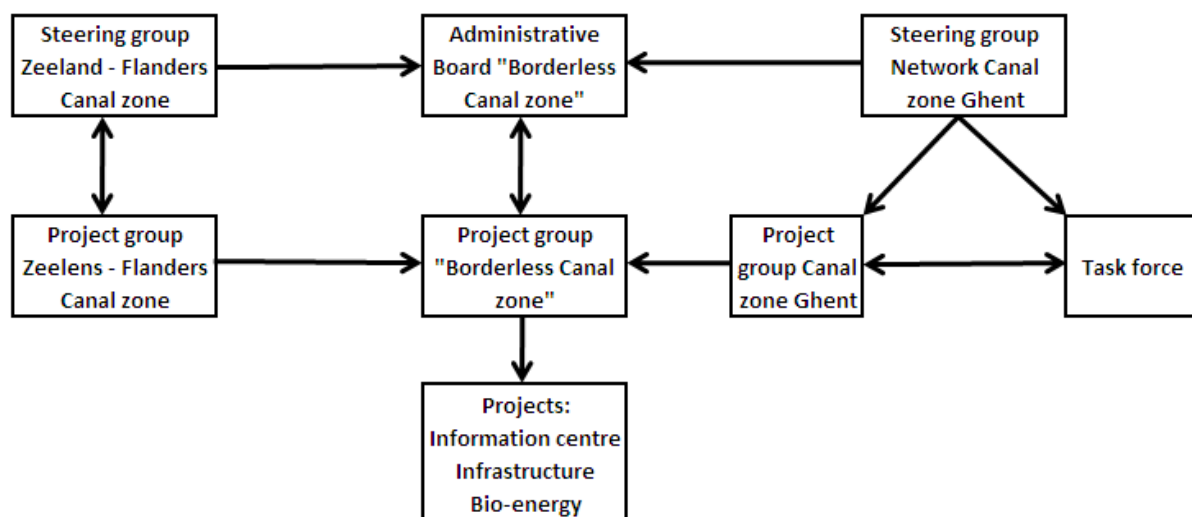
Despite the difficulties, various collaboration activities have evolved between the regional Dutch and Flemish authorities. Institutional partnerships exist within the framework of the Euregio Scheldemond, the Rhein-Scheldt-Delta Co-operative Organization and the Technical Scheldt Commission (Peeters et al., 2009).

Institutional actors from both sides of the border have in 2008 formulated a mutual cross-border vision for the Canal zone. The launching of the project ‘‘Borderless canal zone’’ (VTS-Scheldt, 2010; Province of Zeeland, 2008a&b; Province of East-Flanders, 2010) has been established by Flemish and Dutch regional and municipal authorities, the harbours, research institutes and business organisations. Both partners’ recognition of the numerous potentials in intensifying the existing cross-border economic relations is the driving force behind this joint action. In the view of the founding parties of this large-scale cross-border umbrella programme including as much as possible diverse stakeholders is elementary for success (Province of Zeeland, 2008; figure 7.4.). The general goals and overarching vision are formulated in a mutually set up policy document:

*‘‘The objective of the Provinces East-Flanders and Zeeland is to mutually construct a vision for the Canal Zone Ghent-Terneuzen that should result in conducting a shared cross-border execution plan. This vision focuses on an image of a sustainable spatial, economic and infrastructural cross-border future’’* (Province of Zeeland, 2007, p. 5).

The cooperation scheme covers, for the time being, the implementation of three pilot projects while research is being carried out for possibilities to embark intensive cross-border projects on other areas (EMG, 2009; Province of Zeeland, 2009). The organization creates a platform for various projects and initiatives that should result in strong connection and better cooperation across the state border. The Flemish Governor, André Denys stressed the prospective: *‘‘ Next year we should be able to prove that we have overcome the barriers. Living and working can be coupled and the (common) harbour economy can and should develop as that is the future’’* (Province of Zeeland, 2008, p. 2).

**Figure 7.6. The organisation structure of the Canal zone projects**



Source: Province of Zeeland, 2008, p. 3.

The three initiated cross-border projects within the broad scheme of the Borderless Canal zone refer to 1) a mutually constructed united information centre for the whole Canal zone; 2) the combination and harmonization of the plans for the regional road infrastructure and 3) to the expansion of the cooperation on the field of bio-energy (Project bureau Canal zone Ghent, 2009). The present research concentrates on the latter objective wherein the project of Bio Base Europe has a central role. The cross-border cooperation within this project is evaluated in the rest of the chapter.

## 7.2. The cross-border project: Bio Base Europe

### 7.2.1. Mission and motives

#### Mission

The project Bio Base Europe is the specific collaboration strives for the diffusion of the sustainable bio based economy. It aims to develop a unique platform to advance sustainable bioprocesses. These objectives serve to progress the development of bio-energy and bio-based products from sustainable bio-mass resources and to reduce the dependency of transient fossil resources. Achieving this would induce the regional prosperity:

*“ Bio Base Europe is an important building block for the development of a sustainable bio-based economy in Europe.....and is expected to improve the economic growth, innovation capacity and sustainable development of our society ” (Bio Base Europe, 2010) ”.*

The Bio Base Europe collaboration project seeks to reshape the region into the most important centre for the bio-based economy in Europe. This entails the setting-up of a European top cluster with a global allure and international reputation (Soetaert, 2010; Wiersma, 2010; Het Bedrijf, 2009).

#### Main stakeholders

Bio Base Europe is operated by the cluster organizations Biopark Terneuzen and the Ghent Bio-Energy Valley. Both clusters are made up of various companies although they are not directly involved in the project management. The main stakeholders and coordinators of Bio Base Europe are Zeeland Seaports, the Province of Zeeland, the Municipality of Terneuzen, the City and Port of Ghent and the University of Ghent.

#### *Biopark Terneuzen*

Biopark Terneuzen has been established in 2007 as a “Smart Link” initiative by the province of Zeeland, Zeeland Seaports and industrial participants to develop an agro-industrial sustainable cluster (van Leest, 2010; Wiersma, 2010). Knowledge transfer, economic advantages are realized by facilitating synergies between partner companies within one location. Biopark Terneuzen utilizes a clever way of connection through which by-products and waste streams (industrial outputs) are exchanged and used as raw materials and supplements (industrial input) for application in production processes. The glasshouse horticulture is the central element in the chain. Here takes the coupling and reuse of waste materials among the participating companies (van Damme, 2010; BioPark Terneuzen, 2009). This recycling link results in larger productivity, the conservation of non-sustainable energy resources and the reduction of damaging impacts on the environment (Biopark Terneuzen, 2010; Euregio Scheldemond, 2010).

#### *Ghent Bio-Energy Valley*

The Ghent Bio-Energy Valley concentrates on the expansion of sustainable bio-based economic activities in the Belgian (Flemish) region of Ghent. The establishment is a joint initiative of the Ghent University, The City of Ghent, the Harbour of Ghent, the Development Agency of East-Flanders and industrial companies, being active in the generation, distribution, storage and use of bio energy and bio-based products (Verdonck, 2010; Soetaert, 2010). The Ghent Bio-Energy Valley represents ‘*the next big thing*’ (Het Bedrijf, 2009, p. 16; EMG, 2009), e.g. the bio-based socioeconomic arrangement of the future. The project stimulates collaborative programs, joint initiatives and the creation of synergies between related partners on areas of technological Research and Development, policy formation, logistics, external communication and the promotion towards the general public (Ghent Bio-Energy Valley, 2010).

#### **The core components of Bio Base Europe**

The collaboration project is made up of two components: a pilot installation and a training centre. The project participants see the linking of these two complementary facets as compulsory building blocks for the regional bio-based transition (van der Kieboom, 2010; Rutjens, 2010).

#### *The Pilot Plant in Ghent*

The establishment of a Pilot Plant will enable to carry out technological experiments for bio-based products and processes. As has been outlined in chapter 2 there is a huge need for this type of pilot installation for developing new generations of industrial biotechnology. ‘*With the pilot plant we intend to create new possibilities for our industry that needs new and ambitious green projects*’ argues Prof. Wim Soetaert (University of Ghent), the initiator and motor behind the project (Interreg Vlaanderen-Nederland, 2009).

The pilot facility is located in the Ghent harbour area, in the immediate neighbourhood of the bio refinery complex and will house the whole chain from green renewable resources to bio fuels at a single site (Soetaert, 2010; Van Severen, 2010). The purpose of the pilot facility is to offer the possibility for companies and knowledge institutes to conduct tests on a broad variety of bio-based processes and to optimize and scale them up to a (semi)industrial level. It will be an important service facility by filling the ‘hole in the innovation chain’ (figure 2.3, chapter 2) and by building a bridge between laboratory and industry. Once a process is developed on pilot scale, the technology is ready for industrialisation and valorisation (Ghent Bio-Energy Valley, 2010; EMG, 2009; Zeeland Seaports, 2008).

The pilot plant is expected to be ready in the early autumn of 2010 and will operate as an open-innovation model being accessible for companies throughout all sectors from all over Europe and the world (Soetaert, 2010).

### *The Training Centre in Terneuzen*

The other element concerns the foundation of a training centre for the bio-based economy in Terneuzen (van der Kieboom, 2010). The objective of the Bio Base Europe Training Centre is ‘to become a leading institute in Europe on the terrain of knowledge, education and information in the domain of the bio-based industry and economy’ (Bio Base Europe Training Centre, 2010, p. 3).

The Bio Base Europe Training Centre, opening in begin of 2011, will train and educate process operators and technical maintenance specialists for the bio based economic system and for other types of sustainable industrial activities (sun and wind energy). The trainings are aimed at educating youngsters as well as people to retrain or to provide them with supplementary profession skills (van der Kieboom, 2010). The education services of the training centre should alleviate the (regional) problem of shortage in qualified personnel. The target group of the training centre can be specified as follows (Bio Base Europe Training Centre, 2010):

- Companies wanting to provide additional skills for their employees;
- Organisations that educate people for the bio-based sector;
- Students in de secondary and high-level of education in the Netherlands and Flanders who wish to add a specialisation on top of their regular schooling;
- Schools aiming to complement their regular education trajectories with specialization in the bio-based processes;
- Universities with an ambition to develop colleges within this sector

The central facility will also accommodate a network and information service to inform the business sector about the bio-based economy. The organization of congresses and seminars will encourage sustainable entrepreneurship in the region (Bio Base Europe, 2010; Province of Zeeland, 2008a; 2009). These actions will be expanded by the promotion and the knowledge transfer towards the society about the processes and consequences of biotechnology and the bio-based economy. The communication activities will focus on a broad segment of the society such as citizens, students, entrepreneurs, investors, federations, politicians and civil servants. These activities contribute to bring about an alteration in the mindset, being a major condition for mobilising action on all terrains to create a ‘green’ economy (chapter 2).

### **The driving forces**

After having introduced the basic features and mission of the project more details are given on the motives that became visible during the interviews. The versatile mixture of the driving forces of the cooperation is straightforwardly recognizable from the formulated ambitions. The main focus is given on the theoretical motives for cross-border cooperation (chapter 3) and the rationale and prerequisites – sense of urgency, interdependency and shared goals - for forming cooperation at all.

### *The end of oil and gas .....and of prosperity?: sense of urgency*

The respondents show a strong awareness on the problems in the (near) future due to climate change and to running out of fossil-based resources. The awareness of gathering problems due to these issues, as described in chapter 2, is gaining momentum in the Canal zone.

In the eyes of the asked organizations, governments and regional developers this concerns a rather threatening outlook for the economic performance of the region and evidently of the entire global economic system. As one respondent put it: ‘Without fuel and resources no energy will be created. Without energy all stands still. Lack of economic activities will lead to serious economic and welfare drawbacks for our societies’. The respondents from both countries display a huge consciousness on this future warning that make them unite with their Dutch or Flemish neighbors: ‘The message is the same for both sides of the border. We have a mutual enemy that does not stop at the border and we have to act now. If we join in the fight we are stronger’. The sense of urgency, a major foundation to enter and maintain a cooperation (chapter 4), is perceptible among the participants’ motive.

Chapter three demonstrated how the border as a contact zone and an economic chance form the major principles in collaborative aspirations. This exemplifies the Flemish-Dutch project. Bio Base Europe does not only want to be a

significant step towards the bio-based economy due to ecological necessities. The initiative-takers also see it as an essential instrument for the Flemish and Dutch industry to ‘*stay ahead of the game in Europe and the world*’ (Interreg Vlaanderen-Nederland, 2009).

In the region of Ghent-Terneuzen, where industrial output is responsible for an essential part of the regional revenues, the dilemma of securing the source of supply plays a key role in the anticipative orientation towards the bio-based economy (Saman, 2010; Wiersma, 2010). The responses confirm the outlook on the role of this novel production system as written in chapter two: the bio-based alternative will be the big item of the future and one of the most important solutions towards industrial sustainability.

Furthering regional progression, the creation of job opportunities and welfare are explicit targets of Zeeland Seaports. Peter Geertse (2010) commercial director at Zeeland Seaports accentuates the strong focus of the port on the societal interests in the region. The Bio Base Europe project is an important tool in acquiring a strong and sustainable perspective for the inhabitants.

#### *Adding up complementarities*

The existing economic attributes and scientific activities (described above) in the Canal zone are imperatives for the regional actors to switch into the bio-based trajectory.

A recent report titled as ‘Bio as basis’ (Province of Zeeland/Buck Consultants International, 2010) sees the bio-based economy as the future for Zeeland. The results define various themes, making up the regional profile to become a leader in establishing an industrial system with minimal long-term effect on the environment. Additional regional finances support the bio-based economy that should be realized through chain integration. Here, diverse economic sectors and technological processes (Wiersma, 2010; van der Kieboom, 2010) are combined in the frame of collaboration. The large share of the glasshouse horticulture and agrarian activities in Zeeland, the harbor activities and the strong presence industrial companies with a significant CO<sub>2</sub> emission alongside the whole Canal zone combined with the biotechnological progression at the University of Ghent are palpable push factors to move together into this direction. This is a good illustration of the recognition and exploitation of cross-border complementarities (chapter 3) with the purpose to reach more power in unity through diversity.

In the partners’ hope Bio Base Europe will take care of strengthening the harbours in Ghent and Terneuzen leading to the significant rise in their total regional returns. This shows that actors in the project are conscious of their individual as well as of the mutual (gains for the whole region) benefits that can be expected from the collaboration. The notions of mutual dependency and reciprocity are important here as they are preconditions for starting up collaboration (chapter 4).

#### *Innovāre Necessē Est*

As mentioned in chapter 3, border regions in academic and political discourses were pushed towards the creation of innovation spaces in order to secure their long-term competitive strength in the global economy. The Bio Base Europe project underlines these trends. The diverse local stakeholders regard their bio-based cooperation as the most suitable way for a ‘*sunny tomorrow*’. Founding an innovation-related alliance is underlined by the respondents by referring to business opportunities that enable the region to be among the firsts on the bio-based market. Technological and organizational innovation is absolute a must, according to the participants, as a means to create an international profile and reputation, formulated among the objectives.

Creating an innovation-driven strategic partnership is also the answer for the threatening future. For the creation of ‘green’ production modes technological and industrial novelty is at the heart of Bio Base Europe. With this, the partners seek to give a strong impulse in the innovation dynamic of the bio-based cluster in the Canal zone.

The project won the prestigious award Sail of Papenburg ‘*for successful cross-border cooperation as a regional solution for challenges of the climate change*’ (Soetaert, 2010; De Mey, 2010). However, the received award is rather to be considered as an encouragement for the innovate nature of the partnership than its evaluation. Its durability and success are yet to be proved in the coming years.

Respondents also experience the growing awareness in the regional business sector of the uncertainty on resources and of the necessity of action. In their view, a few years ago corporations functioned purely for themselves although now they gradually begin to cluster for the sake of finding an innovative answer for sustainable energy sources. By making use of the pilot installation, companies in the region will be able to enlarge the efficiency and profitability of their industrial processes.

#### *The pressures of globalization*



Globalization trends are key purposes for the project partners and regional stakeholders for wanting to improve their competitiveness and the strong economic and innovative character of the region in the global hierarchy. The interviewees regularly mentioned the emerging economic zones in Asia or South America which are swiftly progressing on establishing sustainable economies. Also, the enormous lead of the US in this terrain, their vast budget for R&D activities as well as their geographical attributes for producing biomasses is a recurrently heard concern during the conversations. *‘‘You can call this rapidly raising competition from other continents a risk and danger but I rather see it as a stimulant to wake us up’’*, said a chief executive at the Province of Zeeland.

In the eyes of most partners the cooperation across the border creates economies of scale by enlarging the market potential in an extended territory. By doing this, better services are created and enlarged competitive power of the entire Canal zone that make it attractive for investors and (new) inhabitants. A large-scale functional regionalization enables the Flemish-Dutch strategic coalition to reinforce themselves against other powerful players in the broad region: *‘‘Zeeland Seaports would rather see new companies in Ghent than in Antwerp and we will support Ghent therein’’*.

A better rank in the European and global logistic flows can also be achieved by the unification of the qualities of both regions. The two harbours together could a significant player within the Le Havre-Hamburg hierarchy of seaports. Both the Flemish and Dutch respondents wish to establish a strong spatial-economic strategy in relation to the vicinity of the seaports of Rotterdam and Antwerp. This suggests a valuable perspective for the region in linking up with the global flows and new markets. During the interviews frequent references were made to the planned expansion of the Seine-Scheldt waterway connection that will expand the inland navigation route between Terneuzen and Paris. The project collaborators are enthusiast about the realization of this water highway as it will further improve the logistic and maritime position of the Canal zone. The increased accessibility of huge potential markets in the Southern part of Europe offer new economic impulses too (Van Severen, 2010; Inland Navigation, 2004). As a result, the joining of the Ghent-Terneuzen bio-based clusters would in the future connect the Canal zone Ghent-Terneuzen with the North-European economic sphere in the related sectors since it could function as the entry port for biomasses for whole Europe (Euregio Scheldemond, 2010).

#### *INTERREG and public subsidies: a prime agency to act*

Bio Base Europe is a common public investment in innovation, education and marketing. The Bio Base Europe project as the first in its sort is a large project within the frame of the Flemish-Dutch interregional cooperation programme (Province of Zeeland, 2009; 2010; Geerste, 2010; De Mey, 2010). Up till now some 22 million euro's have been invested in the project that was brought up by the INTERREG programme of the European Union as well as by the Flemish and Dutch participating public organizations.

The possibility of the INTERREG subsidy for supporting cross-border projects was mentioned by the informants as a vital rationale behind establishing this particular project. Often they pointed to its extent as *‘‘the largest subsidy ever given to a Dutch-Flemish border region since the start of the Flanders-Netherlands interregional programme’’*.

Setting up a strategic alliance to transform threat into common economic development could have not occurred without this level of public subsidization. As has been explained in chapter two, constructing the bio-based economic system takes place in a more or less forced paradigm change. This brings away an extreme innovation pressure to find applicable technologies in a due time. This and the complexity, uncertainty and the expensive nature of the emerging bio-based chain require the intervention and financial support of public bodies. The absence of private investments at this moment does not enable to kick-start projects like Bio Base Europe.

Figure 7.7. shows the position of the bio-based initiative in the layered levels of euroregional and (inter)national arena and the type of tasks and contribution of the diverse partakers. The sense of urgency is evidenced by the speedy action of the cooperating regional partners for the start-up since *‘‘within a half year the INTERREG subsidy has been arranged for the foundation’’*.

**Figure 7.7: Layers of (inter)national cooperation around the bio-based economy in the Canal zone**



**Source: Buck Consultants International, 2009. p.13. (own translation from Dutch)**

*Repositioning .....*

The reorientation of the Dutch Zeeland-Flanders is a high economic necessity: *“ We need the South. Without Flanders we are and we will remain a miserable region ”*. Repositioning seems vital to the regional actors and in particular in Zeeland. Illustrative to the affective nature of the mental boundary (chapter 3) is a Dutch comment referring to their opportunistic behavior by *“ joining up with foreigners instead of our own national partners only ”* but the geographical and social-economic position of Zeeland compel them for this course. As shown in chapter 3 the border position produces alternative routes and economic assets for this Dutch region. Outspoken ambitions of the authorities and in particular in the region of Zeeland-Flanders are concerned with creating more employment and services to encounter the upcoming negative demographic processes by retaining (young) inhabitants in the region.

At the same time, seeking partners from other geographical entities is part of the regional strategy of seeking new positions. Beyond reinforcing ties with Flanders, the strategy also endeavours to close a more narrow partnership with the Province of West-Brabant for a supraregional approach. Sending business delegations to China is as well part of the expansion tactics of the region.

*....and breaking through the marginalization*

The feeling of redirection is reinforced by the perceived ignorance of the Dutch political centre towards areas in Zeeland. Although border areas have been turned to newly central places and celebrated as economic assets in the integrating territory of Europe the Dutch participants have a different experience on that. Zeeland and especially Zeeland-Flanders have always been pushed into the virtual periphery by political centre in The Hage and the Randstad (the economic core of the Netherlands). This issue has been delineated in chapter 3 and the perceptions of the respondents indicate that the status of outpost still is persevered. The lack of attention that *“ we are simply forgotten by the central government ”* and that *“ the political power centre does not know anything about the Canal zone and its industrial importance ”* still represent the attitudes of the political elite towards this region. Also the Flemish sight on the position of the Dutch part of the Canal zone confirms it as a remote corner. *“ This Dutch region has not too much, it is a real periphery. What do they have*

*there?? Not too many museums, no university and what is even worse they clamp to this old-fashioned idea on the green-blue oasis for elderly tourists. No wonder that young people are leaving.*''

Notwithstanding, the respondents enhance that inhabitants of Zeeland do not feel themselves at all on the outlying fringes of the country. The regional stakeholders vehemently stress the extraordinary location of the region as *''being a centrally located place in West- Europe where the northern and southern markets are equally easily accessible''*. The previously mentioned large-scale waterway connection in North-West Europe intensifies these aspirations.

Referring to Krätke's model (figure 3.4.) the pro-active policy of Zeeland and Zeeland-Flanders maneuvers to avoid the position of defenselessness in which the region is left out from movements and development on other spatial scales. The past experiences of region of Zeeland-Flanders are often about being trapped in the force field of large players who habitually could not get along too well (van Leest, 2010).

Geographical reorientation and mental adjustment support to break through the wall of marginalization. As one respondents put it *'' we should not let ourselves scare off and chase away by more powerful areas. We really have to break out of the paradox of Zeeland by thinking more grandiosely and outside the provincial borders''* (van der Kieboom, 2010). Instead of being too shy and modest, characterizing the Zeeland people, they should to come up for themselves, be assertive and show their values as Zeeland is *''an unbelievable good basis for life and the economy''*. *''We are not that arrogant as people from the Randstad, we do not have a big mouth. Hiding ourselves is our problem. We have to change our mentality and learn to behave like a chicken instead of a duck''*.

Interestingly albeit not completely surprisingly the actors of the Flemish region has not displayed such an anxiety of getting peripherized. Chapter 3 mentioned that the interest in collaboration or its drivers are not in each case equal on the various sides of the border. Differing economic positions, as in the Canal zone, often form a cause. This can be explained by the strong economic position of the area though extensive clarification can only be justified by a separate research on the subject.

#### *Raising political influence*

The majority of the respondents highlight the additional value of a cross-border cooperation project and a common strategy for providing more power and influence towards the (inter)national centres in The Hague and Brussels. The staging of the report *''Bio als basis''* took place in The Hage where it was officially handed over to the Minister of Agriculture, Nature and Food Quality. Representative of the Province of Zeeland, Mr. Wiersma (2010): *'' We would like to receive support from The Hague. We have asked the national policymakers to support the bio-based initiatives in Zeeland and Southwest-Netherlands''*.

#### *Re-knotting old historical ties*

The meetings illuminate the seemingly unimportant *''historical togetherness''* of the Canal zone. Drawing the border in 1830 established two different countries, societies and habits in the region. The inhabitants lived and experienced the history of the place together albeit on various sides of the state boundary. Most interviewees referred to the *''one natural area and one economic zone''* that makes collaboration obvious. *''Since 1830 everything went wrong here and we have grown apart from each other''* is another argument rooted in history. As it turned out from the interrogations cooperation between Dutch and Flemish business and public partners still take place rather sporadic. Networks are still oriented into the own interior and much less in a border transcending manner. The participants admit that it should occur much more often and in a systemic manner. The bio-based cooperation, according to most opinions, has the additional value of providing a nice opportunity to approach each other and *''to try to make things right again''*.

### **7.2.2. Shared goals: from short-term to long-term targets**

The previously detailed general assignment will be developed in a stepwise manner by allocating goals to achieve in various terms. The big scenario's of *'' becoming the largest bio-cluster in Europe''* and *''accelerating the transition towards a bio-based production system''* are distributed in clearly defined trajectories. As commented in chapter 4 this is beneficial for(cross-border) cooperation. Well-defined goals have a larger chance to succeed above formulating giant ambitions that at the end lead to nothing. In the below figure (7.8) an overview is given on the short to long-term strategic approaches in the Bio Base Europe collaboration.

**Figure 7.8.: From immediate to long-term rationales behind Bio Base Europe**

Short-term	Mid-term	Mid/long term	Long-term
Making facilities ready (Pilot plant + Training centre)	Exploitation of the facilities in a commercial viable manner (self-sufficiency)	Retaining existing companies in the region	The transition to the bio-based economy
Start to build up promotion and branding	Guiding companies in the bio-based switch	Attracting new companies (investments) into the region	The largest bio-based hub in Europe (assisting Europe to switch into the bio-based system)
		Guiding companies in the bio-based switch	Maturity of 2nd generation biotechnology
		Maturity of 2nd generation biotechnology	Creating high-value biotechnological products

*Begin phase: short-term aims*

This is the stage in which the Bio Base Europe project is at present situated. This specific Interreg project is the first step of the transition towards the bio-based industrial system. The short-term goals refer to explicit issues, such as the construction of both facilities in Ghent (Pilot Plant) and in Terneuzen (Training centre). The received public subsidies cover the costs for the materialization of these goals in this stage. For the time being huge efforts are being done to finalize the realization of the complete infrastructure for the wished dates (Soetaert, 2010; van der Kieboom, 2010).

Moreover, the respondents stress the importance of creating a strong international image in the bio-based domain the organization of which has already been started (Van Hoorickx, 2010). However this is not only an explicit short-term promotional objective within the confines of place/cluster marketing and branding. It involves a gradually evolving activity during the whole trajectory that is necessarily connected to the performance and results of Bio Base Europe and of the bio-based region in its entirety.

*Crucial mid-term aspect of the project: economic viability*

The mid-term activities of the project involve the successful exploitation of the developed facilities that offer them economical viability without leaning on subsidization (Wiersma, 2010; Verdonck, 2010). ‘*Within 3 years we want to run the business independently, free of public support*’. Respondents explained that the two projects should be self-sufficient in order to succeed and to switch to the ambitions of a higher level. The biggest challenge is to avoid being enslaved to subsidization.

This requires the creation of a strong economic base of the two facilities as well as of the whole bio-based model. The Pilot Plan as well as the Training Centre need sufficient number of clients like companies, research institutes and other organizations in order to be able to run the activities after finishing the Interreg funds. ‘*We have received money to buy a car but we have to take care that the fuel for it is being earned*’ (Soetaert, 2010; van der Maas, 2010). Interviewees expressed their worry on the danger of failure due to the restricted amount of financial support. They would have rather preferred that a first phase of the operation is backed by public funds in order to set the business in motion into the next, functioning phase.

This plainly features the uncertain nature of this type of innovation project. As outlined in chapter two, the development of the bio-based economy is strongly dependent on and hindered by a number of factors. As a result of the required large investments, coupled with uncertainties and risks, the private sector is not yet committing itself financially in this up-and-coming innovation field. However, this interregional project and its future objectives will not prove to be sustainable without the genuine dedication of the trade and industry.

*Mid- and long term strategies: new investments into the bio-based expansion and the region*

By providing a complete service in the bio-based transformation, the retention of the existing companies in the region is a frequently mentioned factor for succeeding the bio-based project. The role of the Bio Base Europe project is seen in providing guidance for the regional enterprises for the bio-based transition. ‘*Making use of the two facilities will enable companies to experiment, to get their employees ready to adjust to the new configuration*’. The informants underline that companies need a feeling of continuity in order to secure their regional settlement and to make here new investments. The

new opportunities and services in the bio-based economy, together with the improvements of the infrastructure and living climate of the whole Canal zone, will create a smart location for companies and their employees, according to the comments.

Due to differing opinions regarding (new) businesses a somewhat diluted picture has come to the front. On the one hand there is the view that the bio-based initiatives should mostly concentrate on attracting new companies to the region who are ‘*involved in this branch of business*’. ‘*Naturally we expect that when they come here to use the services they will see the giant potentials of our region. This will stimulate them to bring their economic activities to us*’ (Geertse, 2010). The existing companies, especially in the harbor of Ghent and with the exception of 4-5 related organizations, are not truly interested in these developments for the time being – according to some respondents. In addition, it seems that the majority of corporate business in the harbour area does not even know about the bio-based project ‘*due to inadequate communication*’.

The interviews also show though that there is a strong belief that keeping the existing businesses should be the main focus of the project: ‘*for us the most important is to strengthen the faith of the present business sector in the region and to involve them into the bio-based changeover. After all, this general makeover will impact all enterprises*’.

The true long-term ambitions of the project are formulated by the partners as a general mission. This is the large scenario to install the bio-based economic structure in all sectors in the region but ‘*we are talking about 10-15-20 years later*’. The early move of the participants and the gradual way of building up their strategies should lead to the ‘*united*’ Flemish-Dutch region that will turn into the leading bio-based core in Europe. The actors’ expectations enhance that this multinational cross-border region could be the helping instrument to translate the bio-based economy for the rest of Europe.

Other commonly referred factors for bringing the project to success included the maturity of the 2<sup>nd</sup> generation biotechnology and the fabrication of high-value products based on bio-masses. Attachment 2 contains the major threats and hindrances for the bio-based progression that were most frequently mentioned during the interviews.

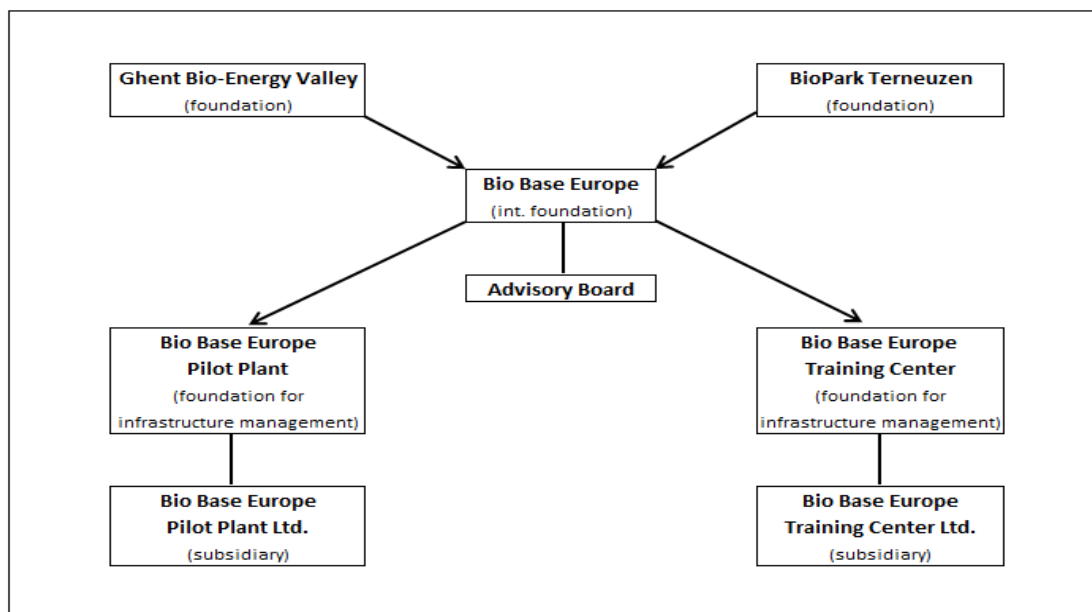
### **7.2.3. The phase, form and organizational set-up of the Bio Base Europe organization**

In the categorization of phases of cross-border collaboration (chapter 3, paragraph 3.4.3) Bio Base Europe fits into the third section. The project illustrates how actions, initiatives and ideas have been turned to mutual production, albeit in is still in an initial phase.

According to Colomb’s classification (figure 3.3, chapter 3) the project fits into the form of transnational regional cooperation in that it is based on an emerging cross-border functional region. The spatial proximity of the partners Ghent Bio-Energy Valley and Biopark Terneuzen make a localized transborder cluster of enterprises possible.

The organisation chart of the Bio Base Europe project is depicted in figure 7.9. The Internationale vzw Bio Base Europe (non-profit association) is the main applicant of the Interreg project and is the umbrella and coordinating organisation in which the most important strategic decisions are taken. In this organ an equal number of Dutch and Flemish partners from public organizations represent both sides of the Canal. The equivalency of participants is an important aspect in this establishment for securing the balance between the international parties.

**Figure 7.9: The organisation structure of Bio Base Europe**



**Source: Zeeland Seaports, 2008. (own translation from Dutch)**

The joint organization Internationale has two main integral components which are allocated to serve the two target areas: research (pilot plant in Ghent) and education (training centre in Terneuzen). They function as non-profit foundations, possess separate business plans and are responsible to build and maintain the facilities. These two establishments, in alignment with the founding two clusters, stimulate the bio-based economy in their ‘own’ part of the canal. They unite their power regarding the Pilot Plant and Training Centre though predominantly focusing on their particular product and region (Bio Base Europe, 2010; van der Kieboom, 2010; Geertse, 2010).

Strictly taken, the two subsidiaries of Bio Base Europe the Pilot Plant and Bio Base Europe Training Centre do not form part of the Interreg project. Still, they are important structures for the exploitation strategy and continuity after the Interreg period. These commercially-oriented teams will actively conduct acquisition by generating projects and assignments from the business sector as well as from education and research institutes (De Mey, 2010; van der Kieboom, 2010; Soetaert, 2010).

The advisory council has the role to foster interaction among all stakeholders within the bio-based economy and to improve the activities by synchronizing the requirements. It also aims advance the involvement of extern parties in the project and to promote the offered facilities (Zeeland Seaports, 2008; Bio Base Europe, 2010; van der Kieboom, 2010).

This specific organization structure has been chosen to make the arrangements around the set-up less complicated. First of all, due to the significant differences in the Dutch and Belgian legal system the bilateral establishment of a multinational organization would put ‘*unbelievable complex requirements and arrangement on us*’. Because the ‘*border is as a piece of concrete*’, creating huge institutional difficulties, the partners preferred the construction of two clearly demarcated organisations under a joined umbrella organization. Otherwise, ‘*we would by now still be busy with the start-up preparations and would have become absolutely crazy*’.

Secondly, the separated functioning of the ‘Flemish’ Pilot Plant and the ‘Dutch’ training centre is practical. The domain of scientific research significantly differs from that of education and as Professor Soetaert from the University of Ghent formulates ‘*I would not really know how to manage things in that other area*’. Subsequently, the two various products cover various market segments, programme requirements and acquisition strategies.

The independent operation of the two facilities can also be coupled with the potential outcomes of the project. The participants are at present very enthusiast and optimistic about the prospects of Bio Base Europe. Notwithstanding, in case ‘*one of us would unexpectedly bring it to a standstill the other half will keep going on with the activities. Failure from one side would be very pity but one of us should keep the bio-based business and this project going on*’. The creatively applied operational scheme would make such a process transformation in the business possible and manageable.

The internal politics, the political and administrative structure of Belgium has had to a certain extent some influence on the attitudes on structuring the cooperation in Bio Base Europe. The two major components separated alongside national lines and by the difference of products provide a sense of independency. Having bad experiences with the region Wallonia (*“one part of the country earns the money and the other part spends it”*) sharing responsibilities and clearly defining the tasks is important for the Flemish. *“It is not about not having trust in the other, but each part should be responsible and accountable for his own business”*.

Sharing competencies and responsibilities on an equal manner in the Bio Base Europe project enforces the satisfaction and acceptance of the parties. This enhances the partners’ feeling of needing each other for achieving the mutual goals. This and the natural division of activities along national lines make the allocation of competencies and means in this cross-border organization more manageable.

At the same time such a pragmatic stance has its disadvantages. It can encourage opportunistic behaviour and can on the longer term damage trust and lead to collaboration tensions. Having a mind-set in the initial phase such as *“if they fail we keep unconcerned going on with our own business”* weakens the feeling of interdependency for reaching the mutual objectives. As referred in the theory on networks the lack of (a perceived) mutual dependency often makes the cooperation instable that leads to failure.

#### **7.2.4. Building up common strategies**

The former section introduced the main motives and targets to reach within the Bio Base Europe project. In this part more attention is given to the strategies of the project. Strategies manifest how the targets should be reached but they are also the materialized translation of the stakeholders’ perceptions (chapter 4). Regarding Bio Base Europe, the main subjects refer to the creation of synergies, the mutual promotion of the project and the region as well as to the implications of rivalry.

#### **Completing bio-based services: synergies**

In order to help the transition to a renewable-based economy sharing the capacities and capabilities is determinant for entering into the partnership: *“Europe, Belgium and the Netherlands have united their forces to establish Bio Base Europe within the framework of an ambitious Interreg project”* (Bio Base Europe, 2010). The Bio Base Europe cooperation, as outlined in figure 3.5. in chapter 3, can be characterized as an organization that intends to jointly produce and implement a transnational strategy by pooling expertise, resources and knowledge. This involves the ambitions to address issues of transnational importance through a medium- to long term strategy and in new forms of networks.

Establishing synergies is the strategic approach making optimal use of each other’s social-economic traits and complementarities (sketched previously in this chapter). This is essential, as per the partners, in order *“to make a real European breakthrough arising from this region”*. The perceptions of the stakeholders strongly indicate the recognized complementarities emerging from the existing bio-based initiatives of both areas. In consistence with the responses the unification of the separate bio-related processes was an obvious step towards a surplus value for partners on both sides of the border. The creation, combination and exchange of resources form therefore the basis of the project. This resource-relationship was frequently expressed as *“we perfectly complement each other”*.

The perceived surplus value of the collaboration hides in the acknowledgment that a joined Canal zone and the related regions are more competitive together than separately. Due to the canal between Ghent-Terneuzen being one natural economic and logistics whole *“it is evident for all to work together on the betterment of the region and our future”*. Furthermore *“knowing well each other and our own Canal zone”* has contributed to welding a committed partnership. A feeling of common destiny and *“being in the same boat”* have enlarged the sense of mutual dependency and the willingness to collaborate. Frequently was the argument heard that *“if it is good for Ghent, it is good for Terneuzen either”*. The advantages of Lundquist cross-border innovation geography (chapter 3) in the dimension of proximity are illustrated: the functional distance (being a contiguous area) and the relative socio-cultural nearness (sharing history) are helpful and motivating traits in establishing a border- transcending innovation space.

Creating synergy by border asymmetries gives rise to a vast potential in the emerging bio-based chain. The functional (cognitive) distance (chapter 3) between the Flemish and Dutch regions appears to be no hindrance for Bio Base Europe. The complementary features of technological research and bio-based education for skilled bio-based personnel of the future produce an efficient combination for the requirements in the course of this systemic adjustment.

Nonetheless it is widely acknowledged by the participants that the “Dutch” part of the project and region Zeeland-Flanders/Zeeland primarily depends on the outcomes of biotechnological exploration of the University of Ghent. Without evolving the needed scientific-industrial methods neither the project nor the bio-based program can be provided with stability.

## **Mutual promotion of the bio-based region**

### ***The borderless promotion of the Canal zone***

Before attention is given to the specific communication facets of Bio Base Europe, this section gives some insights into the intentions of the local authorities regarding the branding of the Canal zone in a more general sense.

The zone is by the developers characterized by a number of traits like being an economic core area, a settlement location for innovative industries, a transport axe, and a region with touristy and ecological values. At the same time, this is also a region with a stagnating demography and which is associated with a place where living, industry and liveability do not always match.

The policy of the Dutch Province of Zeeland stresses the mutual promotion of the whole border area by conducting a focused region and cluster marketing that goes beyond the bio-based cooperation. Working together across the border has the advantage of a more intense and international promotion of the region. (Province of Zeeland, 2007; Van Peterssen, 2007). In this concept the whole Canal zone ‘*will be placed to the market as a total product*’ promoting an economic core together a comfortable, green living area (Province of Zeeland, 2009; Wiersma, 2010).

However, the interviews specify that most respondents are annoyed by the paradox of the provincial policy with respect to the place branding and image creation. It is by the respondents related to the vague idea and fluctuations of policymakers on deciding which image the region should emanate. The ‘*old-fashioned*’ concept of the green-blue oasis signify recreation, space, tourism towards ‘*old German retirees*’. This certainly does not help to communicate about and promote this ‘*dynamic economic and industrial area*’. ‘*It is no wonder that young people are leaving from this Dutch far corner. The green-blue oasis tells nothing about their future*’, added a Flemish respondent.

The majority of the informants find that clamping to this design is hindering for the support of the industrial-economic feature of the place and particularly the bio-based initiatives.. This view from the project partners as well as from the business sector is comprehensible since ‘*without a strong industry there is no bio-based economy*’.

Linking the Dutch part of the Canal zone (region Zeeland-Flanders) to the Flemish city triangle (Antwerp, Brussel and Ghent) and in particular to the City of Ghent seem for the Dutch stakeholders an exceptional opportunity of place marketing. This supports to better position and soar the reputation of their ‘*own*’ area.

However, this is less evident in the practice as it seems. The organization of the Dutch employers in the Canal zone advertises the whole region as an attractive area with harmonizing characteristics. They want to make people enthusiast to move to the Canal zone for working and living. Pointing to the ‘*other*’ part of the Canal zone is an element in the promotion: ‘*For those who wants to live in a real cultural city, Antwerp, Ghent or Brugge are excellent alternatives to Dutch cities*’. Despite this ostensibly pleasant-sounding cross-border marketing a respondent expresses: ‘*I really do not like the idea of promoting a foreign country but we have to do it for our own interest. We should transform it to our benefit*’. This is a clear manifestation for how affective borders in the heads persist as outlined in chapter 3. Despite the physical and economical closeness the territory just behind state border remains a foreign land belonging to strangers.

### ***Promoting Bio Base Europe***

#### *Creating awareness, forming the attitudes*

The novelty and unfamiliarity of the technological aspects of the bio-based system as well as the sense of urgency to bring away a changed mindset for economic-industrial sustainability strongly require its large-scale promotion (chapter 2).

The widespread promotion of the bio-based economy is an elementary task in the communication strategy of Bio Base Europe. Bringing the message about the necessity for significantly reducing the dependency on fossil-based resources and the modes for the accomplishment gets a central place. Spreading and sharing knowledge on most recent bio-based developments are important intentions of the communication team. This should create awareness and a broad base from the society, the business and public sector for their commitment for the transition (Van Hoorickx, 2010).

#### *One profile of the Bio-based Valley*

The communications activities of Bio Base Europe have are the target to make one profile for the two regions. The aim is to ‘*put the whole bio-based region on the map of Europe*’ in order the bio-cluster attracts attention and investments. ‘*You can compare it with the reputation of the Silicon Valley but then it is our bio-based version here in the Canal zone*’.

The ambitions of the marketing goals are to brand the border region in- and outside the Canal zone by referring to the complex services by the Pilot Plant and the Training Centre. ‘*These are complementary products and the united region offers two separate goods. This also shows that the Bio Base Europe stands above rivalry*’. According to the



communication plans the question does not even raise to give a characterization of the two separate (Flemish and Dutch) areas. There is no division at all: *'We are not talking about a border region but one (and hopefully the biggest) bio-cluster in whole Europe'*.

The promotion of Bio Base Europe and the spreading of general information on the transition towards the bio-based economy will use a website. The partners mutually participate on (international) expositions. Finding ambassadors and pioneers for the project is an essential part in the communication strategy. The contribution of known politicians or company leaders would render a distinct face for the Bio Base Europe and the region that makes it easily recognizable for the outside world (Soetaert, 2010; Wiersma, 2010; Van Hoorickx, 2010).

### *Acquisition*

As mentioned earlier drawing new investors and companies forms a vital element in the mid- and long-term of Bio Base Europe. Nevertheless there is some inconsistency among the regional actors regarding the stance of the major focus between attracting new companies or reinforcing the status of present businesses. This ambivalence may explain why the majority of the companies in the Canal zone are hardly aware of the bio-based developments in the region.

Some respondents expect a rather spontaneous demand from the business life due to the supply the bio-based services because *'the market will come to us once we acquire an international reputation'*. The pro-active involvement of as many as possible new business partners is crucial to succeed in the specific and general ambitions of Bio Base Europe. As explained in chapter 3 knowledge and innovation should from the initial phase of the exploration be created together with the market demand. For the bio-based economy this does not only cover the need for adequate production technologies on large scale. It also assumes a new and complex organizational form that requires a narrow multi-party collaboration with the intensive representation of business life.

Both the Pilot Plant and the Training Centre are searching for business developers in order to get ready for a *'hard acquisition'* and to make the project organs subsidy-independent and economic viable. This will mean that *'due to the working of the free market we cannot be selective on the partners. We will be open for all interested parties even when they come here temporarily and after the testing they leave'*.

Professor Soetaert is optimistic about the already emerging interest from companies: *'All types of enterprises will come to us, even the large multinationals will do'*. He stresses that despite the fact that these multinationals possess significant R&D facilities at their home base. Certain elements for the bio-based experiments will always be missing: *'This is exactly wherein our Pilot Plant in Ghent will help them to test their processes'*.

The above analyzed various elements of the projects confirm the existence of the prerequisites for cooperation. The stakeholders of the project show the acknowledgment of urgency and mutual dependencies and they have set up clearly defined shared goals to strive after. According to the categorization of a variety of strategic behaviors (chapter 4) the project partners within Bio Base Europe display a cooperative and facilitating character. Recognizing interdependencies, carrying out mutual actions and involving the interests, resources and ideas of all involved feature the current stage of the project. This image of strong harmony though is though compensated by the following section wherein the (unavoidable?) complications of the teamwork will be discussed.

### **Destructive rivalry or a healthy economic competition?**

The physical and geographical linkages and dependencies demand a cross-border vision that should be borne by a broad support of societal governmental foundation. However, the interviews enlightened that collaboration on the economic and the bio-based development does not really take place on an integrated manner. The respondents recognize the need to collaborate on a higher level for a broad regional development though *'the reality and the practice carry a stubborn problematic. Cross-border cooperation is here very difficult as the interests run parallel'*.

As a consequence of the mutual promotion for the bio-based project both parties predict to receive a positive impact on the "own" region. Knowing the theoretical concept of successful cooperation (chapter 4) this is not surprising: mutual action and collaboration should also bring away individual profit for the participating actors, above the mutual goals and benefits. Nonetheless the pressure of rivalry pushes the centre of attention on the merit of the individual interests.

### *National interests, divided strategies*

The interviews gave the impression that colliding national interests, as formulated in chapter 3, characterize the Ghent-Terneuzen zone and the project collaboration. Despite of launching mutual programmes such as the Borderless Canal zone (paragraph 7. 1) the Flemish and Dutch regional authorities and agencies are predominantly occupied with the progression of the "own" area. The regions on both sides of the border make separate economical planning for the future. From the

research consultations it can be disclosed that nor the Dutch nor the Flemish parties really know what ‘*they on the other side of the border*’ are doing and which economic prioritization is being set up.

The Development Agency of East-Flanders, that helped to launch the Bio Base Europe project, follows the bio-based developments from the sidelines: ‘*We are responsible for our own economy and we mainly focus on advancing the cluster of the Ghent Bio-Energy Valley*’. Not too much information could be gained regarding the project or a broader vision for a regional bio-based economy. The unwillingness of the Province of East-Flanders to engage in an interview reflects the reluctant attitude and ignorance on the issue.

The Province of Zeeland and the Development Agency of Zeeland (Impuls) have also formulated their own vision and intended activities to establish their all-embracing programme of sustainability. The aim is to evolve a ‘sustainable province’ by having numerous projects running on many domains in various economic sectors: ‘*This bio-based project is only one from the total package. We all hope that it will succeed but if not we still have a strong base which we will persevere*’. The same approach, as indicated previously, could be observed from the Flemish since ‘*we would simply go on with the Pilot Plant if the other one is doomed to fail*’.

The reason for these ‘estranged’ strategies can be searched in the prevalence of the national economies because, according to an informant, ‘*the regional revenues and taxes the end flow into the national treasury. Therefore the Flemish would never pay a cent for the regional development on Dutch soil*’. This view can be recognized from the reactions on the financial support for a new sluice in Terneuzen. The perspective of ‘*which side of the border will get the real profit*’ is a dominant factor during the discussion.

The risk of doing business is that it can turn out to be a failure and the project participants are well aware of this possibility. This pragmatic attitude shows how the facilitating and corporative style of strategy can at the end be converted into a go-alone policy (chapter 4). Regardless of the similar way of thinking on matters of sustainability and of interdependencies, the (perceived) rivalry among actors may lead to a strategic action wherein cooperation is short-lived and incidental and only if both parties have gains in it (chapter 4).

An often heard nuisance during the conversations is the ‘*real functioning of Europe*’. The respondents indicate that ‘*this is how Europe works. A borderless European Union is a beautiful idea but in the practice the national (economic) interests dominate the scene and that is bad news for us borderlanders*’. This was several times underlined by pointing to the Benelux agreement as ‘*something that has not reached too much*’. As per the reactions, the genuine Europe of the regions will only take place if the national governments and politicians experience such a colossal financial and economic pressure that transnational collaboration will really become inevitable.

#### *Rivalry within the border region*

The sensible nature of local and regional rivalry comes to light when concluding on the acquisition activities. Despite comments such as ‘*it does not matter where new investments exactly go if it all takes place in the region*’ and ‘*if Ghent has benefits Terneuzen will have too*’ the rivalry between the places and harbours is plainly sensed. Nonetheless, the respondents made no secret of the logical issue of economic competition and of the contradictory interests. In addition, according to some perceptions, the border does not have to do too much with the regional competition in the Canal zone as contest also exists between regions within the same country.

As many respondents indicate, the big question finally will be where potential new companies want to settle: Ghent or Terneuzen?. A similar argumentation is that ‘*the idea and concept of one bio-hub is gorgeous but the final question will always be: where will the production go?*’. Although the offered bio-based products are of entirely separate nature the outspoken intention of both Canal sections to draw companies to the area are similar. The two products are complementary but the broader context brings about a competing sphere between the participants from the two sides of the border.

Anticipating an assessment on the outcomes between the investments and the potential (individual) benefits disables the set-up of a genuinely joint institution or organization. Authorities on both sides of the border refuse to cede their mandate for a mutual operation. It is about the control of (financial) means for the territorial development of the own electorate.

There have been made no agreements between the Flemish and Dutch part on ‘sharing’ clients and potential companies once they move to the region. The phenomenon of active rivalry is though often softened by the respondents by referring to the external factors of the market dynamics: ‘*at the end the companies should decide themselves on their settlement preference*’. This is also applicable for the ports as the market is responsible and will finally decide what with the supply of goods is happening. In this case it is a coincidence that the border runs right in the middle of the Canal with two detached harbour entities.

For the logistical organisation of the bio-based industry the role of the harbours is a crucial factor. Their connection and their strategies on the field of collaboration have a large impact on the mutual economic developments. Both organisations, Zeeland Seaports and the Port of Ghent are actively involved in the Bio Base Europe project that justifies the provision of some more background information.

The historical ties between the two ports have known up and down periods (Saman, 2010; van Damme, 2010). In the Euregio Scheldemond, a comprehensive cross-border policy concerning the harbours was never developed, contrary to the policies as to border landscape or other issues (Euregio Scheldemond, 2009). Research was carried out about the possibilities to gradually integrate all Flemish and Dutch harbours in the Interreg Flanders-Netherlands area to develop intensive maritime cooperation. Within due time though the conclusion was drawn that competition between the harbours and the differing legal systems makes it impossible to undertake such a venture.

When the port management of the Dutch harbours Terneuzen-Vlissingen refused the possibility of a cross-border organizational merger the Port of Ghent reacted disappointed: *“It is very pity. If Zeeland Seaports and the Port of Ghent remain competitors they remain two small players in the world market. A fusion would bring us to the top 5 of Europe”* according to President Daniël Termont (Port of Ghent, 2007).

*‘A missed chance’* – announced Flemish respondents on the decision that the harbours of Ghent and Terneuzen/Vlissingen would not unite. During the interviews this subject comes more often to the fore as many interviews are of opinion that a combined harbour in the Canal zone is the only answer to fence off fragmenting competition and varying strategies. These cause disadvantages for the region as a whole.

True, companies on the short term can benefit from racing harbours, from their differing tariffs and settlement conditions. Still, the long-term perspective for the narrowly connected Canal zone can only be found in a single harbour authority. This would make the territory as a genuine complementary region with comparative advantages in comparison with other European logistic areas, as per the comments during the fieldwork.

However national regulations seriously impact a mutual formation. The Flemish Harbour Decree of the Government of Flanders makes cooperation with harbours outside Flanders very difficult. The decree demands for instance that in case of an international collaboration, regardless the stakeholders’ share, the Flemish harbour should possess a majority as well as the chairmanship (de Langen et al., 2006). Such a definition makes cooperation on an equal basis almost unworkable and it practically excludes a far-reaching collaboration between harbor organizations. Holding on to a full authority and control, for the protection of the own national issues delay Flemish-Dutch undertaking on strategic issues.

Activities between the Ghent and Terneuzen harbours were afterward initiated and the partners have by now reached a more realistic approach for narrowing the economic ties (Zeeland Seaports, 2010). Agreements have been made to cooperate on a number of specific projects around issues such as the .coordination of harbor tariffs, social-economic planning, mobility and environment (Port of Ghent, 2007). By now a more or less undivided zone has, across the border, been realized between Ghent and Terneuzen in which harbor-related activities in the Canal zone are gaining momentum. Likewise, the termination of the collaboration contract (the joint venture ESM) between Zeeland Seaports and the Port of Rotterdam had a positive effect on the partnership between the harbours of Ghent and Terneuzen. Stepping out from the marriage with Rotterdam fortified the feeling for the Flemish partner that the Port of Terneuzen now belongs more to *“our”* side than towards the North (Geertse, 2010; De Mey, 2010; Soetaert, 2010).

The separate economic interests of the two entities though remain. This is plainly illustrated by a recent interview with the former commercial director of the Port of Ghent, Mr. Becquart. He identifies the basis problem of Ghent of not being widely recognized as a seaport - that means a commercial handicap. He refers to the psychological threshold partly causing this difficulty *‘since the sea sluice to Ghent - good for panamaxships- lies at the start of the canal and not before the port (of Ghent). A sluice just before the port is a normal issue but a sluice tens of kilometers away from the harbor changes the perception profoundly’*( Vandevoorde, 2010). The interviewee carefully avoids mentioning the name of the Port of Terneuzen where the sluice complex is situated. Terneuzen in this article is referred to as *“ the start of the canal”*, an actually non-existent place and factor. (Reasonable) economic interests intensified by the national way of thinking (at the other end of the canal is a Dutch port) lie most probably at the root of this approach confirming the relevant theories.

### **Bio Base Europe : finally bridging boundaries and rivalry?**

The abovementioned bio-based initiatives between the Flemish-Dutch areas seem to form an island of collaboration in the sea of nationally oriented economic orientation. Notwithstanding, the respondents often communicate their hope to see Bio Base Europe as the new catalyst in remaking the once united and later torn-out local liaison: *“this will be our binding element”*.

The project partners draw the attention to the unique feature of cooperation between Ghent and Terneuzen which used to be *“historical enemies for a long time”*. Seen from the context of enmity between the Flemish and Dutch harbours this notion is predominantly applicable. This is the first time that two harbours from the other sides of the border get together

for a mutual programme. Three years ago *“there still existed a nuclear war between the ports of Ghent and Terneuzen ”* but now for the sake of the bio-based project *they* get together to join their forces. The cooperation is said to be special exactly because of the century-long rivalry and economic competition.

Based on the optimistic expectations Bio Base Europe transcends the level of the project and its specific targets by enlarging the importance of the Flemish-Dutch cooperation in a broad sense in other territories as well. The contacts have recently improved through learning to know each other by regular contacts and by gradually building up trust. Remarks during the conversations shed light on the ongoing processes of an exploration phase between cross-border regional stakeholders. Respondents are hopeful that the approaching orientations between the Flemish and the Dutch would lead to more cooperation on a growing number of issues in the domain of sustainable economic development. They estimate the project as a first step towards the future of more coherent regional interlinkage where the mutual, cross-national benefits may dominate the development strategies.

### **7.2.5 Cooperation characteristics**

This section explains the operational facets of Bio Base Europe, including the coordination activities and working methods as well as the attitudes towards each other. Consideration is as well given to important aspects of the cooperation itself with regard to the intensity of the interaction and the socio-cultural dimensions of working together. These attributes form the major preconditions for results in a cooperative alliance as truly as for the emerging assets like trust and commitment.

#### **Coordination**

Respondents mainly associate the coordination activities within Bio Base Europe with the Internationale BBE, the umbrella organization. The communication, the orientation and decisions are made up by the represented institutions such as the development agencies from countries, the two provinces and the harbors. For the execution of daily issues though most respondents refer to Professor Soetaert, the spiritual father of Bio Base Europe and on the Dutch side to Mr. Geertse, commercial manager of Zeeland Seaports. These two distinct quartermasters have central role in the developments. On the Dutch side of the Canal zone there are more actors noticeable than on the Flemish side through getting informed and involved in the bio-based activities. The Dutch Development Agency of Zeeland, the Province of Zeeland, the Association of Employers of the Canal zone are stronger present with their ideas on the bio-based future than their Flemish counterpart.

Nonetheless, during the interviews feeling of dissatisfaction and ambiguity about the coordinating management show up: *“Everybody seems to keep waiting what is going to happen”*. Despite the defined responsibilities in the project it there is a need for a more intense synchronization that would give a more assertive direction of the bio-based economy in the whole cross-border context. The flagship project Bio Base Europe would ideally mean bringing many parties and especially companies together in an early phase for pressing the regional progression forward. For the time being only a handful companies are involved. Beyond the technology intensive research activities, this can be caused by the rather abstract policy that makes for enterprises obscure where and how they could switch into the programme.

Complaints have been expressed that the project organization by the regional authorities is not powerful enough and that it misses a pro-active mind-set. The want to intensify contacts on various other geographical entities and scales and to establish a stronger organizing potential was expressed by a comparison: *“ Our region cannot keep pace with the effective organization potential of the Randstad that for that reason can obtain much more public finances”*.

The (perceived) lack of a strong profile of the Bio Base Europe and a pioneer organization leads to ad hoc and a spontaneous movement of the regional actors. This can be rooted in the initial stage of the project as well as in the nationally-divided construction that makes the denomination of a cross-border ‘*primus inter pares*’ intermediary organization (chapter 4) difficult. The management of the project therefore remains predominantly torn- up by the boundary through which a new form of mixed, borderless governance cannot be fully realized.

The representative of the Province of Zeeland, Mr. Wiersma explains other probable reasons for the fragmentation and uncoordinated situation. There exists no blueprint for innovation processes and especially in the radically novel bio-based economy. The actors are permanently confronted with new issues and processes that make a firm coordination problematic. Furthermore, the state in a free market economy cannot haul this long-term development programme alone: companies and research institutes by forming clusters should exchange knowledge and take initiatives. The Province of Zeeland for instance elaborated its regional bio-based plans in six major frontlines but a broad-range of multi-actor cooperation remains inevitable to realize them. The dynamic nature of the bio-based development stipulates a continuous reallocation of roles.

## Cooperation and interaction: *‘We are on a journey together’*

### *Committed*

As brought up in chapter 4 cross-border cooperation is not a target in itself and has only merit and will lead to long-lasting results if it brings surplus value for the partners. Genuine attachment from the participants is a basic requirement for cooperation.

The evaluation by the respondents about the daily cooperation in Bio Base Europe is positive. The broad basis for the teamwork and the individual commitment are frequently referred to by the respondents. The speedy achievement to set up the project organization and to arrange the Interreg subsidization witnesses the actors' involvement and their belief in the flourishing outcome of the enterprise. As outlined previously, the strong commitment is fed by the forceful sense of urgency due to ecological and economical imperatives. Despite the case of emergency and acting under time pressure, having faith in the mutual organization is not experienced as an obligation.

Having just commenced, the mutual cooperation can clarify the stakeholders' confidence about working together and about the expected success of the project. As mentioned in the chapter 6, this optimism may also be explicated by the Interreg nature of the project since *‘it compels us to exhibit a good and narrow partnership across the border’*. The long-term commitment of the participants and more tangible outcomes of the processes can only be judged after a few years of collaboration. A subsequent research can inform whether the cross-border project means cooperation for the sake of cooperation only.

### *Institutional implications*

Although at this stage of the project no heavy institutional blockades are present in the collaboration on a daily level, there is a frequent signal from the respondents on obstructions. As said earlier, the structuring of the organization Bio Base Europe into two nationally delineated branches is a consequence of such institutional barriers.

The local institutional context brings away a border confrontation for civil servants and public officers. They inform about the daily execution of transborder activities between public institutes. While the level of the governing management between the Flemish and Dutch partners is excellent, administration employees from the municipalities collide the stone hard edge of the border stuck between two sharply varied institutional and legal systems: *‘Thinking of strategies on a European level goes easily, in an elegant manner and the border is not even experienced. But the daily tasks are mostly hindered by the state boundary and its administrative-legal functions’*.

In addition, the Dutch partners experience the Belgian institutional and political system very bureaucratic and exhaustive. For the ratification of certain decisions nine autographs should be gathered. Furthermore, the Belgian (Flemish) organizational schemes are deeply politicized and closely dependent on the government ideology. In case of elections a new political constellation of the governing management would have significant influence on the orientation of economic-developmental strategies.

In order to offer some solution on the institutional bottlenecks the project organization GOL (cross-border public body) has been in 2007 founded between the municipalities Ghent and Terneuzen. This arrangement, by transcending the border hindrances, attempts to create a more flexible regulative system. It should intensify the cooperation between the two cities and realize a borderless labour market. The ambition is to stimulate the economy and to establish a more mobile labour market in this border territory. *‘If an applicant finds a job on the other side she/he needs to arrange thousands of papers and formularies’*. The goal of the GOL is to offer job opportunities for Flemish and Dutch job-applicants under similar conditions.

The interviewed persons from the business sector argued that for companies borders are not relevant but still they become confronted by the various legal and fiscal arrangements that produce for them additional costs as well as exhaustive procedures.

Nevertheless it remains intricate to break through the differences: *‘We have been in the last 30 years working like hell to get the border out of our life but it goes very slowly’*. The estimations are rather sober regarding the function of initiatives such as the GOL as it will not be able to offer resolution for the numerous legal and institutional setbacks from which the region suffers. The Dutch national government has made steps toward the improvement by setting up an exclusive Task Force for border regions: *‘It is only a start and a symbolic act but at least they are trying to inventory our difficult matters’*.

The formal institutional structures create variegated informal rules regarding the manner and the mentality of working. The Dutch often see their Flemish counterparts as cautious governmental employees. Due to the strictly hierarchal system in Flanders, officers do not dare to commit themselves quickly to common decisions, as they are *‘anxious about potential errors that force them to cover their ass towards their superiors’*.

The partners though try to offer a practical approach by getting accustomed to the ‘strange’ system and work methods of the other country. Knowing what can be expected from the other side makes life a bit more relaxed: *‘We are adjusting ourselves to the hierarchical structure of Belgium’*, said a Dutch municipality officer. Avoiding social asymmetries

during the interface between administrative bodies is important. Dutch civil servants argue that the level of representatives should match due to the hierarchical Belgian setting. Even despite the fact that a "lower-level" officer is the outstanding expert of an issue, a higher-level manager, who is not necessarily directly involved in the matter, will be present in case the Flemish side is represented in that rank. In the Netherlands this is done by a more flexible approach versus the strict Belgian/Flemish hierarchical requisites.

#### *Working together where South- and North- Europe meet*

The conversations clearly indicate how sensitive and time and again tricky to work closely with people having different socio-cultural background. Despite of speaking the same language. Because even in that same language there are nuances and fine alterations that gives another feeling by rendering a word or expression a different meaning or atmosphere. Most respondents say that the cooperation forces them to take a good care of the national balance: *'If we decide to do something for the Dutch partners the next time it is the turn of the Flemish'*. Such a give-and-take approach is optimal for giving the feeling of equity. However, being permanent alert and an obligated sense of *'whose round is the next?'* and may lead to inefficient actions.

There are frequent hints on the susceptible situation due to the cultural variances and mentalities between the two nations. For a part of the respondents these differences do not hinder the efficiency of the cooperation. For others, these cultural dissimilarities are responsible for being wary: *'We permanently walking on eggs (a Dutch saying for being cautious) and the main target is to reach our targets without torn clothes'*. The bilateral and multicultural cooperation seems difficult enough for not wanting to bring more organizations into the project. Due to the limited number of participants there is now a good overview on the activities and the project does not grow too complex.

The eating habits and hospitality are frequently mentioned matters by the Flemish. The Calvinistic way of having lunch (bread with sour milk) is a huge contradiction of the Flemish routine of a more luxurious consumption (extensive warm dishes and wine). This can bring frustration and disappointment as *'if they even on this terrain cannot bid reciprocity what can we expect on other areas like the economy?'*. Also, jointly attending expositions on the same stand produced two different presentation methods of the regional bio-based activities. Having different ideas on the appearance of an exhibition brings about such a divergence instead of a united image.

Disparities in gastronomy, working methods and in mentality are enlightened by making references to the two exceptionally different types of people. This is set in the regional context *'where South and North Europe meet'*. They pointed to the German and Anglesaxon origin of the Dutch against the Latin derivation of the Flemish. This should explain, according to the perceptions, why the Dutch can much better rely on and cooperate with the Germans. Notwithstanding the use of each other's territory and practicing a borderless daily life the mental boundaries (paragraph 3.5.2) are hard facts. Doing sport, going to the theater and restaurants or biking at the neighbors is a standard way of existing for cross-border inhabitants but *'to settle and live on the other side?: never. They simply have a different national character'*.

A characteristic submission during the interviews is the application of positive attributes for the "own" nation by contradicting them by less positive features of "the other" (3.5.2). Such a contrasting and the need of the other, "less attractive" community, accentuates the good characteristics of the "own" population. That is why the Dutch (civil servants) are much more flexible and represent expertise during negotiations vis-à-vis the firm hierarchical and therefore more superficial Flemish approach. The impolite and boorish Dutch against the polished, indirect and courteous manner of the Flemish exemplifies the presented images on each other. Meaningful was the remark of a Flemish respondent when talking about the innovative nature of Bio Base Europe: *'we Flemish are very open and innovative people'*. It suggests as of the ground-breaking attribute a few kilometers away on Dutch soil would cease to exist regardless of the mutual inventive project across the border.

Appealing remark was the *'Dutch are good at communication and making big noise while we Flemish work very hard to realize the plans'*. Homogenization of the other community is straightforwardly recognizable. For many Flemish the Dutch is a Dutch regardless his/her living area: they are all the same whether in Sas van Gent (immediately located at the Flemish border) or in Amsterdam. At the same time, the respondents from Zeeland-Flanders clarified in details how different they feel in comparison to the Netherlands and even to the rest of Zeeland. The application of homogenized and clichéd images confirm the (perceived) mentality, behavior and habits of the people on the other side of the invisible border.

On the topic of the mutual promotion of the Flemish-Dutch border region and the Canal zone for Bio Base Europe, people are enthusiast. They emphasize the need for a joined place marketing that, by radiating a sturdy image, contributes to the economic potential of the territory. On the other hand, the Canal zone and this border area does identically not feel as one region. Many respondents describe the border still relevant since in the practice it remains two divided regions: *'Still many water should flow in the Canal zone to get the feeling that we are one. Probably it will never happen'*.

Despite the intensifying mutual identity in Bio Base Europe, driven by the need to show a common face towards the world, the mental differentiating and demarcation in the whole regional context is stubborn. Repeatedly referring to the frequent enmity in the past between the Flemish and Dutch regions underlined the origin of differing interests and current attitudes towards common issues.

As brought up earlier, the respondents are optimistic and see a promising cooperation with the foreign partners. As per many the socio-cultural differences and perceptions form no real hinder in their interaction. The positive attitude has been stressed with regard to the partnership and the daily collaboration between the Flemish and the Dutch. The cooperation is optimal and done in a good harmony because *“everybody knows everybody”*.

Daily issues are arranged by telephone and each month the participants get together for a personal meeting. The place of the gatherings changes in order to maintain the national equilibrium: getting together in Flanders is at the following time exchanged by a meeting in the Netherlands.

It was fascinating to see how the pleasant collaboration with people from Zeeland-Flanders or Zeeland is illustrated by comparing working with another ethnic community. The previously experienced differences seemed to be diminished. Contrasting was applied to stress the good working relations with the Dutch partners. Efficiency of the collaboration emerges from understanding each other and from the similar attitudes towards labour: *“We also work with people from Wallonia and we were not amused by their passivity and inefficiency. Cooperation is often a disaster.”*

This chapter evaluated the cross-border collaboration project Bio Base Europe of the Canal zone. The following part turns to the last aspect (subquestion 6) of the research regarding the prospective of a transnational collaboration for developing the bio-based economy.

## 8. The prospects of a Flemish-Dutch transnational bio-based cooperation

Among the research questions a supplementary inquiry into a territorially rescaled concept of cooperation is introduced. This refers to the potential collaboration on transnational scale between bio-based clusters in non-contiguous border regions. The examination refers to stakeholders' willingness for cooperation between the Ghent-Teneuzen Canal zone and the emerging bio-based networks in the Dutch territory between Delft/Rotterdam/The Hague (the Province of South-Holland). The Be-Basic Consortium is a prominent multi-party alliance for the materialization of the initiatives.

Both Bio Base Europe and Be-Basic Consortium have the ambitions to become a leading European bio-region. Seeking linkages to each other may be a strategy to advance an extended and hence more powerful supra-regional bio-based centre in Northwest-Europe. This chapter, based on the presented theories, literature study, and the empirical findings analyzes the prospects of this scenario.

The chapter opens with the introduction of the public-private bio-based organization in the Province of South-Holland followed by an outlook for the need of a transnational bio-based network. Subsequently the major findings of the empirical research are discussed regarding the need, sense of urgency and opportunities of expanding the Flemish-Dutch cross-border partnership.

### 8.1. The Be-Basic Consortium

#### *The project ambitions*

The Technical University of Delft (TU Delft) has played the initiating role in establishing the Be-Basic Consortium (Bio-Based Ecologically Balanced Sustainable Industrial Chemistry). It includes an R&D budget exceeding 120 million euro, of which 60 million is made available by the Dutch Ministries of Finance and Economic Affairs (B-Basic, 2010; TU Delft, 2008). The organization involves some 25 participants in a form of a public-private partnership among universities, authorities on several territorial scales and industrial corporations (van der Wielen, 2010).

The objectives of Be-Basic are comparable to those of the project in the Ghent-Terneuzen Canal zone: as of 1 January 2010, the diverse partners within the Be-Basic Consortium are to cooperate more intensively and at the international level to speed up the introduction of renewable resources. The aim of the cooperation is to foster innovation and research programmes for the development of “*clean, robust and competitive bio-based chemicals, materials and energy industries, including responsible monitoring and control of healthy soil and water environments, on the basis of advanced genomics technologies and bioprocess engineering*” (NGI, 2010; Be-Basic, 2010).

The main driving forces behind the coalition are similar to those of Bio Base Europe. The sense of urgency is determined by environmental-ecological patterns (Spijker, 2010; van der Wielen, 2010). The economic prospects of creating regional growth and enlarging employment rates by switching the industry to the new bio-based system are outspoken motivations: “*The public and private sector should act now otherwise we will miss a huge opportunity to generate economic value and delay will worsen our environmental predicament*” (Reuters, 2010).

Similar to the strategy of the Bio Base Europe project, the foundation of a multi-purpose facility for scaling-up research to an industrial size and circumstances is a vital part of the operation of the Be-Basic Consortium. This experimental pilot facility will be situated in the Industrial Biotech Campus of DSM terrain and it follows an open innovation model with open access to any company or research institute. The ‘Bioprocess Pilot Facility’ is “*the first of its kind in the world. Both its scale and its open nature make it unique*”. This international top location “*makes the Netherlands – in particular the South Wing of the Randstad western conurbation – a pioneer in the development of the bio-based economy*” (Be-Basic, 2010; Trommels, 2010).

In addition, the Consortium gives special attention for training and education. Especially in relation to curricula for new researchers, to the development of business plans for researchers and to the chances arising of the pilot plan for new economic spin-offs will be supported. All these activities will be brought together under the Be-basic Innovation Centre (van der Wielen, 2010; Commission of the Wises, 2009; B-Basic, 2010).

#### *A regional alliance*

Beyond fortifying the regional economy, the establishment of Be-Basic Consortium offers unique chances for the Netherlands, according to the founding stakeholders. Its existing leading position on the fields of logistics, business services and R&D will be intensified by expanding the bio-based economic activities. The Be-Basic Consortium provides the prospects for the construction of the needed network formation to achieve the shared regional ambition: to become the largest North-European hub or a ‘*European Biotech Hub*’ (Municipality of Delft, 2010) on the domain of research for the second and third generation bio resources and other by-products. The national and regional competitiveness of this cross-sectoral intersection is further enhanced by the “*first-mover advantages*” (Province of South Holland, 2010).



The “South wing” of the Randstad region, concentrating relevant economic sectors and research organisations, appears to many public and private actors as an ideal location for the realization of a vital bio-based cluster in the Netherlands. This especially targets the territorial triangle Delft-Rotterdam-The Hague. Their cooperation is supported by regional and national goals such as carrying out and commercialising high-quality economic activities, knowledge and climate neutrality (Ministry of Economic Affairs of the Netherlands, 2009a).

These three urban agglomeration areas provide the possibility to make benefit of their accumulated experiences, knowledge and the economic power on distinct domains. Against the background of the substantial economic performance and potential of the Province of South-Holland, the regional complementary sectors unite for building up the new chain scheme of the bio-based economy (Province of South Holland, 2010; Spijker, 2010). The influential knowledge basis of Delft has already been touched upon. The Delft/Rotterdam region, with the Science Port Holland cluster, excels as a European leader in the development of white biotechnological processes. Besides, the Dutch knowledge infrastructure in the agribusiness, being a compulsory element for delivering renewable resources, is regionally also represented by the Greenports cluster (Ministry of Economic Affairs, 2009a; Smulders et al., 2009).

Since the production of bio-fuels necessitates a large amount of biomasses, the large-scale import of these materials is unavoidable to fulfil the production capacity of future demands (Worldwatch Institute, 2006; Beth, 2010). The knowledge and production ability with reference to the globally unfolding bio-based economy requires a considerable logistic organisation for which the Rotterdam harbour offers a solution (Wageningen University, 2009). The position of the global port of Rotterdam, as the gateway to Europe, helps to benefit from its linkages to commercial partners worldwide which hold an advantageous production climate for bio crops. This creates chances for Mainport Rotterdam, as being a centre point in the global transport streams.

A recent report on the future development vision for the Rotterdam Port the Dutch government explicitly formulates these objectives: “*The future Mainport Netwerk Nederland should by 2040 become the largest ‘bio-based’ energy- and chemical cluster of Europe*” in order to secure the future international competitiveness of the Netherlands (Energieraad, 2009). According to the desired targets, the harbour of Rotterdam, together with the other Dutch seaports, should be transformed into the largest bio-based energy harbour.

Moreover, the presence of the large multinational companies in the petroleum industry and chemistry in the Rotterdam port is an important feature in the development of environment friendly bio fuels and chemicals. As per the partners’ expectations the large industrial chemical complex in the harbour will get a serious economic impulse from the new technologies and resulting new products and services in the evolving bio-based economy (Ministry of Economic Affairs, 2009b; Wageningen University, 2009).

Finally, the function of The Hague as an international jurisdictional hub and an “enthusiast participant in the development of the green economy” can be emphasised (Overmeire, 2010). The attributes of the city are considered as an additional value in the cooperation. These consist of its extended business services, its attractive investing climate for knowledge workers, employees and international organisations as well as of its significant capabilities for managing international congresses and symposia. In addition, the city has an international profile in fixing legal agreements and contracts and setting up commercial treaties. These qualities could contribute to the repositioning of The Hague as a core area in business and legal services in the domain of the new “*green economy*” (Province of South Holland, 2010; Overmeire, 2010).

## **8.2. The need for extended supranational cross-border cooperation**

### *Global challenges*

The literature study (Boosten et al., 2006; Smulders et al., 2009; Ministry of Economic Affairs, 2009b) indicates that a proactive approach towards the development of a mutual European bio-based hub is a prerequisite. The must for a broad-based collaboration, connecting sectors, disciplines and regions, was as well in chapter 2 outlined. Accordingly, synergies for a globally competitive and mature cluster-concept should be established among the various (geographical) chains and networks: “*Conquering the gigantic challenge of creating a transformative bio-based economy is a team game. The challenge is global so the teams will be global....*” (Eit, 2010 in Be-Basic, 2010). This connects to the categorizations regarding the scope of transnational cooperation (figure 3.5.) The global character of difficulties necessitates a jointly producing and implementing transnational strategy. The pooling of expertise, knowledge, resources and complementarities should create the base for a strategy on a territorially rescaled level that to more adequately address transnational issues.

Although the induction of the Be-Basic project serves national purposes – enhancing the competitive and innovative power of the Netherlands - it also includes a large number of European and global industrial, academic and financial partners. The knowledge institutes, the Dutch government and industry aspire to cooperate more intensively and at international level to speed up the progression of the bio-based economy (Be-Basic, 2010; van der Wielen, 2010). The access to

innovation should have a global character as no individual country possesses the resources in its own to develop and implement solutions (Reuters, 2010).

This can be underscored by Lundquist's cross-border innovation space (paragraph 3.6) wherein the relational (cognitive) proximity between geographical entities is in the exploration phase more important than the functional (physical) nearness, in particular in the case of radical innovation trajectories.

The international orientation in search for partner linkages underlines these North-European initiatives to enlarge the basis for the bio-based economy (Be-Basic, 2010; Power Link, 2010). It also demonstrates that problems and required solutions for the bio-based transition know no national boundaries. Europe needs to provide a better connection among the flows of scientific and technological concepts '*from the large pool of sustainable bioclean technology initiatives into the generation of new companies, jobs and economic growth*' (Reuters, 2010).

### *Complementarities*

The transborder clustering processes in economic sectors, which are relevant for the bio-based economy (chemistry, energy, transport, logistic services, agrobusiness) benefits from the various local and regional complementarities. This would enable to reach differentiation and specialisation in the bio-based profile of regions. This could create competitive advantages and scale economies within the extended territory of cooperation.

Beyond the necessary spatial restructuring and an expanded specialization in deep harbor traffic, a more concentrated cooperation with other (inter)national harbours and logistic axes offer a way out from such obstacles.

### *Global competition*

Only a large-scale European coalition can keep pace with the large sustainability programs of other regions and countries (USA; Malaysia, Singapore) including the rapidly emerging economies such as China, India, Russia and Brazil. Governments in these regions consider the dedication for green resources as a huge strategic significance and they encourage it with a large financial support (te Roller, 2010). A new wave of innovation and multi-actor collaboration on European scale is needed to deal with the rise of the BRIC-economies and the recent economic-financial crisis. Also, the vulnerable North-European Delta region, that will be confronted by the effects of climate change and energy security is a substantial concern that requires collaboration on a raised geographical level: '*At present Northern Europe is the most promising place for these governmental and private investments given the solid home market with a clear consumer awareness about sustainability and resource security, a world class R&D potential, and a well established industry and logistic infrastructure, that needs to be reshaped toward the challenges of the future generation*' (Reuters, 2010).

The geographic characteristics determine the profile of regional bio-based production chains. Regions like Brazil or the Asian countries possess cheaper and large volumes of bio resources that Europe does not have. Europe should therefore more focus on making high-value products from green resources (te Roller, 2010; van der Wielen, 2010; Soetaert, 2010). The global aspirations of the European bio-based projects and the needed critical mass for a fully developed bio-based economic structure stress the inclination for a North-European level of operation. From European and global perspectives the bundling the knowledge, experiences, economic/industrial and maritime capacities is indispensable to evolve into a competitive bio-based core (van de Wilt, 2010) in the global hierarchy: '*The prize for Europe will not only be positive climate effects and energy security but the foundation-stone for a new generation of sustainable, economic growth*' (Reuters, 2010).

### *The call for cooperating harbours*

The willingness of harbours to cooperate is a crucial facet in linking the different elements in the chain for a sound and grown-up bio-based economic system. The Port of Rotterdam and Zeeland Seaports already collaborate for the development of their position in the global range (Ministry of Economic Affairs, 2009b) though a mutual cooperation contract (EMS- Exploitation Company the Scheldt) has after more than a decade been terminated. The parties' expectations of the cooperation were not fulfilled (Municipality of Vlissingen, 2009; van Essen, 2010; Geertse, 2010). The lack of basis for commitment and involvement in the mutual exploitation activities has not lead to success and caused the discontinuation of collaboration (Municipality of Terneuzen, 2009). As mentioned in the former chapter, the cooperation between the ports of Ghent and Terneuzen has had a changing character as well. The relationship has always swayed between being becoming allies or rivals. This characterizes the nature of liaison and fierce competition among harbours worldwide (Port News, 2010; De Langen et al., 2006).

The formulated long-term vision of the Dutch government on the desirable future progression and global position of the Rotterdam Port encourages the network idea. A (nationally) intensified network of sea and inner harbours, logistic and industrial cores (Energieraad, 2010) is by both politicians and academics supported. The Bioport concept of a similar vein

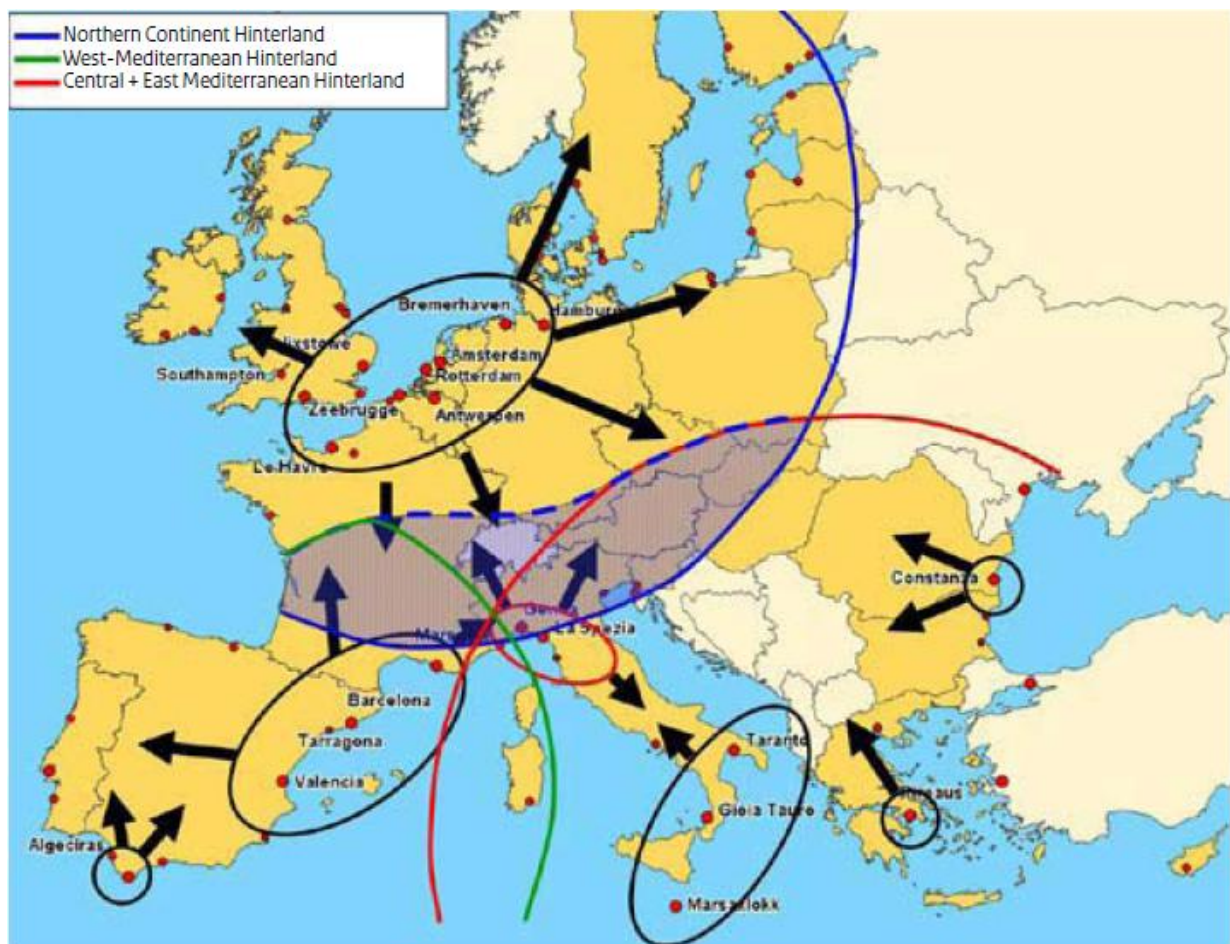
refers to the processes of building up a complex bio-based cluster from the perspective of the global developments (Boosten et al., 2006).

Although the politico-economic visions refer to actions to boost the national economy, the Dutch government stresses that cooperation through networking will and should not stop at the national borders. The establishment of a large-scale cluster should concentrate on creating synergies of the complementarities and capabilities of geographically spread networks and chains, the amalgamation of which is inevitable for a fully-evolved bio-based economy.

Rotterdam/Maasvlakte is considered as a potential development core for the bio-based industry though a possible cooperation with harbours in Antwerp and Ghent gets as well serious consideration in research and policy documents (Boosten et al., 2006). The importance of transborder cooperation with the Belgian harbors has as well been highlighted by Dutch policy makers. Herein, the opportunities for common strategies and partnership are accentuated. These attempts and the construction of a united port community system of the data provision of the separate harbors are essential arrangements in the direction of a harmonized North-West European port system (figure 8.1.). These endeavors may give the needed impetus for the development of a transnational bio-based cooperation in the territorial range between Ghent and Rotterdam (Ministry of Economic Affairs, 2009b; Energieraad, 2009).

The rivalry and unpleasant experiences between harbors though raises the question on the true willingness on collaboration. The empirical evidences will demonstrate how the relevant stakeholders estimate the probability of creating alliances to address the transnational issue of the bio-based economy.

**Figure 8.1.: The potential of Northwest-Europe amidst the increasing global competition of harbors**

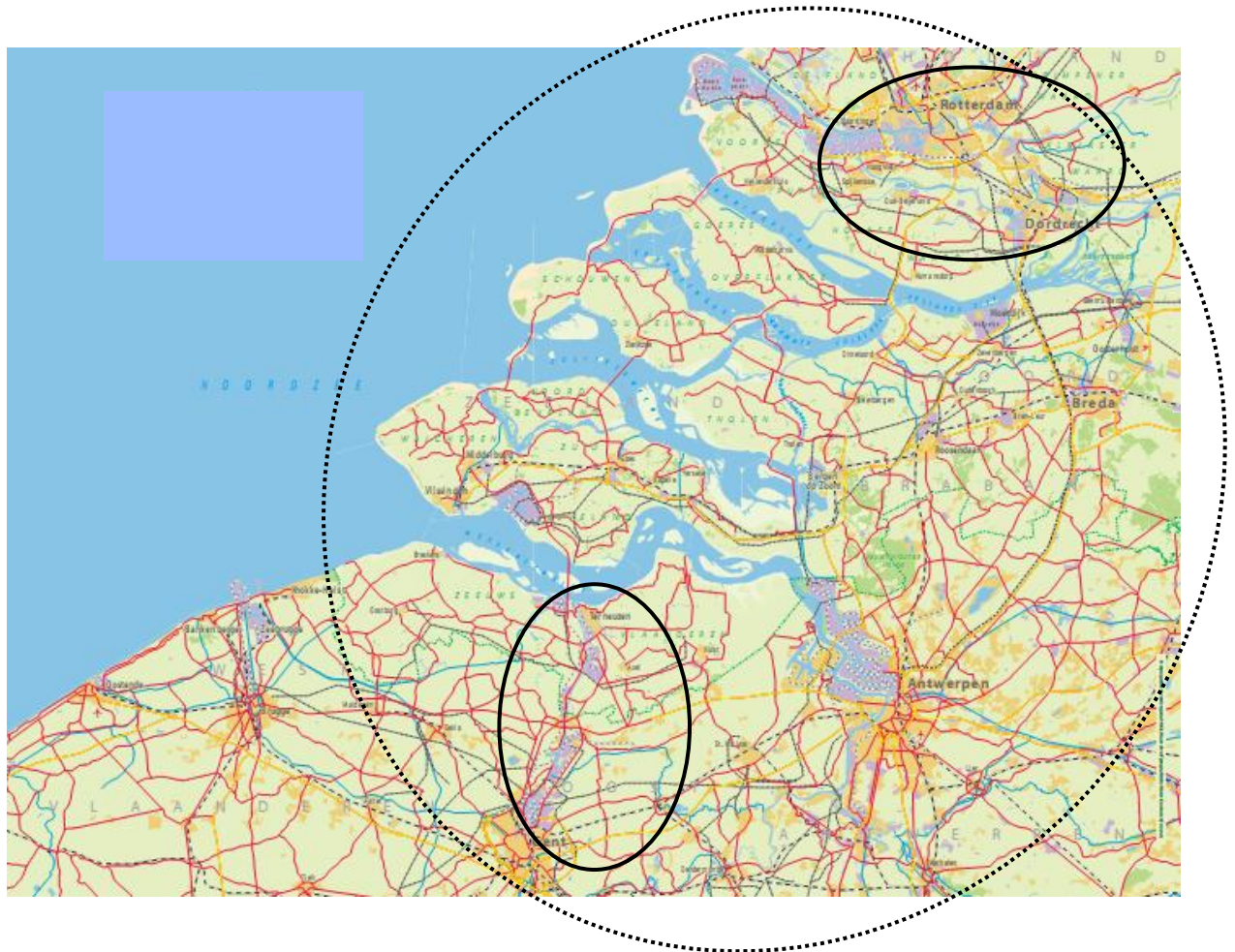


Source: Ministry of Economic Affairs of the Netherlands, 2009b, p. 42.

Despite of the intensifying global competition between places (Legendijk, 2005), the enthusiasm of harbours and regions for more intense networking and cooperation has grown stronger. The Rheine-Scheldt-Delta cross-border cooperation illustrates these trends of clustering. Their ambitions underline the want for a more intensive international collaboration. This organization has been founded in the 1990s between Flemish and Dutch authorities, the business sector and environmental organizations to make use of opportunities in the areas of the economy, mobility, ecology and recreation. The advisory committee, during its last meeting in 2009, urged the participating actors to have more attention for the development of the whole delta region for becoming a European top region.

The reciprocal development possibilities should be strategically evaluated from a global perspective as ‘*logistics and all related activities do not stop at the border*’ (RSD, 2010). According to the partners in the RSD collaboration, ‘*uniting the strengths and clustering are the only way*’ (RSD, 2009) to create an integrated dynamic and leading role in their European and global economic position. The solution is a chain direction of all activities. It seems therefore reasonable to place the development of the bio-based economy in the strategies and mutual interests within the geographical sphere of the Rhine-Scheldt Estuary.

**Figure 8.2.: An integrated spatial-economic and bio-based space in the Rhine-Scheldt Delta?**



**Source: Rhine-Scheldt-Delta Cooperation (RSD), 2009, p. 2**

This section discussed the dimensions of a supranational network formation for the efficient chain-arrangement of a North-European bio-based project. It is noticeable how suprateritorial and transborder cooperation is encouraged by governments, the business and academic life. One part of this study is to verify whether such a strong interest and motivations among the partners in the case studies are also apparent regarding the bio-based transition.

Although the analysis of the cooperation within the Be-Basic programme and the regional initiatives in general does not form a part of the study, it is of value to sketch some reflection on it. Based on the partners' view an impression on the development and the actual organizational features could be gained that are presented in the next section.

### 8.3. Regional (dis)organization

#### *The common feeling of fragmentation*

In contradiction to the above delineated plans in the Province of South-Holland, the dialogues point towards a reality wherein the bio-based initiatives have a rather unorganized character. Interviews with the representatives of the participating organizations (municipalities, the Port of Rotterdam etc.) mirror the mutual sense of the scattered nature of activities. Although everyone seems to be very enthusiast (*‘driven by the chances of the same subsidy sources’*) the fragmentation of targets, tactics and activities is broadly sensed. The national or regional policy is far too patchy to provide a stronger direction on the concepts and tasks for the bio-based economy.

As some persons tell, the Dutch ‘polder model’ is to a certain extent responsible for this lack of coordination according to which everyone should feel comfortable with the plans. Regions, places and their stakeholders are nationwide active everywhere by engaging in the same activities and *‘the growing number of bio-based and green platforms to inform each other what we all are doing’* lead to an obscure landscape of the bio-based initiatives. Respondents express their feeling that it is *‘often talking about what we are going to do together and in large-scale meetings everyone shouts something but at the end of the day nothing happens’*.

The initial phase of the cooperation can be a logical explanation for this disintegration. The numerous and various partners, under the leading role of the University of Delft, have in recent times started up the collaboration and they are still in a stage of exploration and of learning each other. As some respondents put it *‘This is the period of gathering ideas and waiting for what is going to happen’*.

The lack of a strong leading party and the inadequate coordination result in restricted interactions between the actors. This causes a low-level of information about the ongoing developments; in particular from the side of the regional or local authorities. As a consequence, well-defined targets and shared goals in the bio-based programme are missing. The spoken partners are uncertain about how to approach the problem, who will play what role in the development process.

#### *The missing sense of urgency*

The uncertainty about financial support from EU or national sources for the pilot plant added a factor of vagueness into the project. In connection to their anxiety due to this fiscal insecurity actors speak their worries on the reserved attitude of the Dutch state. Professor van der Wielen (2009), asks the political leaders of the Netherlands *‘to come to your senses!’*. The standpoint of the Dutch government is to stimulate fundamental and pre-competitive research and therefore considers investments in pilot facilities as a commercial task of the business sector (Mouthaan, 2010; te Roller, 2010).

The stakeholders of the bio-based project therefore recognized a sense of urgency by European and Dutch policymakers. They point to other countries wherein the development of a sustainable and clean economy forms a strategic importance. This reluctance mirrors in the inadequate level of financial support and in the slow decision processes (te Roller, 2010; van der Wielen, 2010).

Meaningful were some opinions that the area probably cannot even be defined as one region. One officer at the municipality of Rotterdam for instance refers to the distance (about 17 km) to Delft: *‘Delft remains far from us. Maybe seen from the moon it is one region but not from us. It is not just a few minutes biking’*. Compared to the awareness in the Canal zone for being a connected economic region, the feeling of regional togetherness seems to be less shared here. This indicates the partners’ insufficient consciousness of their mutual dependency notwithstanding the financial commitment of various municipalities (of Delft, The Hague, and Rotterdam).

#### *Shared goals overshadowed*

Regarding the Mainport Network concept, outlined in the former chapter, no real breakthroughs seem to take place. This would refer to networking and collaborating Dutch harbours. This would enable to establish a combined, strong combined position in the global ranks that is suitable for the organizing logistics of bio-masses. Mr. van de Wilt (Innovatienetwerk), author of the report argues that great efforts have been made to bring parties together for cooperation. These attempts referred to the potential of a narrower co-operation of the ports of Rotterdam, Amsterdam, Terneuzen-Vlissingen, Eemshaven and Harlingen. However, the concept relates now only to Rotterdam as a broader cooperation seemed a bridge too far. It has not succeeded as they are each other’s iron-hard rivals: *‘this book is closed now and each harbour will go on its own way. Each of them is going to follow their own economic interests’*. This behaviour creates ‘cooperative islands’ driven by the stakeholders’ intention: they are eager to take part of the mutual collaboration for individual economic gains.

Although striving for the own benefit belongs to any strategic alliance, due to the absence of the cooperation preconditions - recognized interdependencies, mutual benefit, sense of urgency and shared goals – no sound base for collaboration yet

has been established. The interviews depict the image of an unmanaged project-situation in which, beyond a general mission, clearly defined targets, strategies and relevant responsibilities are still missing.

#### *The vested interest of the fossil-business*

There are other, more frequently used arguments to explain the weakly developed unity in the regional bio-based activities. A major hindrance is the type of industry where the Port of Rotterdam is meticulously engaged. The majority of the business sector in this environment belongs to the traditional fossil-based economy. As per the perceptions the corporations of these vested interests make efforts that the transition for switching into a green economy is being delayed. Despite its leading membership in the Rotterdam Climate Initiative (van Essen, 2010), the Port of Rotterdam is more concerned of establishing new coal-fired power stations on the harbour area on the Maasvlakte than of the genuine acceleration towards a sustainable way of production. The ambiguity of antagonistic objectives undermines features such as the feeling of urgency, the need for an altered mindset and shared goals, being prerequisites for successful cooperation outcomes.

#### *Wait and see*

The theory describes insecurity that can arise from strategic behaviour. Actors can delay their investment in solutions until it becomes clear that the objectives can actually be realized. This is even truer for the extraordinarily complex systemic transition of the bio-based economy. This is a long-term evolution wherein doubtful issues on many facets dominate. Uncertainty due to the innovative and risky technological developments makes the financing partners and regional, local authorities wary.

As per the ventilated views the University of Delft first should prove that a new second and third generation technology can be explored for industrial application. Until then other participants will rather keep waiting to see how the research activities are going to take form: *'If Delft will verify we will join their marching'*. Although problems and needed solutions cut through existing institutional demarcations, in the beginning phase of a project all actors feel high uncertainty about the development of the processes and interactions.

#### *The coordinating Ministry*

Irene Mouthaan (2010) theme leader of the programme bio-based economy from the Dutch Ministry of Agriculture, Nature and Food Security sees the *'wrestling'* among the local and regional partners and she also understands it. These difficulties are inherent in the subject of the bio-based economy. She stresses the uncertain character of the bio-based transition with uncertain technological developments and changing market conditions. Also, the involvement of a large range of stakeholders makes the transformation structure exceptionally complex. The Dutch parliamentary elections in June bring another factor of hesitancy. The policy and orientation of a new cabinet may influence the arena of the bio-based developments.

As a result, the various players hesitate and act very cautiously. Important is for that reason to elaborate on the efficient connection of the various means and instruments that are available on the European, national and regional level. The Ministry proceeds in these processes as a main coordinator with an interdepartmental working programme. It has the objectives to link the related economic sectors and through intertwining to tune

them in into the bio-based chain arrangement. The High-level Steering Committee, under the leading role of the Ministry, includes representatives from the triangle of the state, research institutes and the business sector. Contrary to the local and regional stakeholders' dissatisfaction in respect of management, Mrs. Mouthaan is enthusiasm on the progression within the country. In her view partners from diverse sectors and professional domains are getting more and more accustomed to synchronize the ambitions, tasks and actions.

### **8.4. Possibilities for transnational cooperation in the bio-based initiatives between the Netherlands and Flanders**

In the empirical part of the study efforts have been made to reveal perceptions and opinions on the issue of international bio-based partnership covering a larger transborder territory. To reveal the attitudes and the level of compliance, stakeholders in the bio-based project in the Canal zone and in the region Delft-Rotterdam-The Hague were interviewed. The below analysis is grounded on the empirical findings.

## Rivalry between bio-based projects

*Be-Basic: ‘‘ a threat ‘‘*

During the interviews with the partners of Bio Base Europe a sense of incomprehension and disappointment could be felt regarding the new initiatives elsewhere in the Netherlands. It is perceived as a threat regarding their successful development and high ambitions to become Europe’s largest bio-region. One does not understand the strategy of the Dutch cabinet supporting a new cluster with a serious amount of finances in the close vicinity of the Flanders-Zeeland project. During explaining their disappointment, the Flemish partners stress the ambiguity of the Netherlands: *‘‘We thought that the Netherlands wanted to develop this European program together with Flanders. Now they are starting up another one, exclusively Dutch project on their own. It is irrational and unexpected’’*. The partners in Zeeland emphasize their worries as well. Especially the proximity of the two regions in the same Delta area makes the participants wonder: *‘‘Are they going to do and explore the same things as we? Within a radius of 150km ? A waste of public money.’’*

Although the project participants of Bio Base Europe are concerned on a potentially large competitor in their neighbourhood, they are enthusiast about their own capacities and future potential: *‘‘We are ahead with some years in the bio-based activities and will do everything to keep this leading position. In spite of others who try to copy us’’*.

*A matter of perceptions?*

With regard to the sense of frustration by the partners of Bio Base Europe officers in the Dutch Ministry of Agriculture are of opinion that this rather refers to individual perceptions only. As they say, the *‘‘feelings of the abdomen’’* seem to overrule the factual circumstances. One should be aware that these issues are located in particular in the heads of people. Notwithstanding, as illuminated in paragraph 4.2.2 perceptions should not be underestimated. Especially in cooperative alliances perceptions and opinions are exceptionally essential as the participants’ objectives and final strategies are predominantly grounded on them.

Before *‘‘making a fuss’’* about these irritations by the Zeeland-Flanders region one should learn their nature and origins. Relevant Dutch politicians in The Hague are working on it to make their backing towards the border region clear through meetings with the Province of Zeeland. Remarkable of and evidencing the thinking alongside state borders is that these are bilateral *‘‘internal’’* meetings, held only with the Dutch province. The representation of the Flemish side of the project is not explicitly named. This approach is confirmed by the Flemish partners since *‘‘Zeeland should turn towards their own government because we as foreigners cannot lobby for this project in the Netherlands’’*. The noteworthy in this commonly applied nationally-separated attitude is that Bio Base Europe is an international project including equal parties from both the Netherlands and Flanders.

Despite the attempts of reconciliation the official declaration by the political centre on their support for the Bio Base Europe project remains a rhetorical instrument, in the vision of the partners in the Canal zone. The strategy of the Netherlands is perceived as a two-folded tactics. On one hand it is a symbolical gesture for cross-border collaboration but on the other in the reality the major goal is to fortify the economy of *‘‘The Netherlands Ltd’’*. The project participants in the Flemish-Dutch border region encounter the negative consequences of the political waves and fluctuating intentions *‘‘above their heads’’*. They express to be stuck in a position between national concerns and their own cross-border interests.

## Collaboration versus collision course

*Collaboration is not excluded*

Despite of the above detailed irritations, respondents from both Bio Base Europe as well as the involved parties in the Be-Basic Consortium speak out for the likelihood for working together: *‘‘This should be possible’’* and *‘‘We are not against collaboration’’* are the most oft-heard reactions. However, these announcements remain highly hypothetical.

First of all, numerous stakeholders involved in the bio-based activities in the Province of South-Holland are simply unaware of initiatives outside their local surroundings. This is probably caused by their *‘‘own’’* regional fragmentation (8.3.). Officeholders from municipalities are not familiar with the bio-based project in the Dutch-Flemish Canal zone.

In other cases, actors indicate that they are engaged in the bio-based tasks within their own locality to such an extent that the expansion of cooperation with other areas is not a priority. Although collaboration with the Flanders-Zeeland cluster is not excluded in principle (*‘‘when we also can gain on it of course’’*) though consciousness on this theme at this moment is very low. This stance is not that surprising: if a sense of urgency and the acknowledgment of mutual dependency is immature within *‘‘their’’* territories, the apprehension for allying on a larger territorial scale are undoubtedly underdeveloped.

### *The need to ally*

Key actors in the projects though give arguments for the prospect and necessity of cooperation. Professor van der Wielen (2010) stresses the necessity to expand the bio-based activities on a transnational scale, including the project at the Flemish-Dutch border region. The area Ghent-Terneuzen is *‘anyhow the next village further and we can strive together to create a large bio-region’*. The cooperation should help to stimulate the flow of knowledge, financial means and technical explorations between the regions and bring the various profiles together. Adding up complementarities should result in the emergence of an integrated bio-based economic chain and the scaling up of the economies in the Rhine-Scheldt Delta.

Partners formulate the need to define the specific profiles and distinct characters of the various regions and organizations. Linking them creates a steady base for collaboration. Determining the role and ambitions of organizations and regions in the bio-based economy is considered essential. This entails fields such as logistics and harbour and industrial activities as well as the ambitions for the various biotechnological applications such as logistics, bio fuel, bio-plastics or medicines etc. (chapter 2). For instance, the limited space availability and stringer environmental regulations around Rotterdam and the densely populated Province of South-Holland might impede the industrial expansion of bio-based production sites. Moving to other spacious regions like Zeeland and the border region can offer a way out from this bottleneck. (van der Wielen, 2010).

Informants from the Delft-Rotterdam region underlined the developed stage of the Ghent-Terneuzen project and signified that *‘seen from here their cooperation seems narrow and efficient, contrary to our scattering here. They join because they are aware of their tiny volumes separately’*.

### *The course of collision*

Nevertheless, from the interviews it can be revealed that the stakeholders of Bio Base Europe judge the discourse of internationalization as a symbolic rhetoric that will hardly lead to substantial cooperation. The two networks appear to get into a collision course. Nice ideas have been aired but *‘the door remains closed to Bio Base Europe’*. Actors in the cross-border territory highlight that the intentions for narrowly working together should come from both sides: reciprocity already at the start is a crucial ingredient for engaging in a partnership.

Respondents in the Canal zone have drawn attention to the role of DSM, a huge multinational chemical concern, in the Be-Basic Consortium. They perceive the bio-based plans as the concept of this corporation and the project as *‘the toy of DSM. Due to their volume and economic importance in the Netherlands, the Dutch cabinet eagerly does what this company wants’*. Notwithstanding the open innovation model of the Be-Basic testing facility, the opinion of actors in the region Zeeland-Flanders is that it probably would only be accessible to a selected group of researchers and companies, e.g. *‘the friends of DSM’*. The Ministry of Agriculture refuse these allegations though. The Consortium consists many participants, DSM is only one of them *‘and we do not support any individual commercial organization’* (Mouthaan, 2010).

A further claim is that the international orientation of Be-Basic treats the Flanders-Zeeland project as a real foreign country *‘in the category of Brazil’*. Interviewees added that in case the Dutch government politically and financially commits itself to a national bio-based economy, Bio Base Europe will become a mainly Flemish programme. True, with a *‘little bit of Dutch participation since Zeeland is here with us’*.

The unwillingness of cooperation is strengthened by the plausible cognitive distance between the universities of Delft and Ghent, as pointed out by interviewees. Some questioned the compatibility of the biotechnological research activities between Ghent and Delft. *‘They may be active in other types of processes what is not relevant for our ambitions .....the technological experts should find it out’*. Still, a strong of competition is fed by the generated overcapacity of the two pilot plants in the region.

### *Harbouring the own business*

For the logistic operation in the bio-based economy the cooperation of the harbours is elementary. The experiences in the past between Zeeland Seaports and the Port of Rotterdam shadow a potential *‘affectionate’* collaboration between the two upcoming bio-based territories. Although the partners search for new and looser frameworks to join forces on certain areas and to leave history behind, refraining from a narrow relationship is resolutely felt. Trust, being a basic precondition for a successful cooperation, has been somewhat damaged by the historical ties. In case of a bio-based alliance, the question also raises which roles to which actor will be distributed. The harbours in Zeeland do not wish a collaboration under *‘the domination of the giant Port of Rotterdam’*. Their size and hence arrogance, according to the interview partners, ruled their former relation and they do not want it to occur again. From the perspectives of Rotterdam cultural differences played a role as well because *‘working with people from Zeeland is not always ideal. They have a different mentality and work approach’*.



The conversations frequently point to the leading position of the harbour of Rotterdam and the comfort they consequently enjoy. This gives them no real sense of hurry and willingness to join with smaller harbours, according to the arguments. They are aware that that the logistic challenge of the immense quantity of biomasses can only be solved by their partaking. This confirms the absence of feeling the mutual dependency and therefore not requiring other players. The silhouette of a partner comes to the fore that rather follows its own path (go-alone strategy; chapter 4).

### **Global perspective versus the Europe of the islands**

Most respondents are regretful on the deficient awareness of teamwork for the advancement of the bio-based economy. They realize that that *“the region of the whole Rhine-Scheldt Delta area in North-west Europe is far too small in comparison to the big global players”*. Sharing knowledge, capacities and activities would therefore be inevitable in order to remain competitive in the intensifying global economic arena.

Still, the global perspective is missing from the regional and national stakeholders or organizations, as stressed during the interviews. Not understanding it will lead to *“regional cannibalization”* on the longer term, *“especially if we carry out similar things within the same area, like in the bio-based progression”*. At the end, most respondents admit that there is a danger in the supply overload of R&D services in pilot facilities. At the level of the European Union more coordination is required in this respect: *“If such biotechnological testing plants will shoot like mushrooms from the ground throughout whole Europe, we will get a problem. Colossal (public) investments will turn into unprofitable units”*. At the end of the day, confess respondents, some sort of transnational collaboration will be unavoidable.

This is the real Europe, sounds the pessimistic judgment from the informants. Each country, region or harbour within the EU occupy in their own narrowly defined short-term interests, by way of *“operating on separate islands”* and *“withdrawing in the own cocoon”*. The strengthening market pressures due to the forceful neo-liberal tendencies compel each region to lobby for their own interests, for subsidies and new investments. This means putting up a fight against each other in the same pool. Respondents express dissatisfaction on the fierce contest between the five harbours (Rotterdam, Vlissingen, Terneuzen, Ghent, Antwerp) by arguing that *“we are stupid here and killing each other on the longer term. The harbour of Shanghai extends over 120km, about the equivalent of all harbours in this region. International investors take a look at it as one contiguous area”*.

The centrifugal power of national interests dominates the European scene and this manifests itself also in the bio-based initiatives. The discourse on jointly realizing a transnational strategy by pooling expertise, resources and knowledge in order to address the large-scale issue of the bio-based transition (figure 3.5.) does not translate into joint actions. Even though most parties think similarly over the developments and the necessary interlinkages, the (perceived) competition define the strategies that are often drawn in accordance with the national confines. *“It is essential to retain the leading position of the Netherlands in industrial biotechnology in order to prevent that Denmark and Germany outstrip us as it happened with wind energy”* is a conspicuous example for the prevailing viewpoint.

### **All parties benefit?**

The Ministry of Agriculture, Nature and Food quality does not unconditionally share these views though. Economic rivalry is logical and it is commonsense that organizations and regions want benefit from the bio-based transition: *“A bit of competition is not that bad at all”*. This attitude, shared by several participants, also relate to the argument that the market will have a sufficient volume for sharing it among all aspirants: *“This cake is big enough for everyone to get a piece of it”*.

Moreover, the Ministry is now actively occupied in the establishment of a particular bio-based work plan or platform (under the name Transition house) in which, among others, the importance of intraregional cooperation will get enhanced attention. The main thread in this regard is to link international networks for a joined bio-based system. Their objectives also include the removal of border hindrances such as institutional and legal differences as well as the guidance through impeding socio-cultural variations. Owing to its early phase more details of this work plan could not yet be achieved.

The last two chapters (7 and 8) elaborated on the major empirical findings of the research. The diverse aspects of transborder or transnational collaboration or its possibility were outlined according to the theoretical facets on borders and cooperative alliances. The following, last chapter will conclude on the outcomes of the inquiry in respect of the research questions formulated in the introduction.

## 9. Conclusions

In this study an empirical research has been carried out on the various facets of the development of the cross-border cooperation Bio Base Europe in the Ghent- Terneuzen Canal zone. Also, the possibility of a transnational collaboration between bio-clusters within a non-contiguous geographical confine has been inventoried for which the bio-based initiatives in the Dutch province of South-Holland were incorporated in the study. These dimensions were in the former analyzing chapters specified on the ground of the applied theories and by considering the evolution features of a bio-based economy (chapter 2).

The conclusions drawn from this examination are further elaborated in this chapter. The structuring base for bundling this concluding part is arranged according to the main research question that was formulated in the introduction:

***What is the influence of the national border upon the Flemish-Dutch cross-border collaboration projects in the emerging bio-based economy?***

The answer on this question is ordained according to the problem definitions in the sub questions that are addressed in the introducing chapter. In this manner a comprehensible overview can be provided on the major attributes of complex research subject. Since the empirical outcomes simultaneously refer to the diverse sub questions and hence contain overlapping elements they are combined in the subsequent paragraphs.

Beyond the project characteristics, the research has also provided a broader insight into the general conditions of transborder processes in the Canal zone. The understanding of the broader context and the historical background of the cross-border area is indispensable. The respondents permanently referred to the social, economic and historical circumstances of their region. Borders are indeed contextual phenomena and the actors' capability and sensibility for entering into partnership should be always be set against this background.

Beyond the more "factual" elements of the collaboration the bordering practices of individuals could be revealed and their interpretation of and mental approach towards the border. People and their proceedings at the same time reproduce and resist the demarcation of state boundaries that influences collaboration.

Barriers and/or opportunities –these two major dimensions structure the theoretical framework on borders and cross-border cooperation. The differences between states and the collision of institutional and mental systems are particularly evident in the border landscape of the Canal zone. The state boundary between the partners is omnipresent and is noticeable in many forms and in diverse aspects, depending on the angle one considers it. The tempestuous transition towards the bio-based economy is exacerbated by the paradox of the Flemish-Dutch border as being simultaneously a hindrance and a chance for the collaboration. The conclusions below explain why.

### 9.1. The rationale to ally

With regard to the Ghent-Terneuzen Canal zone this section seeks an answer on the following sub questions. Since these two dimensions are related to each other a combined approach of concluding is employed:

*What is the rationale for the transnational cooperation among the project partners?  
Which opportunities are indicated by the stakeholders for participating in the cross-border bio-based network?*

#### ***The urgency of ecological problems and energy-security***

The research outcomes show that the growing urgency of tackling the twin threats – climate change and energy insecurity – were important drivers for setting up the Flemish-Dutch Bio Base Europe cooperation. Especially the economic structure of the Canal zone with a high representation of industrial activities has made the regional stakeholders aware of the pressure to act. Acquiring consciousness on a future scenario in which no production or economic activities can be carried out has pushed the regional developers into the motion of a united action.

The project participants attempt to turn this convergence of menace factors, e.g. 'a mutual enemy that does not stop at the border' into a mutual opportunity. Bundling their forces is fed by the stakeholders' insight into the necessity of a broad-based multi-party collaboration for realizing the bio-based project. A joint action is believed to provide more power to find solutions for the challenges and to accelerate developments.

#### ***The added value of cooperation***

Although competition between territories is the rule, the participants have become aware on how opportunities and added value through cooperation can be generated for the whole territory. A strategic alliance in the bio-based business create conditions of a 'win-win game'. The border is considered as a supply of resources that are converted into regional strategies such as the particular project cooperation between Ghent and Terneuzen. By uniting the capacities of the separate areas Bio Base Europe should grow into a powerful factor in developing the "green" economy.

The partners' interests at this stage of the project are rather similar than differing (however this harmonized image will later be nuanced). Grasping the chances is prompted by the acknowledged interdependencies, the geographical and social-economic complementarities as well as the need of scale economies.

### *Interdependencies*

The theoretical chapter outlined the growing significance of viewing (border) regions as natural and hence more advantageous economic spaces than states. The perceptions in the Ghent-Terneuzen Canal zone confirm this. The two territories alongside the canal are accepted as one evident economic space belonging to each other. This unique geographical position, endowed by the fixed link of the canal, is further intensified by the reliance of Ghent on the sluice complex of Terneuzen and the need of Zeeland-Flanders of the Flemish economic engine.

The University of Ghent is since quite a time strongly engaged in the research of the requisite biotechnological applications. Being dependent on these innovative outcomes, allying with the Ghent region is therefore for the Province of Zeeland is a question of emergency.

Besides, the historical evolution of relationship, the partners' knowledge of each other due to the physical proximity and the common language as well as the relatively close cultural features (the culture in a narrow sense, chapter 3) is important drivers for tightening the dealings on a transborder level.

### *Complementarities*

Using complementarities and comparative advantages of both sides of the border provide the Canal zone with a competitive edge. Both the Flemish and Dutch areas have been encouraging bio-based activities in their territory since quite some time. The biotechnological developments by the University of Ghent, the smart ecological-industrial linkages in the Biopark Terneuzen, the agrarian activities in the Province of Zeeland, the two harbours at both ends of the canal as well as the presence of industrial activities in the whole territory more or less compel the players for collaboration. The availability of space in Zeeland-Flanders offers new economic possibilities for the Ghent area and hence for the entire region. These issues confirm the hypotheses wherein the asymmetries as key forces are named for cultivating cross-border partnership.

The different character of the two facilities (pilot plant and education) in the project is considered as a professional matching between the two regions. The synchronization is decisive for creating synergy in the regional bio-based services. The project partners believe that this '*unique combination*' will have an alluring effect on interested investors and companies and their choice to settle in the region.

### *Reaching economies of scale*

Tuning the critical risks and threats (section above) into economic prospects is a key motive and another element among the shared goals. Being a pioneer in the actual and pressing issue of systemic transformation will expectedly bring away significant social, economic and environmental benefits.

As has been exposed through the conceptualization on borders, zones at the intersection of state borders have become essential factors of regional development. By promoting regional functionalization in the Ghent-Terneuzen Canal zone – through its designation as *the* innovative bio-based cluster of whole Europe - it forms a means for increasing the regional competitiveness. The entrepreneurial function of the local and regional governments are in this understanding important driving forces in fostering growth and encouraging economic and innovation projects.

Enlarging the territory and enabling to reach critical mass in terms of services, facilities and markets, that are indispensable for a full-grown bio-based economy, are major motives for a common action. Achieving the project goals will generate new investments, new businesses and more employment possibilities that raise the prosperity of the whole border territory. Innovation, by the very nature of the bio-based project, is the dominating discourse for reaching economic progression in this segment of the Flemish-Dutch border area. Using Lindquist's model (3.6.2) it can be argued that Bio Base Europe is a (first) step towards the creation of a cross-border innovation space in the Canal zone. This concept shows that the high variations in regional capacities and performances frequently lead to the absence of relational proximity and to a low development path. However, these asymmetric features and relations between the Flemish and Dutch regions do not obstruct the evolution of the bio-based project. Although cognitive proximity (technological research and innovation) is a determinant element for developing the bio-based economy, the integration of the diverse sectors and fields (industrial activities, process industry, harbor, skilled personnel, agriculture, chemical companies as well as governmental bodies) is vital to create synergies for its foundation. The (recognized) reciprocities and characteristics of the Canal zone make the region suitable to build up the bio-based innovation space.

### *The role of subsidies*

Financial devotion in such an expensive innovation program would not have come to existence by independently acting areas. Sharing the costs of investments in this innovation project – by way of acquiring Interreg co-financing and public support – is an important driver and result of the cooperation. This verifies the assumption on the significant weight of external funds in the realization of the project. This refers to the very pragmatic view of stressing co-operation to obtain funds for building up capability and facilities.

The empirical evidences confirm that there is a sound base for the bio-based cooperation. Its preconditions - shared goals, interdependency and sense of urgency (4.2.2) – are all present among the participants to evolve the collaboration into results. The shared feeling of achieving individual benefits through mutual interests and benefits, the well-built consciousness of mutual dependencies have given impetus to jointly undertake the bio-based development. Regarding the chief motives of the cross-border cooperation these findings fit into the anticipation, being based on the conceptual model.

## **9.2 Beyond the project: reshaping the border region**

As beforehand referred to, the cooperation transcends the project ambitions of creating a sustainable economic system and a benefits. Although the cross-border project was born out of ecological and economical emergence its manifestation is also illustrative on cross-border regionalization processes in the 21<sup>st</sup> century. These tendencies show how the micro level of cooperation can influence the meso level of the border area that may on its turn impact features on the broader external scale.

### *A catalyst*

The collaborative project has the potential to be a catalyst in the border region by invigorating initiatives on other fields between Flanders and Zeeland. The interviews indicate that collaboration is already taking place although to a modest extent yet. The bio-based project is seen as a vehicle for learning each other and bringing the two communities closer together. Through the mutual project, the border as a contact zone creates a place of experimentation and a connecting instrument through which searching new linkages becomes possible.

The model on cross-border innovation (3.6.2.) signifies how integration of a whole border area can gradually take place. Weak or semi-integrated border regions can have windows of opportunities that lead to an enlarged economic space and learning processes on certain economic and scientific fields. Such ‘‘islands of innovation’’, as represented by Bio Base Europe in the Ghent-Terneuzen Canal zone, can have positive and diffusing effects on the entire border space. The growing flow of expertise, knowledge and mutual learning can intensify the relations and spur the emergence of other cross-border clusters and networks.

### *Re-establishing the regional role*

In the Canal zone, the beginning signs of a new round of regional institutionalization (paragraph 3.2) is observable. This is driven by the new functionalization and the intensification of joined economic activities of the cross-border area that can alter the established role of the region. This function in Paasi’s model (3.2) refers to the meaning and purpose of the region in the broader socio-spatial context. Accordingly, territories can be classified as areas for a special economic activity such as a leading European bio-based cluster in the case of the Canal zone. The established role is applied to the region in the course of regional (trans)formation but due to its dynamic nature it can change due to internal and external forces such as the process of cross-border integration.

### *Raising profile in the international arena*

In line with the expectations, the international project delivers the participants more power to represent their interests in the (higher) political arenas as has been highlighted in chapter 3 on the advantages of cross-border cooperation.

The enlarged power of this joint project also provides the stakeholders more guts for large-scale ambitions. For instance, the Province of Zeeland hopes to be the sample model of a region for the whole Netherlands by translating the bio-based developments grounded on the experiences of the Bio Base Europe. The aspirations to become a leader characterize Bio Base Europe that aims to reach the acceleration of the bio-based transition in the region and to spread it towards Europe.

These ambitions reposition the cross-border region into an international context that should bring away economic significance for the Canal zone. Connecting the two separate areas generate a more powerful unit on several scales and in various aspects. The mutual marketing and promotion of Bio Base Europe falls in this line as it attempts to raise the international profile of the cluster. The endeavours to achieve a European or global way of thinking manifest how such a project goes beyond the local context.

## *Repositioning*

Whether these regionalizing processes challenge the national state, as frequently argued by scholars, can be disputed because central governments themselves encourage cross-border relations. This research does not deal with this topic in particular though it is especially apparent how the reorientation of the region Zeeland-Flanders and the Province of Zeeland rescale their territorial position.

Turning into the Southern direction to make use of the economic potential of the Flemish side and closing economic ties on other geographical scales as well as the adjustment of the Zeelanders' attitude of being introvert are elements in their strategy. This manoeuvring policy should enable the Dutch region to break out of the marginalization caused by the (perceived) ignorance of the political centre in The Hague and by their own behaviour. Creating transborder and transnational linkages makes it for participants possible to enhance their advantageous location in the enlarged geography of new economic spaces in Europe.

The repositioning and the raised profile in higher political arenas mirror the pro-active approach of the regional developers to fence off situation 'A' in Krätke's model (figure 3.4). Based on past experiences of being stuck between large players, Zeeland-Flanders endeavours to avoid the status that renders it defenceless in the flow of interactions between places on a higher scale.

## *Reshaping continued*

The processes of the reconstruction of a cross-border territoriality with a newly allocated role can gradually influence the territorial, symbolic and institutional formation (Paasi's model, 3.2). Bio Base Europe indicates how the narrow cooperation of authorities, education and research institutes create the need for new symbolic (cluster promotion and branding) and institutional (project management) configurations in a rearranged territorial unit.

By the reinterpretation and remarketing of the Canal zone in the action space of the bio-based economy, the social reassembly of the region can be witnessed. Territories divided by national boundaries were in the last decades transformed into imaginary communities by the central forces of national(istic) politics. Prompted by local developers the cross-border space, as a new (economic) community, is now emerging. In the Canal zone, the stakeholders are in the process of getting rid of the national straitjacket of the state border by creating a new economic layer between the border lines.

The strengthening relations due to the bio-based project have been interpreted as '*getting things finally right what has been gone wrong since 1830*'. The view of re-knotting old historical ties might enhance the (future) need of the reinterpretation of the symbolic purpose of the region that can be the subject of a future research agenda.

### **9.3. En route across the invisible yet stubborn border**

In the analyzing chapter (7) the type, intensity and form of cooperation were evaluated with the use of cooperation theories (chapter 4). By looking at the concrete elements of working together across the border, knowledge on the exchange processes between the project partners could be gained. In this part the concluding remarks are formulated in connection to the following sub question:

*How can the type, form and the intensity of the cooperation characterized?*

Because these characteristics include all relevant contents of the collaboration the following two sub questions from are as well handled here. Beyond being intertwined with each other, these three aspects of the research problematic endow the conclusion with a structuring base by highlighting the main empirical findings:

*What are the most frequently mentioned problems and bottlenecks in the cooperation and how do the parties try to solve these barriers?*

*To which extent is the cross-border collaboration influenced by the differing socio-cultural characteristics and mental boundaries?*

### **Commitment and well-defined targets**

The cooperation between Ghent and Terneuzen means the production of mutual services and facilities across the border. The partners jointly realize a transnational action of pooling resources and expertise although the mutual action to tackle the cross-border issues for the time being remains in the scope of one project (figure 3.5).

The begin phase '*of being on a journey together*' is enriched by adventures and complications. The cooperation needs time to grow. The parties are in the phase of learning how to work in new type of cross-border networks for better addressing the mutual problems and chances and to reach their targets.

Due to the recognized opportunities, interdependencies and urgency, the project strategy has a facilitating character (4.2.2.). The partners behave in a cooperative manner in search of mutual and individual benefits for which a shared vision has been set up. As shown in chapter 4 this is the most adequate way of handling complex issues such as the development of a “green” economy. The participants show a sufficient level of commitment to find a common solution for the economic and ecological challenges.

Optimism, enthusiasm, belief in the successful outcomes of the cooperation and trust toward each other feature the present stage of the collaboration. This verifies the apparently evident postulation with respect to the actors’ cooperative approach.

Moreover, the efficient set-up of the cooperation project with well-defined short, mid and long term targets and the strategies are favorable to achieve the objectives. This is important since vaguely formulated and megalomaniac ambitions generally lead to failure and disappointment. On the contrary, the scheme of the Bio Base Europe project is clearly determined with obviously allocated responsibilities and competencies.

The transparency is further enlarged by the limited number of stakeholders for the time being. This makes decision taking faster and it enables actors to arrange the various individual interests into an accepted joint strategy. This is useful in identifying the responsible party on the other side of the border. The features “speed” and “content”, essential assets for cooperation results (paragraph 4.2.2) are therefore in the project met.

As mentioned in chapter 3, a project-like approach in transborder interactions is more proficient than the setting up of umbrella organizations with broadly and generally defined tasks diluting concrete actions and necessary measures. The initial phase of the bio-based activities in the Canal zone makes this approach at present sufficient. Nonetheless with the evolution of the bio-based system, evoking the cross-sectoral collaboration of a large number of parties, will necessitate the implementation of a regional transnational strategy to adequately address the organization, the strategic and external challenges (figure 3.5). (Attachment 2 contains the most frequently mentioned threats and hindrances in the progression of the bio-based economy.)

The empirical research though evidences that the already complicated character of a strategic alliance to accelerate the transition into a “green” economy is further aggravated by the state border running between the project partners. Based on the findings three major dimensions are distinguished that influence the cooperation: 1) rivalry, 2) institutional differences (hard factors; conceptual model) as well as 3) the abstract borders manifested by diverging socio-cultural and mental attributes (soft factors). These facets are separately discussed below.

## **Rivalry**

### *Broad-based competition*

The largest impediment with regard to the cross-border bio-based project in the Flanders- Zeeland region is formed by the (perceived) rivalry between territories that confirms the assumption in chapter 5. However, it would be naïve to plead for a truly competition-free region. In a world of a globalizing economy and diminishing state budgets, the economic dependency of regional governments on market conditions has significantly grown. Entrepreneurial authorities, regional developers and research institutes perceive a situation wherein they heavily compete against other regions for new investments, businesses and inhabitants.

Also, economic organizations such as the two harbours at both ends of the canal are more or less logical competitors to each other. An image of a Europe comes to the fore throughout the research wherein the mutual interests to fortify regions as a whole entity is a speech-making and wherein in the practice common perspectives and shared interests weigh less due to the own economic concerns.

Although the existential rivalry between territories and governmental/economic actors exist also within national territories the presence of the state border makes this rivalry even fiercer. The sense of contest is observed regarding the subsequent stages of the project. Competition to attract new businesses and investments into the “own” side of the border may intensify. This may jeopardize carrying out the project ambitions in a consequent manner and risk fragmentation according to the national divide.

### *A cross-border tool for national goals*

This sense of competition partly derives from the centripetal forces of national politics and concerns (figure 3.7). The paradoxical phenomenon of the political discourse of integration versus the sovereign state with its palpable national interests is strongly present in the project of the Canal zone. Despite the fact that Bio Base Europe is an international project, the valuation of the results occurs alongside national significance. The project means in the first place a potential for the national economies in spite of the European rhetoric on the development of border regions. The transborder organization in this sense is not a challenger of the nation state, as frequently argued in academic works; rather it more or less exists in relation to the nation state and as an instrument to cherish the political, socio-economic and cultural properties of the state.

### *Nationally-inspired policies*

The significance of the border in the Ghent-Treeneuzen region translates into the nationally-defined orientation towards development issues. Bio Base Europe is only one of the various, parallel running Flemish and Dutch sustainability programs. The main priority focuses on the progression of the ‘own’ area. The objectives highlight the own economic interests wherein public subsidies for cross-border cooperation are considered as instruments.

The two provinces of the Canal zone have no large-scale agreement and vision on regional progression, let alone the bio-based transition. Although some signs of approaching are being observed and mutual projects have been started on various terrains there is a lack of interoperability.

The realization of a joint policy is though hindered by the state border being as hard as a rock when it comes to the guarding of interest within the own territorial confines. No authority will give up some of its mandates for an international organization or provide (financial) instruments for a ‘foreign’ region. This effect proves the suppositions according to which no mutually-run bio-based strategy and cross-border governance have been set up between the Flemish and Dutch regional authorities.

### *Policy fragmentation*

Rivalry and therefore the focus on one’s own interests’ causes fragmentation in mutual policy making. The proliferation of variegated cross-border projects endangers a coordinated interaction. The results are nationally-related activities that are carried out on separate ‘Flemish and Dutch islands’.

On the mid and long term this can lead to lack of synchronisation between the bio-based activities and the gradual disintegration of the project ambitions. Trust between partners can be damaged and the willingness to set the cooperation further after finishing the subsidy period. At the end, partners will feel more inclined to choose go-alone strategies instead of cooperating and facilitating.

Islands of innovation, that in an ideal situation spur cross-border integration, may contribute to weakening the border region in lack of truly borderless governance (chapter 3: 3.6.2. and figure 3.10). A sound, mutually developed innovation strategy on the sustainable economy is especially vital for launching the bio-based systemic transformation. Coherent policy making, consistent long-term strategy and a robust multi-actor cooperation led by a strong coordination are highly necessary in the transition (chapter 2). Otherwise, potentials on the longer term are not utilized optimally and chances are being lost.

### *The affective roots of rivalry*

The border is being reproduced and reinforced in the Canal zone by the indication of who ‘we’ are and what achievements should be done to ‘our’ region. The above discussed national perspectives are deeply engrained in the minds of actors at the border regardless of the willingness to create added value from a joint alliance. These characteristics illustrate the interplay between the symbolic, ideological meaning of a region and of the border with its other functions. Cultural and mental factors (paragraph 3.5.2) are organic part of political and economic objectives.

Belonging to a(n imagined) community and (un)consciously supporting it on any field is evidenced in the Canal zone. These mirror the affective space that is defined by human fondness and the emotional connectedness with space. These processes prove to be a contradiction to the discourse of a ‘borderless Europe’ as they pursue territorial demarcation and nation building which induce solidarity towards the own locality.

### *Cooperation of rivals*

However, by entering into a cross-border coalition the project partners demonstrate that they, in addition to being economic rivals, also cooperate. This occurs on fields where there are opportunities to reach when uniting the capabilities and resources and where there is a sense of obligation to collaborate. Evolving the bio-based economy is a challenging task which in the absence of collaboration is doomed to fail.

The actors in the project radiate harmony and unity by stressing the idea of ‘*if the other side gains we will benefit too*’. Also, for the promotion and acquisition of the bio-based cluster the border appears to have no relevancy: it is not about two regions but one undivided cluster wherein the border does not play any role and not even worth mentioning. Internal competition in the local context of the Canal zone is being transformed into a portrait of a borderless cohesion towards the outside world. Once more an evidence of the contextual character of borders and how they change in varied perspectives. Nevertheless, prudence is offered concerning these remarks. First of all, one should not forget that the findings are based on perceptions, ideas and discourses that in reality can turn out differently. Secondly, it is important to realize that cooperation and unity are predominantly stressed by actors in the public sector. This issue is supposed to be in a different way understood by economic actors of the free market.

## **Bordered working methods**

Although Bio Base Europe opens up possibilities to social-economic resources and networks yet it is still the border that determines the organization, norms and everyday practices within the project.

The cross-border project at this stage of the cooperation does not strictly relate to the various legal and administrative systems of the Netherlands and of Flanders. Still, these differences are experienced as serious challenges at the border region. The very set-up of the project structure is a creative solution to the legal blockages “*due to the border made of concrete*” for launching an international foundation. Under the mutual umbrella organization of Bio Base Europe two nationally allocated project parts are active: the pilot facility is a Flemish while the training facility is a Dutch business. In addition to legal complexities this arrangement is driven by the national point of view. The strident, national distribution of responsibilities keeps the tasks neatly separated so that surprises from the other side of the border are avoided. Even trust seems to be nationally determined that is incited by but also reinforces the mental preprogramming on the “us” and “them” allotment.

The allocation of working methods as per Dutch and Flemish lines challenges Cooke’s definition of trust, being “*the willingness to risk placing faith in the reliability of others*” (chapter 4). Rather, it indicates a careful (suspicious) behavior, in particular from the Flemish side due to their less pleasant experiences in working with the Walloon community within their country. This verifies the importance of the perceived differences in business conventions and their probable impact on cooperation (paragraph 3.5.)

What’s more, strictly retaining the give-and-take balance illustrates how within the cross-border collaboration the ideology of the nation (unconsciously) dominates. Against the backdrop of open borders in the European Union the working methods of the cooperation keep following the concept of national reciprocity: the border functions as a dividing line in sharing the duties and tasks. A paradox of the border region is unfolding: participants, otherwise longing for a genuinely borderless zone that would make life easier, (reflexively) reinterpret and reproduce the state border during their daily interactions.

As enlightened in cooperation theory clearly defined responsibilities within an alliance foster efficiency and enlarge the chances to succeed. Also, assuring a perceived equality among the partners ensures a sense of satisfaction and acceptance (paragraph 4.2.2.). In this line, the state-inspired split of management may be a logical and clever conduct although it can turn into a threat in the collaboration. Fostering an alternative plan in mind at the inception – setting forth alone if one project part fails – may activate opportunistic behavior. The relationship can for this reason become loose-fitting since the participants make themselves aware of their independence of the other whilst the recognition of mutual reliance (chapter 4) is a prerequisite in creating a strategic alliance. This triggers the questions on the mutual and voluntary continuation after the subsidy period.

## **Socio-cultural attitudes and the mental preprogramming**

*Different than “the other”*

The transborder undertaking is also challenged by the cultural variations between Flanders and the Dutch region. This zone is the meeting point of South and North Europe with all its consequences in lifestyle, mentality and work methods that are not merely perceived though but also experienced in real life.

Still, in spite of the common language, history, and the routinized cross-border daily life across the border, bearing the dissimilarities in mind keeps reproducing the psychical edge in the heads. The effects of the symbolic shape of the region and the ideological function of the border (Paasi, 3.2.1.) are discernible through the cooperation. The delineation of “us” from “them” is expressed in the bounded territoriality: the geographical distinctions are set up in the minds.

This is mirrored in the declared national characters on both sides of the border which completely differ since “a Dutch remains a Dutch” being part of “them” versus a Flemish belonging to “us”. Beyond enforcing the own identity against “the other” these views also contain stereotyped images.

The affective nature of the border, cutting through the canal, perseveres the territorially-based concept of the nation and the self-perception of belonging to a certain community. These refer to the mental distances between the Flemish and Dutch partners, to their the spatial identity and in which culture they feel at home.

These findings therefore validate the hypothesis assuming the lack of a common sense of place and a collective cultural identity. Also the expectation is contested that a “bottom-up” mutual regional identity among the partners is evolving.



### *Towards a common cross-border identity?*

The promotion of a harmonized and naturally spontaneous economic space and cluster will be challenging. Identity is seen now as having an economic aspect while an internal cohesion is absent. The Flemish-Dutch zone is now not represented as having a cross-border identity of its own or as being more as a cooperative arrangement.

At the same time, in case of the successful evolution of the bio-based transition with its ecological and economic benefits for the entire region, the added value of the collaboration may become justified. The positive impact of a large cluster around the bio-based economy on the regional prosperity may in the future stimulate a common spatial identification in the Canal zone. The transformation of the ‘regional established role’ (paragraphs 3.2. and 9.2.) can in this sense reconstruct the symbolic meaning of the entire border area. The link and a probable effect of the cooperation on the border region have been signified in the conceptual model. However wariness is recommended of not amplifying the future significance of one single project. A later research could give an intriguing insight into the fissure between the (economic) need for the bio-based place branding and the inhabitants’ regional identity.

### **Bridging mentality**

The project partners exhibit creativity and incentive where it is possible to reconcile the differences arising from the various institutional and political systems. Although in the absence of a cross-border governance coordination legal regulations cannot be overruled, in the field of behavior and manners there is room for flexibility. Familiarity with the political and institutional culture and business conventions in the neighboring region combined with the participants’ eagerness to adapt to and accept them make the Bio Base Europe coalition steadier.

Despite some frustrations or tensions due to the cultural and psychological divergences the project partners put a great effort to let the bio-based coalition succeed. Minimising the obstacles of the border by self-adjustment to the multicultural conditions illustrate the participants’ concern with the project. This exemplifies a mutual cultural referencing wherein the behaviour and action of each other is predictable and acceptable. Caution in communication with people from another cultural background assumes a less open culture; however, being attentive on the cultural habits of partners seems the most adequate way of teamwork in a cross-cultural setting.

The cooperation in the Canal zone breeds a kind of bridge mentality among the participants that may reinforce the trust towards each other. The adjusting style of everyday interaction lessens some of the border hindrances. Working across the border is demanding but the advantages (9.2.1) make these efforts worth it. The advantages overshadow the disadvantages: through this conversion the Canal zone is gradually becoming an asset of opportunity. The ‘win-win game’ drive the partners to step over the cultural differences by making the border less relevant as an obstruction. The assumption can be to a certain degree verified that the socio-cultural and mental variations do seriously hamper the cooperation. At the same time, no explanation can be done on the role of the similar linguistic background in this aspect (the narrow sense of culture) as it falls outside the scope of this research.

### **Borderland in the field of forces**

On the base of the above formulated conclusions, 9.1. visualizes the paradoxical elements around Bio Base Europe. The force field, wherein the project is situated, involves the centripetal features of border barriers against the centrifugal factors of border opportunities.

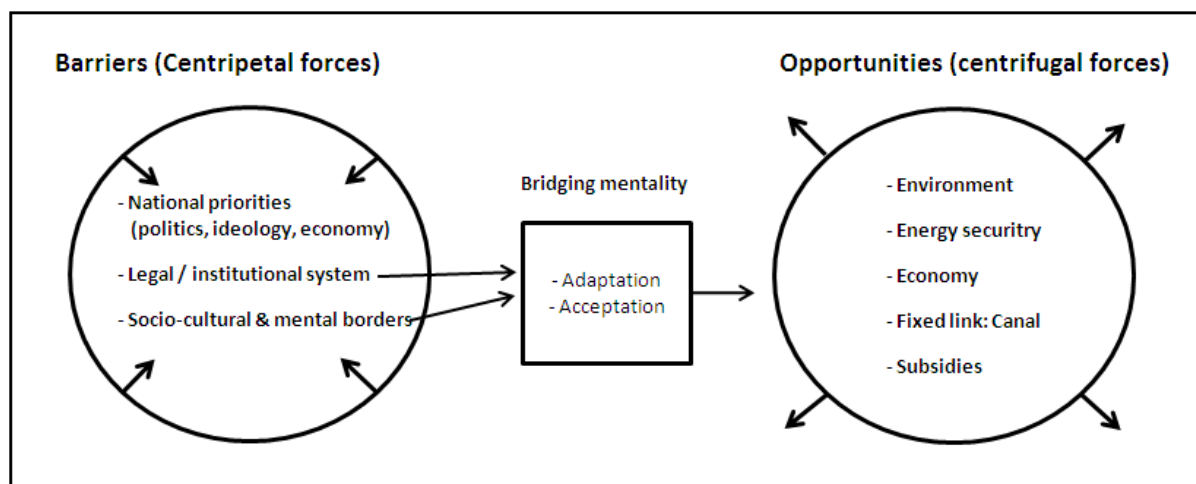
The research also shows the particular relation between the macro- and micro-level since the national border is present between the project partners at the meso (border zone) and micro level (Bio Base Europe). Although major obstructions for cross-border cooperation are brought about by the macro-level (the nation state), the border and its impeding factor is being (re)produced on all levels. The Bio Base Europe cooperation clearly illustrates how borderregional development keeps significantly delayed by the various, nationally-induced attributes.

At the same time the micro and meso level expose a paradox in bordering practices. Beyond fortifying the boundary in daily interchanges, the project participants and regional developers simultaneously resist the border running through the Canal zone. Bio Base Europe demonstrates the principal issue seen when partners move from a pure territorial competition towards a combination of cooperation and competition. The project stakeholders work hard to get the border finally undone and maximise the territorial potential by adaptation and acceptance. Their bridging mentality entails a solution-oriented focus in order to grasp the opportunities by being positioned in a border zone.

The attempts on the local level to remove or soften the barriers as well as to make use of the complementarities and geographical reorientation indicate that both border-promoting political discourses (paragraph 3.4.) are valid at the Canal zone. The border is seen in a negative light, the hindrances of which should be eliminated while the diversity of the border is celebrated as a newly central place and economic asset.

In the light of the described contradictions it is difficult to speak of a borderless social-economic zone between Ghent-Terneuzen. According to Martinez' typology (paragraph 3.3.) internal EU borders belong to the category of deeply integrated regions in which economies of neighbouring border zones are completely merged. The Dutch-Flemish Canal zone does not display these characteristics as it does not form an "unbordered" region as regards content and depth. Rather, this border zone may stand at the beginning to become an interdependent borderland evolving into a mutually beneficial economic system.

**Figure 9.1. Contradictory forces around Bio Base Europe**



#### 9.4 Transnational strategies - shifting borders

This paragraph concludes on the last subquestion that deals with the potential extension of the strategic alliance for the transition of a European bio-based economy. As has in details been explained in the previous chapters reaching out for a transnational bio-based cluster on the geographical scale of North-West Europe is necessary to: acquire critical mass, to enlarge global position and international profile, to bundle the forces of various complementary sectors and to avoid the duplication of (technological) developmental activities and facilities within the same supra-region. Jointly implementing a transnational strategy (figure 3.5) would enable to address the issue of functional integration of North-West Europe regarding the promotion and establishment of the bio-based economy. Therefore the following issue will be in this paragraph handled:

*How can the Flemish-Dutch cross-border cooperation interpreted when it transcends the contiguous geographical areas?  
In other words: How can the effect of the border understood by switching the development of the bio-based economy to a far-reaching spatial range of relations on supra-regional and supranational scale?*

These aspects deal with examining the inclinations to cooperate between the cross-border cluster Ghent-Terneuzen and the bio-based networking in the Province of South-Holland. Notwithstanding it is remarkable how by focusing on the potential of a large supra-regional alliance has in certain aspects put the Flemish-Dutch collaboration in the Canal zone in a new light.

#### **In principle: alliance needed. In practice: ignorance**

As explained in chapter 8 the need for a transnational collaboration is widely recognized by the regional stakeholders from both clusters. However, it turns out from the empirical research that a cross-border way of thinking does not automatically translate into cross-border activities and a narrow coalition. In part, it is attributable to the lack of awareness on the mutual dependency and sense of urgency as well as to the preliminary stage of the developments. As shown in the theory on cooperation (chapter 4) without a shared feeling of interdependency and pressure to act, a real base of collaboration does not come into existence. The passivity, lack of interest and probable ignorance towards future possibilities of an extended bio-based network are further driven by the fragmented nature of bio-based organizations in South-Holland. Numerous platforms have been set up in the theme of environmentally sustainable economy inclusive the bio-based transition. However, the involved stakeholders from municipalities or from the business life have incomplete knowledge and one-sided understanding on these developments. Also the laborious and demanding cross-border coalition in the Canal zone predisposes these parties to limit the number of participants instead of expanding it.

## **Inconsistent national strategy – a distressed border region**

On the other hand, the national strategy of the Dutch political centre regarding the bio-based economy accrues a sense of mistrust in the participants of Bio Base Europe. Supporting and prioritizing another bio-based cluster, surrounded by the same transnational regional space and what strives to gain a leading position in Europe, has evoked disappointment and a feeling of anxiety. Perceiving it as a threat is chiefly steered by the noticed competition that is being established with the support of the Dutch state. The main rationale of the patronage is to make the “Netherlands Ltd.” a competitive player and pioneer in the transition towards the green economic system.

The territorial demarcation of national economic interests is robustly evident for the partners in the Canal zone. The marginalization and ignorance ‘*of our Canal zone and our province*’ by the political centre have been enough times brought up during the interviews that verifies the related assumption. The strategies on the macro/national level are not perceived as coherent and consequent that leads time and again to the neglecting outcomes for the border zone. The functioning of the state border is far too well sensed at the border in the 21<sup>st</sup> century even in the “integrated” Flemish-Dutch border region where movement of persons, goods and finances have been granted since several decades.

The power of the national ideology – by prevailing the own economy within the bounded state territory – has been in details discussed in the previous paragraph (figure 9.1). Regardless of the centrifugal forces of opportunities and pressures, driving regions towards border transcending cooperation, the centripetal power of the nation state keeps moderating joint actions in cross-border areas. The counteracting motions strike back at the border zone and harm the realization of cross-border objectives.

The true facade of working Europe was by the informants even more exposed as regards the bio-based cluster developments in the Rhine-Scheldt Estuary. In spite of gestures for international cooperation and the rhetoric of the European integration actors, in the border area of the Canal zone feel victimized under the “Brussels cartel” (paragraph 3.5), the game of the European states. The Dutch Task force for cross-border governance (2008, p. 3) strives to provide euroregions with incentives and driving forces ‘*for further European cooperation, while retaining national sovereignty and identity*’. The research results show that exactly these conflicting endeavours place borderlands in a burdensome situation. Development policies, constructed in the line of the national strategy, do not represent the actual interest of joined border region. The conditions particularly delay the advancement of the multifaceted bio-based configuration across regions and countries.

## **The border as a variable**

### *Alliance against rivals*

Amidst this fierce territorial competition and rivalry between governmental and economic stakeholders in the European space the redrawing of the state border is in evidence. The process of reshaping and giving a new understanding of the border is intensified by a new element in the picture: the (perceived) conflicting interests of a project on another geographical scale that is believed to become active on similar markets in the same transnational region.

The bio-based aspirations of the Dutch government have a distorting effect of competition, being conducted alongside national economic interests. The alleged inconsistency of the governmental policy places the project partners of Bio Base Europe on the same side of the border. The project has been set up to fight against the mutual enemy – the ecological circumstances and the labile energy security in the future. The participants had the belief to have formed a Dutch-Flemish interregional, international alliance to anticipate the many challenges (chapter 2) by gathering speed through a border transcending bio-based plan.

Conversely, the governmental support and encouragement for a Dutch bio-based program, that aspires to operate on the international scale, has aroused a new rival for the Canal zone. Bio Base Europe anew creates a united political ground: their sense of being in the same boat has been fortified under the weight of an emerging international albeit rival -albeit within a Dutch alliance- in their territorial neighbourhood.

As described in paragraph 9.2. gaining more power and profile in the (inter)national political and economic area further improve the advantages of the Interreg project Bio Base Europe. Nonetheless, the challenging state of affairs illuminates the overestimation of the assumed influence of the cross-border cooperation in the Canal zone. The Dutch state is perceived to show less esteem and reverence towards the Flemish-Dutch bio-based aspirations. The related assumption needs therefore to be adjusted.

Moreover, the situation can be related to the argument in chapter 3 on diverse and unequal interests in collaboration by the various sides of the border. Political priorities may focus on various aspects (like the ambitions of the Dutch state) and certain issues are experienced as a transborder subject only from one side of the border (the Flemish).

In chapter 3 (3.3.) the situation was depicted in which the national state and the border region have various attitudes and relations towards the neighbouring country or the cross-border zone. This incongruity comes illustratively to the fore in this case study: while Zeeland-Flanders orientates towards ‘the South’ (Flanders) the Dutch government is primarily concerned with the national development chances of the bio-based economy. Respecting the bio-based initiatives, the Dutch direction seems to consider Flanders or Belgium less important than the Province of Zeeland or the region Zeeland-Flanders does.

*Debordering the Canal zone: when ‘they’ become ‘us’*

The mentioned socio-cultural differences and affective traits with regard to a potential transnational alliance (Flanders/Zeeland and the Province of South-Holland) are insignificant, due to lack of real cooperation. The absence of concern on the socio-cultural boundary on this scale was predictable.

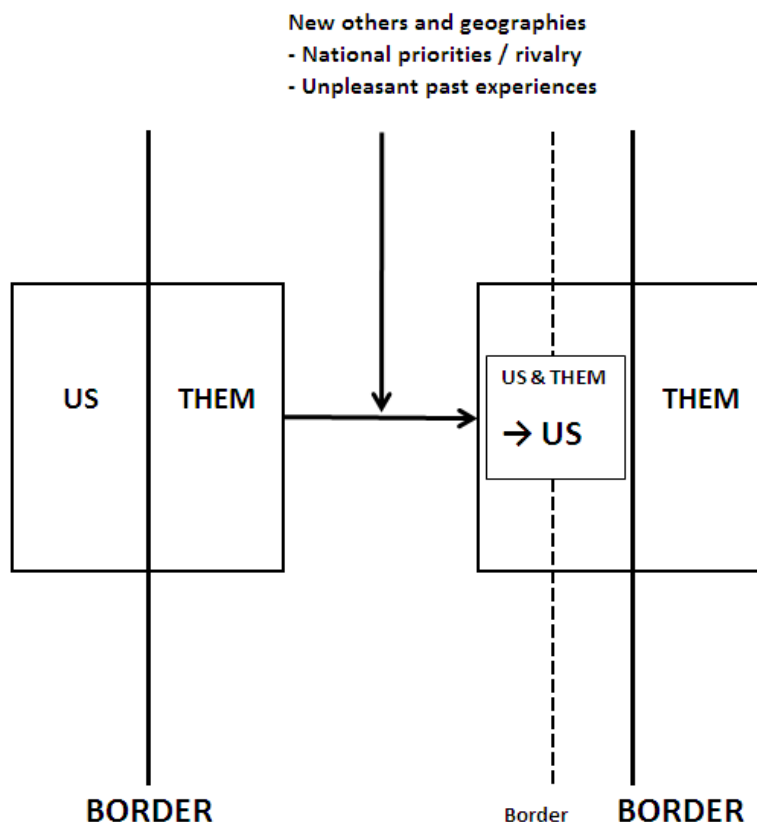
On the other hand, the cooperation in the zone between Ghent and Terneuzen is enhanced by a radical sense of unification due to the above mentioned contextual factors. The empirical research conceals how the (perceived) differences and mental borders are reduced in the need of allying against a rivaling region. By the emergence of a new ‘other’ in another geographical setting, the similarity and the belonging of the Flemish and Zeeland-Flemish are more vehemently stressed. Transnational competition boosts the cooperation in the Ghent-Terneuzen canal zone.

The perceived threat from the up-and-coming bio-based initiatives in the delta region makes the partners in the Canal zone feel more as one community. In these circumstances, the similar regional features become more accentuated such as sharing the same history, being one natural economic zone, having a long experience of working together and therefore understanding each other. The contrasting against another spatial formation in the bio-based business, a new (imagined) community is being created: ‘we’ Flemish/Dutch-Flemish vis-à-vis the ‘Hollanders’ in the rest of the Netherlands.

A new affective distinction of the ‘us in here’ and ‘they over there’ is constructed in the imaginary geography. The territorially bounded groups are being rearranged. This process illustrates the relational and arbitrary nature of ‘othering’: the geographical demarcation of belonging is being rescaled and replaced by the emergence of an additional ‘out-group’. As described in the analysis (chapter 7) this also takes place when referring to experiences with the Walloon community. The unpleasant outcomes in a past relation between the harbours in Zeeland and the Port of Rotterdam additionally strengthen the justification of this new division. This shift in the socio-spatial integration is depicted in figure 9.2.

The earlier refuted assumption on an growing common identity and sense of cross-border belonging is in the present circumstances verified. The developments of territorial (re)institutionalization in the Canal zone, which were described in paragraph 9.2., are receiving more impetus. Under the new conditions and the transforming established role of the entire region (the bio-based economy as a new regional function), changed meanings are rendered to the symbolic purpose and the spatial identification of the area. Nonetheless, these processes can be transitory since they take place on the occasion of one cooperative project and of induced economic competition.

**Figure 9.2. Shifting socio-spatial integration: a rescaled round of ‘othering’**



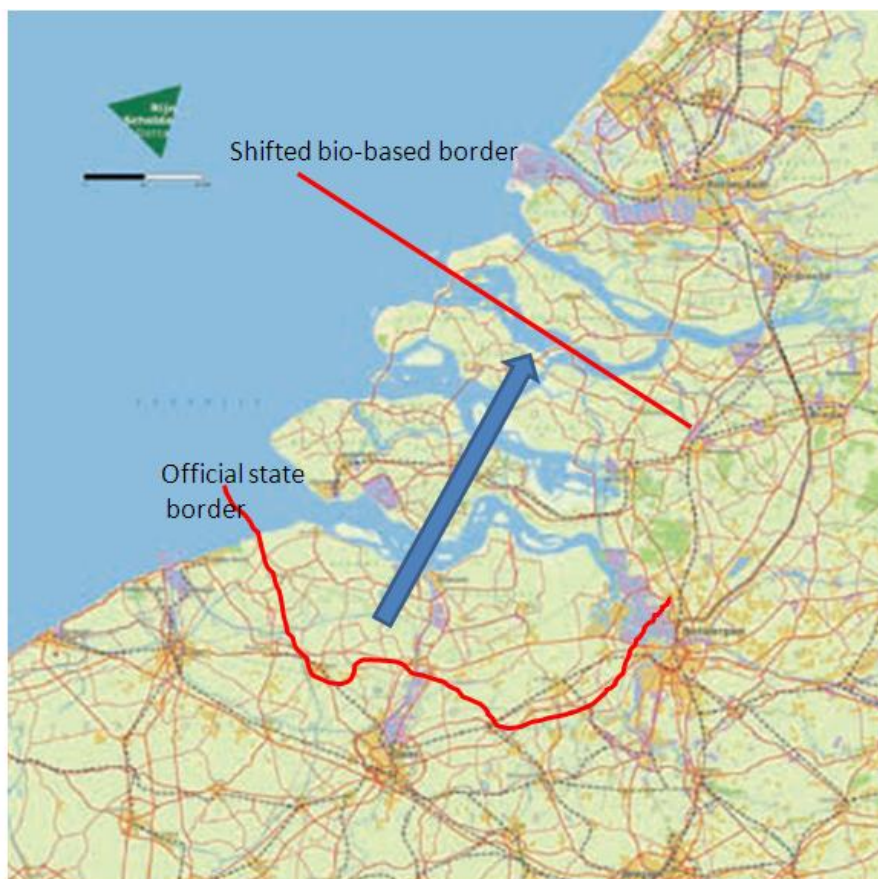
*The Flemish-Dutch border on the move*

Under the pressure of regional/national/trans-national rivalry and in line with the hypothesis the border is becoming irrelevant for the bio-based program in the Canal zone. The cooperation should be proved successful against a nationally-formed enterprise in which the question ‘*who is going to win at the end*’ dominates.

The shifting affective divergence in the territorially-bound ‘us’ and ‘them’ (figure 9.2.) is an important element in the mutual bio-based strategies and hence in drawing new (imaginary) borders. The bio-based project illustrates how the national border between Flanders and the Netherlands, delineated in 1830, is being reinterpreted by the transborder participants. In the context of the ‘adversary’ circumstances, the Flemish-Dutch cross-border area is turning into a Flemish-Zeeland regional unit, by virtually transferring the border into the northern direction (figure 9.3). The Western Scheldt, being already a natural border, becomes the dividing line through which Zeeland Flanders belongs to Flanders in the field of the bio-based activities. From a political point of view, because Zeeland Flanders is part of the Province of Zeeland, the bio-based border is re-sketches between the Province of Zeeland (*‘as they are with Flanders’*) and the Province of South-Holland.

The geographical translation of these processes creates a map of new territorial formation and boundaries that aligns with the hypothesis on the shifting meaning of the border. The growing orientation ‘*towards the South*’, the perceived lack of attention from the political centre reinforce the challenging and ‘removing’ of the state border by the Dutch province of Zeeland.

**Figure 9.3 :Bio-based developments in Northwest-Europe: redrawn national borders**



**Source: Rhine-Scheldt-Delta Cooperation (RSD), 2009.**

The processes of territorial re-institutionalization and reestablishment in the Canal zone illustrates the relative character of borders. This indicates their transforming role under the impact of altering conditions, in this case the emergence of another geographical entity around the bio-based economy. Although the historical ties have some significance in getting close towards each other, the real significance of allying within this cross-border cooperation takes place under the external strains of the economy and climate change.

A couple of case studies make it difficult to draw general conclusion for border regions. Still, the research on the cross-border and transnational cooperation in this study leads to some watchfully contemplated thoughts as a definitive conclusion. As long as the governing structure in Europe remains in the Westphalian fashion of nation states, border areas will not achieve the most optimal path of development. Solving this major obstacle could be searched in the political system. Cross-border cooperation and border regions can only gain good position in the interregional competition if cross-border structures with political power are founded for the entire interconnected region.

#### **A scattered Europe – same bed, different dreams?**

The interviews reveal how sceptic the most respondents think of the language of a united and globally competitive Europe that would bring away prosperity for all inhabitants. In their daily interlinkages and certainly in the issue of the bio-based initiatives the understanding and perspectives does not reach further than the local or national context. The global perspectives are suppressed or totally lacking in the economic or spatial plans. It is remarkable how the majority of the interviewed persons agree on the necessity of a mutual bio-based plan and collaboration in the Northwest-European region.

Uniting the capabilities, capacities and various profiles/specialities of the diverse sectors, the harbours and research institutes could create a real chance for the set up of a forceful bio-based cluster that could become a potential European and even global factor. Besides, *‘these challenges know no borders neither the solutions nor the teaming up’*. The cognitive proximity and relative physical nearness of the Dutch and Flemish universities could complement each other’s biotechnological research activities that make the evasion of duplicating accomplishments possible. A well-considered

transnational strategy and complementary partnership could prevent overcapacity in the supply of bio-based services (pilot facility). This could avoid unnecessary public investments in expensive projects that on the long term would not produce any returns.

Also, the harbours offer the possibility of coaction: while Rotterdam can engage in fine chemicals the harbour complex Ghent-Terneuzen could serve as a hub for energy and bioplastic- were an often heard argument. The involved stakeholders admit the importance of a joint action but still think that the situation will probably remain as it is because Europe means ‘*the isolated regions withdrawing in the own cocoon*’ by focusing on their own short-term interests.

On this transnational level the behaviour, driven by regional and national competition of territories and business actors, does not make any room for cooperation as is the case in the Canal zone. The situation of rivalry also exists alongside the Flemish-Dutch canal but the recognition of interdependencies and complementarities as well as the surplus value of the joint development encourage a cooperative attitude. This is necessary since the transit towards the bio-based constellation that provides benefits for the whole society, requires a massive alliance of many parties cutting through all fields and territories.

However, considering the present approach of the various enterprises in the subject of the bio-based economy one gets the impression that in particular the eagerness to first secure individual economic benefits dominates the scene. Becoming an international top region, cluster, pilot facility etc.. features the primary concerns, pushing questions on large-scale organization aside. The ‘green’ economy is still about hard-headed economics and heated rivalry. This leads to conflicting strategies, disintegration and distrust in the supra-regional space that at the end will result in ‘self-cannibalization’.

This aspect is even more critical when considering the regional size and competencies in a global point of view: the entire territory of the Estuary is seen as one contiguous (economic) area. The Northwest-European region through the weakening of fragmentation will on the longer term not be able to participate in the intense global contest for a pioneer switch to a sustainable economy that in a full-grown phase delivers efficiency, lower production costs, value added and an answer on the environmental problematic.

Although most stakeholders agree on the damaging effect of this supra-regional division a strong push or pull factor, stimulating a move towards allying up is still missing. This is probably caused by the absence of a powerful transnational coordinating body that could make partners aware of their interdependency and capacities. The motives among the diverse parties are gathering momentum to think about a bio-based coalition or strategic clustering in the Northwest-European area: the building blocks to make bridges among the many islands of Europe are yet to be revealed and put together.

### **Northwest-Europe against the rest?**

The theoretical willingness to create a comprehensive bio region has not yet been translated into a mutual plan between the clusters in the Canal zone and in the bio-based action area in the Province of South- Holland. The irrelevancy of the border, as explained in the conceptual model, is a factor in the understanding of indifferent attitudes and ignorance towards (the opportunities of) the border.

A tactical and deliberated coalition on the lower scale of contiguous border area in the Ghent-Terneuzen already has taken form by realizing the need, urgency and opportunity of cooperation. As detailed in the former paragraphs, participants here take efforts to bridge the hindrances of the border by adjusting, accepting and by inventive solutions.

The question remains, for a future research agenda, if global developments in the bio-based economy will in the Northwest-European region induce a recognition of ‘*we against the rest*’ similar to that in the Canal zone. This could place the perspectives and the processes of the economic transition in a global or at least European context. The interviews demonstrate that a move of national governments towards genuine borderless regions will only take place under a raised economic pressure. Then, politicians are coerced to have a paradigmatic shift and to weld transnational strategies. Only in case of awareness of the interdependencies and of the urgency can lead to the depolitization (denationalization) of the case and can turn the collision course into a collaborating partnership.

## 9.5 Recommendations

In the former chapters the experiences of participants in cross-border bio-based projects were analyzed. The key focus were put on the role and meaning of the state boundary in the cooperation for developing the bio-based economy. The importance of the practical relevancy of border research beyond enrichment of theoretical dimensions was underscored in the introduction. The aim is therefore to recognize how improvement of cross border partnership can be achieved and cooperation enforced. In the conclusions some moves were already made to formulate recommendations which will be presented in the following section. They mostly refer to improvements that can fence off or minimize the hindering working of the border in the advancement of the bio-based economic structure and of an efficient cross-border area. Subsequently the possibilities for a future research agenda will be proposed that are closed by a reflection on the whole research trajectory.

### 9.5.1. Ghent-Terneuzen Canal zone

Bio Base Europe is in an advanced phase of cross-border cooperation by turning ideas and initiatives into mutual production. The existence of the major conditions to cooperate is enlarged by the participants' optimistic attitude, their involvement and belief in the success of the project. Their solution-oriented focus and bridging mentality to lessen the impeding impact of the border and to exploit the opportunities have a strengthening effect on the partnership. Still, in order to have a strategic effect beyond the lifetime of the INTERREG financing program and to be able to develop the regional bio-based economy into a mature phase, the following considerations are provided:

#### *Business conduct: less national arguments*

##### **Manage and develop the project according to economic and geographical perspectives as an alternative to the national equilibrium.**

Bio Base Europe applies a cross-border umbrella organization that includes a nationally defined structure of business profiles, tasks and responsibilities. Having an alternative plan in mind (*'we keep going on if their business unit fails'*) can weaken the commitment and the confidence in mutual dependencies and complementarities for reaching success. This also evokes opportunistic behavior. Bio Base Europe is an economic project that should be economically feasible: this necessitates a long-term business-like approach instead of the short-term national give-and-take balancing. If the weighing of the decisions remains overwhelmingly defined by retaining the national equilibrium, the project will become inefficient and development chances will be lost. This will also be a testing mechanism for assessing trust and faith in the mutual objectives.

#### *More accurate acquisition goals*

##### **Define clearly the acquisition goals and target groups of Bio base Europe and the related terms for reaching these plans.**

During the interviews it turned out that vagueness and diverse ideas characterize the acquisition plan of Bio Base Europe. The notions regarding the primary focus and prioritizing the target group for the bio-based services of the Pilot Plant and Training Centrum refer 1) to companies and organizations in the region; 2) companies and organizations outside the regions (the ones who are engaged in bio-based issues); 3) both from in- and outside the region; 4) companies and organizations (and *'the market'*) will spontaneously approach Bio Base Europe once they realize the offered facilities.

The determination of acquisition goals, target groups and the time scheme for accomplishment is essential to work out an effective promotion strategy. Otherwise, diluted ideas as outlined above generate diluted strategy and deficient acquisition results.

At present, the point of departure is that both partners develop the bio-based economy on the own half of the cross-border area. However, development and acquisition should be better conducted in a coherent and mutual way owing to the complementary services of Bio Base Europe (and of the region). Separately approaching potential partners sends the message of separately operating businesses in various territories.

#### *A border transcending management*

##### **Set up a genuine cross-border project management body that takes "national free" decisions for the benefit of the joined region.**

In relation to the above recommendation and to the ad hoc type of organizing bio-based activities in the Canal zone, a more powerful cross-border joint management or governing body is recommended. Herein, the cross-border regional interests for the bio-based development should be strongly represented regardless of nationally-defined or individual priorities.



Only a jointly erected steering body, reaching beyond formalities, can serve as an anti-pole to manage the egotism of the individual stakeholders and coordinate the interest of the project as a whole. Tuning the Bio Base umbrella organ in or its advisory board can be an option. Both the Flemish and the Dutch partners should provide more mandates to such “inter-national” supervision of the project.

However, this issue touches upon the more general issue regarding the many institutional complications of the legislative, administrative, fiscal and political mismatches between countries. The case of Bio Base Europe shows how economic and innovative cooperation across the border is hindered despite of the European discourse and the set-up of new layers of cross-border governmental institutions. The Canal zone illustrates the impossibility to establish an international organization; the implications of labour mobility (high level of bureaucracy in case one works on the other side; unrecognizing diploma's from the neighboring country etc.) as well as the sovereignty issues of nation states (protection of the national economy and insisting on self-authority for instance Flemish Harbour Decree etc.). These issues can only be tackled on the European and national level effectively and only in case the member states really want to take “sacrifices” for the benefit of their border communities.

### *Broad-based dialogue*

#### **Bio Base Europe should as early as possible initiate the involvement of diverse regional players into the bio-based transition.**

The project Bio Base Europe and its goal to progress the bio-based transition cannot successfully set forth without a broad multi-actor collaboration. Building up coalitions and capacities of cross-border networking is a social constructive process that needs a bottom-up approach. Involving all regional players such as authorities, institutes, the business life, research institutes, developing agencies and the society and enhancing exchanges among these parties is essential.

The creation of a broad base for the project ambitions makes inventorying and permanently monitoring of the project achievements possible. Besides, knowledge can be gathered on the trends and problematic issues in the broader community in relation to the bio-based evolution. Learning through dialogue between different actors concerned will not allow targets to be diluted and will keep the stakeholders motivated.

### *Economic players*

#### **Involve the business life into the developments at an early phase.**

Informing and involving the business sector in the whole Canal zone is especially important. As it turned out from the interviews, the majority of companies or entrepreneurs are not aware of the bio-based initiating processes in the region or have a “wait and see” mind-set. This is understandable considering the difficulties owing to the economic crisis, the dependency on fluctuating oil and food prices etc.

The early participation of the business life is not only required due to the fact that the two business projects (pilot plant and training facility) should be commercially self-sufficient. Their prominent role is inevitable because at the end they will be the users of the bio-based system. The project partners as well as local authorities should more vehemently communicate the opportunities to corporations and entrepreneurs in the region.

Besides, it is necessary to work on the demand for innovation and not only on the supply. The attitude of “*all economic players will need our services*” allude to the focus on the provision side and less on market requirements. Gathering knowledge on the concerns and needs of companies regarding the emerging “green” economy will provide more input for the project partners and regional developers on the design of the bio-based trajectory. A first possibility lies in building up tighter contacts between the Flemish and Dutch representative organizations of companies along the Canal zone and in the harbours.

### *Society*

#### **Send a signal to the society in the whole border region on the emergence of the bio-based economy.**

A basis in societal support for the transition is inevitable for achieving the project objectives. The cross-border strategy with a comprehensive inter-territorial program towards the clean economy should elaborate a thematical promotion on the bio-based evolution. Explanation should be provided to all Flemish and Dutch inhabitants on the importance, necessity and urgency of the advancement of this new branch of industry. The illumination of the crucial role of a cross-border bio-based innovation space for the mutual territorial competitiveness and prosperity is useful.

### *Coordinator and representative*

#### **Appoint a coordinator regarding project-transcending, regional bio-based issues.**

The last two recommendations point to the importance of pro-active participation in regional bio-based issues and activities, rising beyond the short-term project tasks. This should take place in a coordinated manner and throughout the whole cross-border area. Also, developments and activities (congresses, exhibition, conferences etc.) that relate to the bio-based subject outside the region are essential events where Bio Base Europe needs a strong representation, radiating a united profile.

The synchronization of activities, movements, the flow of information and knowledge on the bio-based transition needs the designation of a ‘primus inter pares’ stakeholder or a unit. The strategy of Bio Base Europe contains these issues on the promotion of the bio-based economy. Still, the project partners and regional stakeholders from both regions should mutually look into the scope and intensity of Bio Base Europe regarding these assignments. Will their activity cover the whole regional level of both Flanders and Zeeland and are they able to do it? If not: which actor or organization should be allocated as a coherent regional ‘bio-based manager’? The empirical research shows that the clarification of this question is necessary as there is now ambiguity in this regard. The interviews expose that activities are fragmented in the Flemish-Dutch region; there is often a lack of information and coordination (‘*only Terneuzen attended that exhibition and the other partners not*’) underlined by the actors’ dilemma on ‘*who is going to haul the whole bio-based issue in the region*’.

### *A joint , large-scale bio-based development strategy on a higher governmental level*

#### **Set up of a mutual transborder development strategy on the development of the bio-based economy for the entire region, on the level of the provinces.**

For the time being specific projects, such as Bio Base Europe, are involved in the development and promotion of a cross-border cluster while governments and regional development agencies are mostly concerned with their ‘own’ territorial development. This is illustrated by the project Borderless Canal zone that targets the mutual development on the field of bio-energy. In reality, however, after having launched the specific project Bio Base Europe, the attention on this topic (in particular from the Flemish authorities) has diminished.

This creates an ambivalent situation: the project partners work on a borderless solution while the surrounding high-scale organization structures on both sides of the border stand with the back toward each other. This enlarges the risk that the specific project, due to the lack of a mutual broad-based and long-term approach, will dissolve by the termination of the financing period.

Consequently, the future ambitions of the Bio Base Europe project, referring to a period over 15-20 years, and the complexity of the bio-based progression require a high-level and coherent cross-regional development strategy. The Provinces of Zeeland and East-Flanders should therefore seriously consider a mutual all-encompassing program reaching beyond merely putting things on paper. Formulating joint ambitions and targets for both regions would stop the fragmented situation of having separate transborder projects with little cohesion.

The coordinated organization of knowledge transfer and collective learning as well as infrastructure needed for the bio-based structure can only be realized if stakeholders have a large-scale and integrated perspective for the future. This also refers to the problem of the low level of labour mobility in the region. Its stimulation is vital in order to tackle the insufficient social-economic and (cultural) integration.

Regional governments should make use of the catalyzing force of Bio Base Europe that has brought partners together. Bio Base Europe is a steady base on which the Flemish and Dutch provinces as major coordinators could build up a joint trajectory for their visionary bio-based program. This is an excellent chance to mobilize forces in the cross-border zone by winning all actors for this ecological, societal and economical mission.

### *A cross-border innovation regime: when if not now?*

#### **The bio-based initiatives in the Canal zone are sufficient arguments to create an experimental type of cross-border institutional and governance system.**

That would minimize the obstacles hampering the developments of a transborder bio-based space. Authorities and economic actors from both sides of the border should examine which differences exist in policy making, legislation and competencies in regard to various issues including the ‘greening’ of the economy.

The current circumstances – the imperatives and urgency to go bio-based, the economic potential and the start-up of Bio Base Europe - provide an exceptional moment and occasion for an emerging interconnected innovation space (figure 3.8) in the Flemish-Dutch borderland. The unification of the two clusters and their reinforcement as one bio-based space will further strengthen the sense of mutuality and reciprocity of the partners. This could support a sustainable sense of

togetherness to mutually set forth the bio-based progression beyond the lifetime of Interreg funding. The ambitions of the project should be used as a vehicle to build up a joint innovation and economic system that is not exclusively directed towards the regional or national systems.

The bio-based economy does not only concern technological innovation but needs innovation in the business/industrial organization and human resources. The connection of the systems in technology, production, logistics and the various sectors is here a prerequisite. On the long term institutional proximity will be demanded in order to create an integrated functional chain in the bio-based economy by setting up a mutual organization structure (figure 3.10) and a mutual large-scale and long term bio-based strategy on the provincial level (section above).

### *Cross-border identity*

#### **Beyond the joint marketing and promotion of the Bio Base Europe cluster, spread the knowledge on the common culture and history of the Flemish-Dutch border space.**

The Interreg project is a cooperative economic arrangement without having an internal, cross-border cohesion. Regional policy makers could contribute to the encouragement of a shared regional identity at the level of the cross-border area. Important here is to make a bottom-up approach by including the local inhabitants of the region. Elite-driven and bureaucratically promoted identity should be avoided as they frequently impinge an official version of identification that is non-existent among the level of citizens.

Although it will take a long time till a common cross-border identity will form in the Canal zone, cultural development through specific projects can on the long term be converted into a mutual sense of place and belonging. Sharing knowledge and feeling of a common cultural heritage could lessen the mental dividing lines between ‘us here’ and ‘them over there’ that is still strongly present in the Canal zone. Moreover, it might on the longer term support development strategies that are based on ‘our’ interests in the joint space replacing the nationally-oriented planning.

### **9.5.2. A transnational bio-based strategy**

The research results show that the recognition of the potential of a large-scale transnational networking for the development of the bio-based economy is underdeveloped. The ambitions have been formulated though they have not yet led to a joint thinking and action. The predominant factor herein is the perception of economic rivalry, frequently based on national perspectives. It is though important not to have a naive approach in this regard as businesses such as territories are also in competition within national spaces while a cross-border or transnational context further enhances this rivalry.

For the capitalization of the Northwest-European innovation capabilities and of the existing bio-based initiatives in Flanders and the Netherlands some suggestions were formulated:

#### *Links in the estuary*

**Make use of the potential of the Rhine-Scheldt- Delta Cooperation for developing the bio-based economy within its territorial scopes.** For setting up a joint Flemish and Dutch management of the bio-based economy the existing framework of the Rhine-Scheldt-Delta cross-border cooperation should more optimally be exploited. This active network and the broad representation of important municipalities, provinces and ports in this common region provide an obvious ground for supplying more content and depth in this organization by focusing on expanding the bio-based economy.

#### *National policy*

##### **The Dutch government needs to reconsider its role in the bio-based developments.**

The landscape of bio-based initiatives in the Netherlands is characterized by fragmentation and a high sense of competition that is also caused to the incoherent and politicized approach of the government. The recent bio-based project in the Delft-Rotterdam receives major attention in order to spur the economy of the ‘Netherlands Ltd.’. At the same time, the interest has significantly diminished on the Ghent-Terneuzen project that was set up as a comprehensive Flemish-Dutch bio-based collaboration. The partners of Bio Base Europe have reached the advantages of the first movers in the bio-based economy and have since then overcome many difficulties. They experience of not being taken seriously by the Dutch government.

This distortion generates major implications on the regional level that, apparently, was not previously considered. Its ambiguous behavior engenders frustration in the border zone that may jeopardize the Flemish-Dutch relations in general. The inconsistency furthermore risks duplication and overcapacity of (research) activities, being subsidized by public funds.

By backing another project leads to a ruthless rivalry within the Flemish-Dutch innovation space that may result in a self-destroying process.

The review of the governmental strategy should look at the type, direction, intensity and the consequences of its role and function regarding the bio-based economy. Concerning the induced complications, the central government should reconsider whether its active involvement in the developments is required, in which forms or whether the “regionalization” of state finances towards these innovation initiatives would suffice.

### *Global perspectives*

#### **The parochial thinking of governmental and economic actors should make place towards a joint positioning from a European and global perspective.**

Think globally and act transnationally or regionally: actors concerned in the bio-based transition should go beyond the local context for creating of a “win-win” situation in the entire transnational space. If they take their own catchphrase of “becoming a leading European and global factor” serious they will recognize that keeping to local/national views on merely individual goals will not suffice in the bio-based transformation on the long term.

### *A transnational Flemish-Dutch strategy*

#### **The governments of Flanders and the Netherlands should work out a mutual vision, development plan and governance as regards the sustainable development of the economic and industrial system.**

Cross-border and transnational territories become spaces of joint responsibility and management for pooling resources on the topic of sustainable development. Elaborating strategies by involving cross-border alliances should form a fundamental approach for organizing this new branch of industrial system. High-level governments of both Flanders and the Netherlands should collaborate on harmonizing their bio-based projects in order to avoid burdensome situations as the Ghent-Terneuzen vs. Delft-Rotterdam cases demonstrate. This requires political determination.

The Netherlands and Flanders should on a ministerial level work on a better overview in their mutual interests and concerns in order to formulate a joint strategy for the bio-based economy. For this, more attention is required on the interconnectedness and complementarities between the Flemish and Dutch bio-based initiatives. The dialogue of all related actors on local, regional and national level should be promoted and they should be involved strategic cross-border negotiations between states. This helps to define which topics and couplings exist among the partners for collaboration.

Flanders and the Netherlands should take opportunity of the capacities and of potential of the existing bio-based programs in their territories. They must develop holistic and integrated guidelines across policies and product sectors with the required political impetus. Actions should aim at better coordination, formulation and application of innovation activities and of spatial and cross-sectoral policies on the bio-based economy with regard to the whole transnational region.

The joint management of a transnational bio-based system requires the launching of an inter-national governance and institutional constellation. Flanders and the Netherlands should – through experiments – coordinate, adapt and harmonize the national/regional legal, administrative legislations and regulations according to the needs of a transnational bio-based space. This would though require the complex adjustment of the regulative systems in general which do not impede solely the bio-based issues.

### *Support from Europe*

#### **Consider the use of financial allowances within INTERREG IVB in order to exploit the innovative potential of the North-West European territory.**

In the case of cooperation in the Ghent-Terneuzen Canal zone Interreg financing is not merely a driver for starting up specific economic programs but it also functions as a catalyst for establishing durable collaborative communities and cross-border innovation spaces. The jointly set up project brings actors close to each other, stimulates collective learning that encourage sharing common responsibility for developing the region.

This idea can be converted on the transnational scale between non-contiguous spaces in Flanders and the Netherlands by considering the North-West European Programme of INTERREG (IVB). This subsidy program encourages the transformation of territorial discontinuity into a transnational joint space, at least into a space of discussion of mutual issues and strategies. The improvement of the functional integration of Northwest-Europe in the bio-based economy does not only strengthen the territorial competitiveness but address the challenges and barriers related to the specific topic of creating a sustainable economic structure.

The strategic initiatives of this INTERREG program match the outspoken requirements for the advancement of the bio-based economy. The formulated objectives orientate on the adaptation of climate change by developing sustainable economies, biomass energy and production based on renewable resources. The strategic impact of projects beyond the lifetime of the European funding is particularly emphasized. The diverse guidelines of the program seek to create complementarities and to develop a biomass supply chain. Also, the improvement of networking in innovation and technology transfer to enhance the knowledge-based economy form an essential part in this schema of the European Union. Identifying regional innovations and possibilities in order to link them into “transnational meta-networks” (INTERREG- NWE, 2010) is a major intention, stimulating a collaborative approach in place of the zero-sum game of merciless rivalry.

## **9.6 Future research agenda**

The present research formulated conclusions and recommendations regarding the establishment of the bio-based systemic switch through cross-border/ transnational collaboration. The aim was to determine the obstacles caused by the national border and to make suggestions to be applied for optimization of the cooperation. The research touched upon a multitude of subjects and evoked new questions which evoke issues for a future research agenda.

### *Learning lessons after Interreg*

The present research examined the Bio Base Europe cooperation at the initial stage wherein ambitions and targets have been formulated but actions still yet to come. After finishing the Interreg period, the cooperation and its results should again be evaluated in order to learn from the experiences. The project could serve as an example to examine the processes, the results of the project and the major factors of success and failure.

Among the results, special attention should be given on the development of the bio-based transition in the region as well as on the reached position of the cross-border innovation space as an impact of the bio-based project. A future research can inquire whether a progression towards a strongly integrated innovation space comes to existence in the Canal zone. This notion is justified by the asymmetries between the two regions regarding economic structure and cognitive distance (uneven spread of knowledge institutes) that theoretically assume a low-road development path.

Besides, it would be intriguing to study whether the intensifying bio-based collaboration and innovation space would also spur internal cohesion and cross-border identity in the Canal zone.

Finally, the question also remains whether the cooperative attitude and border bridging mentality will be maintained beyond the duration of Interreg funds. Will the present balancing between competition and cooperation give way to pure territorial contest?

### *The possibility of a cross-border governing structure*

The interviews disclosed that the establishment of a cross-border governing structure would be confronted with complications. In order to gain insights into the bottlenecks impeding its realization, a research may be justified: Which difficulties and hindrances are met for setting up a transboundary institutional system on various governmental level for the common progression of the bio-based economy? Do regional officers in border zones support the creation of a cross-border political structure while national authorities oppose it? Can a fear of the political challenge from the national government be sensed? What are the perspectives of local authorities in creating “above their head” an additional layer of institutional regime?

### *The achievements of the taskforce*

Following the former questions, inquiry can be done to find out more on the activities of the Dutch Task force for border regions, the so-called “Border broker” (GROS): What has been achieved since its establishment in 2009? This investigation could be carried out with keeping an eye on the ambitions and pursuit of the Dutch Ministry of Agriculture to set up a framework for the bio-based economy (Transition house). This program considers the bio-based cross-border cooperation and its barriers induced by the border. This would enable to compare the objectives and achievement in various policies.

### *Cooperation in the North-West European region*

A future research may also look how the landscape of the bio-based economy in Northwest-Europe will be taking shape in the (near) future. Will this be characterized by a sharp regional competition or will cooperation take more and more place

on transnational scale? How will be the approach of the national governments develops and which effects will it mean regarding the bio-based economy?

And if collaboration will come into sight, will this be performed to the logic of competitiveness whereby ‘‘competition through cooperation’’ has the major goal for regional actors to gain a better position above less associated places in the global economic hierarchy? Or will cooperation cultivate alternative forms of territorial solidarity; responsibility and joint planning that are extremely required in the advancement of the bio-based economy?

### *Flanders*

Although the interviews included Flemish stakeholders, the governmental actors (region and the provinces) or developmental agencies proved to be less willing to expansively discuss the bio-based programme in comparison to the Dutch authorities. A research could shed light on the attitude, strategy and activities of Flanders with regard to their priorities on social-economic cooperation with their Dutch neighbors. This could complement a probable research on the Dutch Task force on supporting border regions. This enables a more inclusive picture on Flemish-Dutch collaboration by scrutinizing both sides of the issue.

### **9.7. Reflections**

In August 2009, at the end of the interview for traineeship by ERAC, director Slinkman gave me an up-to-date publication on the bio-based economy. I would get acquainted with the topic and see whether it was something for me. At last it has turned out to be the research field of the present master thesis.

I was by then aware of the many endeavors worldwide for establishing sustainable economies. Still, the profound study of this specific domain has learned me a great deal on the necessity, possibilities and benefits of the bio-based economy. And the hindrances surrounding its advancement. The personal impact of the study is an additional person on the planet who has become a fervor supporter of ‘‘green’’ targets and lifestyles. And someone who is narrowly going to follow the bio-based development path. I came across skeptic opinions arguing that the bio-based initiatives may evaporate after a while due to unpredictable external forces. I hope they will not be right. Especially, if I think about the immense enthusiasm, commitment and efforts of the people I talked to during the interviews. Also, because the concept seems a simple and genius solution for the many problems our societies suffer from – once technological innovation enable its maturity.

The selected focus areas in the master thesis meant a huge undertaking. The complexity hides in the fact that both subjects – the bio-based transition and borders – are suitable for a sole examination. This research therefore contains 2 in 1. Probably it was kind of an overambitious target set against the time available. However, I found the combination of diverse aspects inevitable for a complete understanding of the issues going on. Beyond examining the attributes of the bio-based transition, the research is predominantly about borders and their role and meaning in cross-border cooperation. Utilizing of such a multifaceted approach made it a very intensive and hence an exhausting exercise despite the pleasure I experienced in doing it.

The broad scope of the investigation has enabled to cross my own disciplinary boundaries. The occasion of examining a particular project enlightened the many circumstances surrounding cross-border cooperation that, in my view, had to be regarded for a nuanced depiction. Social and geographical aspects as well as perspectives from the economy and organizational management of alliances were included. A mixture of disciplines – but after all isn’t it the use of multi-disciplinarity that academics intensely stress for the study of border regions?

Nonetheless this is not an all-encompassing research. The suggestions for a future research agenda confirm the limitation of the research. Certain matters were dealt less thoroughly, such as facets of biotechnological issues for which I had to do with scientific assumptions or the question on the sustainability of biomass production. The research is about regional cooperation and the social-economic and institutional conditions surrounding it.

Notwithstanding, I ask myself whether this substantial extent in breadth have not gone at the cost of depth in certain regards. This dilemma kept following me during the research trajectory. This and the broad scope of the study field therefore enforced me to make huge attempts to stick to the main route of the research and not to become diluted in other, albeit very intriguing, dimensions. I hope it has somehow succeeded. Fortunately, Huub Smulders, my mentor at ERAC, guided me herein by safeguarding me from ‘*investigating the whole world within one research project*’.

Still, my feeling remains that during a (scientific) research one meets the entire world in some way. What I have discovered is that limitation and demarcation are the art of academic analysis. It though does not go that smoothly as it sounds. Initially I have gathered and read theoretical explanations to such an extent that I have sort of lost my direction and orientation in the study at some point. The moment when one should stop, step back and ask herself about the principal motivation of the research. In particular the application of the diverse and often contradictory theoretical concepts appeared to be challenging: how can I take possession of those conceptual thoughts and theories, devised by the minds of others, while keeping the process as my own research? Questions and dilemma’s characterized this part of the research course

such as “ how do I know which ones are really relevant without having a large experience in scientific empirical investigation?” and “how could a combination of various concepts be applied without becoming entangled of the many abstract views”? The critical review and the support from my university tutor, dr. Kees Terlouw as well as from Huub Smulders could give some resolutions for these doubts and it has helped to set the research forth with sharpened insights and orientation.

The empirical part of the research went smoothly. My informants were very cooperative and also interested in my thesis that gave me further encouragement and élan in my work. I have to admit that the few weeks I spent there have made me growingly attached to the Flemish-Dutch zone alongside the Canal zone. I have learned about the people and the history of this fascinating region that for the “average” Dutch remains a kind of terra incognita. It was amusing to recognize how I myself reflexively contributed to persevering borders: being an émigré I could share the sense of the Flemish on the “strange and worthless” eating habits of the Dutch for example. Referring to the likely (hindering) consequences of my accent when speaking Dutch, also illustrates the slumbering bordered mindedness of society. The expected impact of the difference of not originating from “their group” is driven by stereotyped injustices. So, the theory-confirming detection during the research: borders will not disappear as they are socially constructed. We keep ignorantly producing them in our minds in everyday practices.

The research methodology was based on a bottom-up approach in the sense of evaluating individual behavior, perceptions and the state of affairs of border-crossing personal exchanges, with the use of a limited number of respondents. This enhances once more how economic cooperation and ambitions are driven by human feelings and thoughts. And as seen previously, (rational) strategic proceedings are still frequently grounded on (emotional) human perceptions and, as highlighted in this study, on the mental boundaries.

The conclusions reveal that the major breaking lines in the empirical findings are the paradoxes of cooperation-collaboration and of barrier-opportunity. Between these fields of tension (de)bordering processes permanently take place by reproducing, resisting, rescaling and shifting the borders. It was challenging to set up a very obvious conclusion on the role of border. Explanation on it can only be given from a contextual perspective – the interpretation of the border depends on the angle from which one looks at it.

Till the last moment of this work I kept the feeling of “still not being perfect” and improvements continuously had to be carried out. And the improved piece still always could be altered to the better .....The work can only be finished by the acceptance of its incompleteness and hence by formulating new research tasks for the future. I am content with the research path and the result and this acknowledgment could in the best way be expressed in Sinatra’s fashion: ‘*I planned each charted course, Each careful step along the byway, And more, much more than this, I did it my way*’.

# Samenvatting

## 1. Het studieveld: grensgebieden

In dit onderzoek staat de analyse van grensoverschrijdende samenwerking centraal in het innovatieve veld van de bio-based economy. De renaissance van grensregio's begon in de jaren 90 met de voltooiing van de eengeworden Europese Markt. Regio's langs nationale grenzen zouden het ultieme bewijs worden voor het succes van de Europese integratie. Deze ooit als periferie behandelde territoria hebben een nieuwe en unieke positie gekregen in zowel de politieke als in de wetenschappelijke arena. De intensivering van de neoliberale economie en globalisering hebben grenszones waardevolle instrumenten gemaakt. Het beter benutten van hun potentieel kan het innovatievermogen en concurrentiekracht van grensregio's bevorderen waarmee zij ook bijdragen aan de versterking van de nationale en Europese economieën in de wereldwijde hiërarchie.

Uitgaande van de grens als kans en een zone van interacties kunnen synergie-effecten gecreëerd worden. De verschillen en aanvullende sociaaleconomische karakteristieken benadrukken de vervlechting tussen aangrenzende regio's. Bovendien, ernstige maatschappelijke en ecologische problemen stoppen niet aan de grens. Het aanpakken van complexe vraagstukken veronderstelt gezamenlijke verantwoordelijkheid en handeling voor het samenhangende gebied. Duurzame regionale ontwikkeling vereist dan ook de vereniging van capaciteiten en competenties op supra-regionale of transnationale schaal. Het is zodoende geen verassing dat grensoverschrijdende en Euroregionale samenwerking sterk is toegenomen en dat deze ook door de Europese Unie en nationale politieke centra intensief wordt gestimuleerd.

Ondanks het wegvallen van binnengrenzen in de EU betekent de staatsgrens nog steeds een serieuze hindernis in de samenwerking. De grens als barrière. Nationale en regionale verschillen op het vlak van politieke, institutionele en juridische systemen hebben een beperkende rol in het aangaan of intensiveren van samenwerkingsverbanden. De problematiek van grensoverschrijdende samenwerking ligt vooral in de ergens anders - door nationale centra- gecreëerde omstandigheden waarbinnen grensregio's moeten opereren. Vanuit de literatuur komt een versoberend beeld naar voren over de bescheiden sociaaleconomische integratie van grensregio's. Sociaal-culturele verschillen en mentale grenzen zijn doorslaggevende, maar vaak nog steeds onderschatte factoren in de matige resultaten van transnationale partnerschappen. De in deze analyse doorgelichte samenwerking streeft ernaar om een grensverleggend, duurzaam economisch systeem te realiseren over de grenzen heen:

## 2. De inhoud van het studieveld: de bio-based economy

De bio-based economie is een compleet nieuwe economische structuur waarin energie, brandstoffen en (chemische) producten op basis van hernieuwbare, plantaardige materialen (biomassa) worden verwaardigd. Volgens vele pleitbezorgers is een snelle transitie naar alternatieve duurzame productie- en consumptiemethodes de enige kans om de grootste uitdaging van de 21<sup>ste</sup> eeuw het hoofd te bieden. De noodzaak voor de transitie van een fossielgebaseerde naar een groene economie is ingegeven door de complexiteit van maatschappelijke, ecologische en economische moeilijkheden.

De urgentie om op tijd oplossingen te vinden voor deze uitdagingen tekent zich af als een race tegen de klok die leidt tot innovatiedrang. Een gedwongen attitudeverandering in publieke, politieke, wetenschappelijke en industriële kringen is eveneens onontbeerlijk.

Een vooruitstrevende rol in de opbouw van de bio-based economy biedt tevens grote economische kansen, hetgeen de intensifiërende globale wedloop verklaart. Echter, de transitie naar de groene revolutie verloopt stormachtig. De veranderingen betreffen de nog ontbrekende nieuwe generaties technologie op industriële schaal en de fluctuerende en marktbepalende olie- en energieprijzen. De onmogelijke concurrentie van het bio-based systeem tegenover de goedontwikkelde fossielgebaseerde "business as usual" is daarbij ook een handicap. Het dilemma op het gebied van het gebruik van plantaardige grondstoffen voor voedsel of brandstoffen wederom leidt tot veel kritiek en vertraging.

Om de moeilijkheden in deze structurele industriële transformatie te overwinnen is samenwerking tussen sectoren, het bedrijfsleven, overheden en kennisinstellingen van wezenlijk belang. De bio-based economy is gebaseerd op de verwevenheid van diverse activiteiten (R&D, energie, landbouw, logistiek, industrie) omdat het een geïntegreerde keteninteractie vergt. Naast de behoefte aan kennisintensieve werkzaamheden zijn het toepassen van innovatieve organisatievormen en processen essentieel.



### 3. Vraagstelling

De grens tussen de partners voegt extra dimensies toe aan de samenwerking voor het bevorderen van de ingewikkelde, duurzame transitie naar een schone economie. De kansen en implicaties van zowel grensoverschrijdende samenwerking als de ontplooiing van de bio-based economy leggen de basis voor een intrigerend onderzoek aan. Deze studie combineert de bovengenoemde aspecten van innovatie, duurzaamheid en grensregio's en zoekt antwoorden op de volgende probleemstelling:

#### **Wat is de invloed van de nationale grens op de Vlaams-Nederlandse grensoverschrijdende samenwerkingsprojecten in de opkomende bio-based economy?**

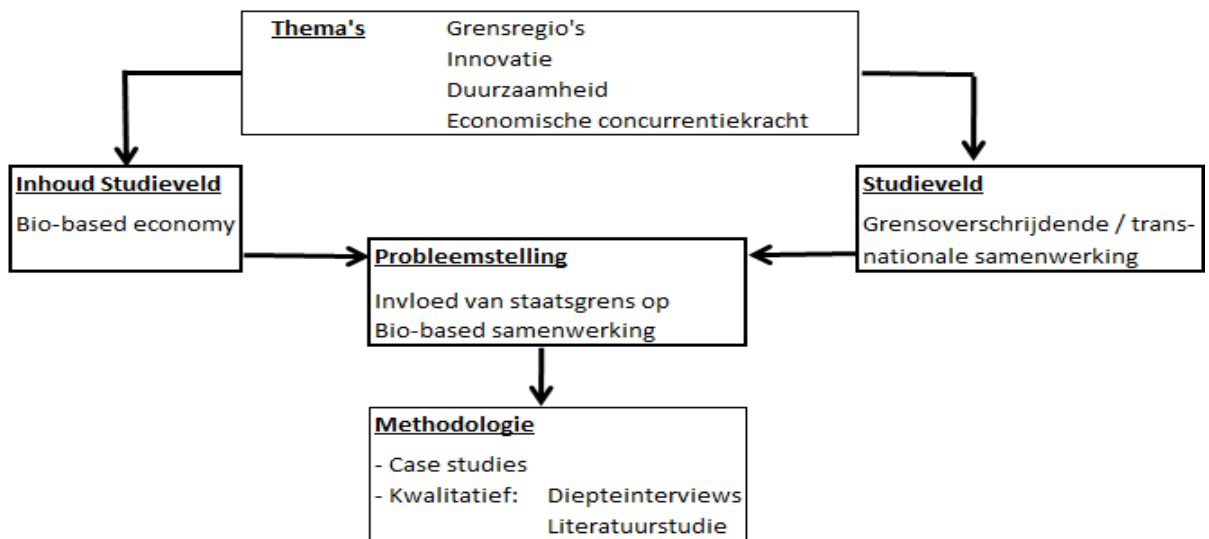
Behalve de intense maatschappelijke en politieke aandacht voor duurzame ontwikkeling, is dit onderzoeksexperiment ook relevant vanwege de praktische insteek. De meeste studies over grensoverschrijdende relaties kijken vanuit een 'top-down' perspectief naar overkoepelende bestuurlijke samenwerking. In deze analyse wordt het accent gelegd op het microniveau door het bestuderen van een concrete projectsamenwerking. Daarenboven, de ontwikkeling van de bio-based economy krijgt in dit onderzoek een nieuwe benadering. De meeste analyses bekijken de voortgang van deze structuurverandering vooral vanuit de invalshoek van economische haalbaarheid en ontwikkelingsalternatieven op het technologische vlak. Deze bestudering stelt vooral de sociaal-culturele en -institutionele aspecten centraal om de ervaringen in humane interacties te achterhalen.

Op zoek naar het beantwoorden van de centrale onderzoeksvraag en om de empirische uitvoerbaarheid mogelijk te maken werden de volgende subvragen geformuleerd:

1. *Wat zijn de drijfveren van de partners voor het aangaan van grensoverschrijdende samenwerking?*
2. *Hoe kunnen de vorm en intensiteit van het projectpartnerschap gekarakteriseerd worden?*
3. *Welke mogelijkheden worden door de partijen aangegeven om deel te nemen in de grensoverschrijdende bio-based alliantie?*
4. *Wat zijn de meest genoemde belemmeringen en moeilijkheden in de samenwerking en welke oplossingen worden gezocht voor de overbrugging van deze problemen?*
5. *In hoeverre zijn de grensoverschrijdende bio-based relaties beïnvloed door de sociaal-culturele verschillen en mentale barrières die door de grens ingegeven zijn?*
6. *Hoe kan het effect van de grens geïnterpreteerd worden als de samenwerking de geografie van aanpalende gebieden overstijgt? Wat is de betekenis en rol van de grens als er sprake is van samenwerking op transnationale schaal?*

Onderstaande figuur visualiseert de belangrijkste verkenningsvelden en elementen in het onderzoekstraject.

**Figuur 1: Opzet en hoofdelementen van het onderzoek**



#### 4. Theoretische benadering

Voor het leggen van een goede basis voor het empirische onderzoeksdeel is er gekozen om theorieën in verschillende thema's te combineren. Het conceptueel model (hoofdstuk 5, pagina 54) presenteert de theoretische benadering en de verbanden tussen de diverse factoren.

Concepten en literatuur over regiovorming, over de grens en de betekenis ervan op samenwerking werden uitvoerig geanalyseerd. De "harde" (institutionele, economische etc.) en "zachte" (sociaal-culturele, psychologische) grensfactoren leveren omstandigheden op die als barrières en/of kansen vormen ten opzichte van het ondernemen en voortzetten van bestuurlijke en economische verbanden. Deze tweeledigheid dient als vertrekpunt in deze studie voor het beoordelen van grenzen en hun impact op sociaaleconomische betrekkingen.

Op basis hiervan is er een overzicht aangeboden over de totstandkoming van geïntegreerde grensoverschrijdende innovatieruimtes. Dit deel beschrijft de voornaamste voorwaarden en vaak voorkomende belemmeringen maar ook de stimulansen in de ontwikkeling van samenvloeiende innovatieve activiteiten over de grenzen heen.

Hiernaast werd er gebruik gemaakt van samenwerkings- en netwerktheorieën om de kenmerken en voortgang van het project scherper in beeld te brengen. Deze karakteristieken detailleren de voorwaarden van succesvolle samenwerkingsverbanden. Onmisbare bestanddelen voor het überhaupt tot stand brengen van een samenwerking zijn het gevoel van urgentie, het besef van verwevenheid en afhankelijkheden en een gedeeld verlangen. Mist één aspect van deze basisvoorwaarden, dan zal de relatie vroeg of laat toch stuk gaan.

Op dit microniveau van de samenwerkingsdynamiek werden de factoren van de grensomgeving geprojecteerd. De vereniging van de verschillende theoretische beschouwingen maakte het mogelijk om de vereisten, bepalende delen, motieven en obstakels in de particuliere grensoverschrijdende programma te onderzoeken. De werking van de grens werd in al deze facetten voortdurend bekeken en geëvalueerd.

#### 5. Kwalitatieve werkmethode

Een kwalitatieve werkwijze werd gehanteerd in het empirische onderdeel. Deze onderzoeksmethode leek het meest adequaat om de "subjectieve realiteit" van de samenwerking bloot te leggen. Juist deze verborgen en "zachte" determinanten in de vorm van culturele, sociaal-institutionele en mentale verbanden, zijn moeilijk te meten door traditionele netwerkconcepten. Het opbouwen en behouden van contacten en samenwerking maakt deel uit van socialisatieprocessen waarin humane attitudes, geloof, waarden en normen beslissend zijn. Zo kunnen persoonlijke ervaringen en handelingen beter begrepen worden en hoe men hiermee door de aanwezigheid van de grens geconfronteerd wordt.

Percepties zijn cruciale onderdelen in menselijke handelingen en relaties. Strategieën en doelstellingen die actoren kiezen in een samenwerking vinden hun grondslag in percepties. Ze kunnen gelieerd worden aan de beoordeling van actoren inzake hun eigen positie, hun omgeving, belangen en hun oordeel over de samenwerkingsverband.

Naast het grondig bestuderen van literatuur werden diepte-interviews gevoerd met een twintigtal personen waaronder niet alleen de in het project betrokkenen. Om een zo breed mogelijk beeld te krijgen over de bio-based initiatieven werden ook medewerkers van regionale bestuursorganisaties of gemeentes geïnterviewd, alsmede vertegenwoordigers van het bedrijfsleven. Op deze manier konden zowel de bredere sociaalruimtelijke context van de grens als de bio-based doelstellingen in kaart gebracht worden die de manier van transnationale samenwerking beïnvloeden.

## 6. Case studies

De theoretische inzichten, literatuurstudie en de daaruit voortvloeiende aannames werden toegepast op twee casussen. Het toepassen van case studies is waardevol om de unieke omstandigheden van samenwerking binnen een bepaalde grensregio te belichten. Grenzen zijn contextueel: hun uitwerking op sociaaleconomische ruimtelijke integratie kan per omgeving variëren. Het gebruik van een case study biedt ook de mogelijkheid om een ‘bottom-up’ gezichtspunt te hanteren bij het behandelen van een projectpartnerschap waarin de dagelijkse ervaringen en visies naar voren komen.

### *Gent-Terneuzen*

Met betrekking tot de subvragen 1-5 werd het Vlaams-Nederlandse Interreg project in de Gent-Terneuzen Kanaalzone onder de loep genomen. Dit grensoverschrijdende gebied ligt tussen het Oost-Vlaamse Gent en het Zeeuwsch-Vlaamse Terneuzen aan weerszijden van het Kanaal Gent-Terneuzen.

Het project Bio Base Europe is het omvangrijkste Interreg project dat ooit is toegewezen aan de grensregio Vlaanderen-Nederland. Dit samenwerkingsverband is gesloten tussen Bio-Energy Valley en Biopark Terneuzen met de doelstelling om onderzoeks- en opleidingsfaciliteiten voor bioprocessen op te zetten. De projectpartners streven ernaar om de ontwikkeling van de duurzame biogebaseerde economie te versnellen en hiermee hun regio tot het belangrijkste bio-based cluster in Europa te transformeren. De samenwerking bevindt zich in een beginfase, hetgeen het interessant maakt om de wisselwerkingen tussen de partners te beproeven die de betrekkingen en resultaten van het project beïnvloeden.

### *Transnationale schaal: tweede casus*

Subvraag 6 laat zien dat er ook naar de mogelijkheid werd gekeken van een transnationale samenwerking op het gebied van de bio-based ontwikkelingen. De behoefte voor het samen optrekken op een supra-regionale schaal (in Noordwest-Europa) kan ondersteund worden door het complexe karakter van de bio-based economy. Het bundelen van krachten lijkt noodzakelijk om deze complexe systeemontwikkeling voort te zetten, voor het behalen van kritische massa en voor het verstevigen van de Europese en globale concurrentiekracht van de regio. Dwarsverbindingen leggen tussen een veelheid van partijen - de overheid, het bedrijfsleven, kennisinstellingen – in een bredere geografische context is hiervoor nodig.

Het betrekken van een tweede casus was daarom een praktisch instrument. Hierdoor kon de geneigdheid en openheid van partijen voor dialoog en een denkbare samenwerking op Noordwest-Europees niveau getoetst worden. Het bood de kans om de rol en functie van de nationale grens aangaande de toenadering van partijen in een transnationale zetting te analyseren.

De gekozen samenwerkingcoalitie Be-Basic Consortium is een initiatief in de Provincie Zuid-Holland en kan gesitueerd worden in het gebied Rotterdam-Delft-Den Haag. De gedachte is dat het combineren van de verschillende economische structuren van deze afzonderlijke stadsregio's een ultieme kans is, maar ook noodzakelijk voor de realisatie van de bio-based structuurverandering. Be-Basic Consortium is een samenwerkingscoalitie bestaande uit een twintigtal partners vanuit kennisinstellingen, industriële spelers en diverse overheidsorganen. De ambities kunnen vergeleken worden met die van het Vlaams-Nederlands project: met de hulp van een proeffabriek (pilot plant) onderzoek doen naar biotechnologische processen om de totstandkoming van bio-based economy te versnellen. Doelstelling is om pionier te worden op internationale schaal waarmee ook de economie van zowel Nederland als de Zuidvleugel van de Randstad nieuwe impulsen krijgt.

Be-Basic Consortium en het cluster in de Gent-Terneuzen Kanaalzone maken deel uit van het Rijn-Schelde-Delta gebied. Door de betrekkelijke nabijheid van de bio-based initiatieven en de ambities van beide projecten (een leidende rol in Europa) leek deze geografische ligging derhalve geschikt in het licht van de bovenstaande redenering voor een eventuele transnationale alliantie.

## 7. Conclusies

Over het algemeen kan de conclusie getrokken worden dat de staatsgrens in verschillende vormen en betekenissen nog aanzienlijk aanwezig is in de grensoverschrijdende handeling voor de ontwikkeling van de bio-based economy (centrale vraagstelling). Vanwege het contextuele karakter van de grens wordt deze tegelijkertijd als barrière en kans ervaren, afhankelijk van de perspectieven die men hanteert.

Het onderzoek laat zien hoe samenwerkende partijen diverse begrenzingpraktijken handhaven via hun interpretatie en mentale benadering van de nationale scheidingslijn. Grenzen vanwege de samenwerking worden voortdurend en gelijktijdig gereproduceerd of weerstaan. Dit proces oefent weer invloed uit op de samenwerking en op de regio zelf.

### **Bio Base Europe/ Gent-Terneuzen Kanaalzone**

#### *De grens als economische bron*

Betreffende de basisvoorwaarden voor samenwerking kan het volgende geconcludeerd worden. De belangrijkste vereiste onderdelen – gedeeld verlangen, het besef van afhankelijkheid, gevoel van urgentie – zijn aanwezig in het Bio Base Europe project.

De logica achter het samenwerkingsproject is gedreven door de kansen die de grens biedt voor het Vlaams-Nederlandse Kanaalzone. Bio Base Europe illustreert hoe de grens als een bron voor (grens)regionale strategieën wordt gezien door de partners en regionale actoren. Het begrip van de toegevoegde waarde van samenwerking zetten de partijen aan tot een ‘win-win game’ die het grensgebied tot een plaats van strategische alliantie omvormen. De partners ambiëren hierdoor om economische schaalvergroting en een verbeterde concurrentiepositie van de gezamenlijke regio te bereiken.

Er is een gedeeld gevoel van urgentie om naar een alternatief en duurzaam economisch systeem over te gaan. Dit is gevoeld door het gezamenlijke besef van ecologische uitdagingen en het veilig stellen van energievoorzieningen voor de toekomst. Vooral dit laatste aspect is beschouwd als een dreiging voor de toekomstige welvaart in de Kanaalzone waar industriële activiteiten voor een belangrijk deel van de inkomsten zorgen. Een gevaar dat door samenwerkende grensregio's tot een collectieve economische gelegenheid kan worden omgevormd. Het pragmatische perspectief om publieke fondsen (Interreg financiën) te verwerven voor het opzetten van samenwerkingsverbanden is tevens een beslissende factor.

Dit economische potentieel is verder versterkt door het besef van gezamenlijke afhankelijkheden, complementariteit en asymmetrie tussen de twee gebieden op geografisch, sociaaleconomisch en demografisch vlak. Ook de twee verschillende typen producten binnen het project tonen aan hoe de twee gebieden aan weerskanten van de grens elkaar aanvullen en synergie scheppen. Het bundelen van specifieke capaciteiten leidt tot het promoten van een nieuwe regionale functie. De geplande promotieactiviteiten van de hele bio-based cluster langs de Kanaalzone dragen een soort ‘grenzeloze cohesie’ uit waarbij de grens als irrelevant wordt ervaren.

#### *Bij-effecten van het project: herscheppen van het grensgebied*

De samenwerking beïnvloedt de regionale ontwikkelingen op verschillende manieren.

#### *Katalyst*

Het grensoverschrijdende plan Bio Base Europe heeft een projectoverstijgend effect dat regionaliseringprocessen in de 21<sup>ste</sup> eeuw illustreert. Bio Base Europe kan uitgroeien tot een katalysator voor het Vlaams-Nederlands gebied door het aanmoedigen van initiatieven op andere terreinen. Het project verandert de grensruimte in een plaats van experiment en een instrument van verbinding. Een nieuwe ronde van regionale vorming vindt plaats: de uitwisseling van expertise en collectief leren creëert een nieuwe functionele rol voor de hele regio. Initiële ‘eilanden van innovatie’ (zoals Bio Base Europe) kunnen zich in de hele regio verder verspreiden. Hierdoor kan een meer geïntegreerde economische en innovatieve ruimte in de Kanaalzone tot stand komen.

#### *Politieke en territoriale herpositionering*

Bio Base Europe bewijst ook hoe samenwerkingsverbanden over de grenzen heen meer kracht geven aan regio's voor het beter vertegenwoordigen van hun eigen belangen in de (inter)nationale politieke en economische arena. De lobbyactiviteiten van de Provincie Zeeland richting de nationale regering laten dit duidelijk zien. Ook wordt er geprobeerd om het internationale profiel van de cluster en de regio op te schroeven door zich te verenigen. Een ander voordeel om partners over de grenzen heen te zoeken is de kans voor zwakkere regio's om hun gemarginaliseerde status - gezien vanuit hun politieke centrum - te doorbreken. De steeds sterker groeiende oriëntatie van Zeeuwsch-Vlaanderen en de Provincie

Zeeland op ‘het Zuiden’ laat het proces van geografische-economische herpositionering zien. Lokale actoren in Terneuzen benadrukken hun voordelige locatie in de vergrote geografie van de nieuwe economische ruimten in Europa.

### *Grensoverschrijdende ‘imagined communities’*

De nieuwe functionele rol van het grensgebied kan geleidelijk de territoriale, symbolische en institutionele vormen van de hele regio transformeren. Het is een nieuwe ronde van grensoverschrijdende regionale vorming. Hoewel het grensgebied een gemeenschappelijke regionale identiteit mist en vooral als een economisch vermogen gezien wordt, ontplooit zich een sociale plaatsreconstructie. Het vindt plaats analoog aan de vorming van natiestaten waarin ‘imagined communities’ werden gecreëerd door de centrale krachten. In de Kanaalzone wordt er een nieuwe (economische) gemeenschap tot stand gebracht die verder wordt beklemtoond door cluster branding en marketing. Dit wordt door de gedeelde historie enigszins gerechtvaardigd ‘om alles recht te zetten wat sinds 1830 is verkeerd gegaan’.

### ***Belemmerende grens***

De gezamenlijk opgezette strategie en nagestreefde doelstellingen, de partners’ toewijding en betrokkenheid in het project en hun optimisme over het succes van de samenwerking: deze eigenschappen karakteriseren de coöperatieve houding in Bio Base Europe. Ondanks de positieve attitude en de helder geformuleerde korte middel en lange termijn targets en takenpakketten, zijn er een aantal hindernissen gesignaleerd. Degene die door de nationale grens opgeworpen zijn betreffen de dimensies 1) rivaliteit, 2) institutionele en juridische obstakels en 3) sociaal-culturele en mentale verschillen.

### *Rivaliteit*

Hoewel het een naïeve gedachte zou zijn om te pleiten voor plaatsen zonder concurrentie, heeft de perceptie van rivaliteit een belemmerend effect op de samenwerking.

De ervaren rivaliteit tussen plaatsen en regio’s vindt in de nationale ruimte ook plaats maar de aanwezigheid van de grens verstevigt dit gevoel aanzienlijk. Rivaliteit tussen plaatsen en economische actoren (bijvoorbeeld havens) is een sterk waarneembare karaktertrek in deze grensoverschrijdende organisatie.

De ‘grens’ is zodoende een permanente gast in de samenwerking. De uitkomsten van het project worden geëvalueerd langs nationale waarden: ze dragen bij aan het bereiken van de Nederlandse of Vlaamse politieke en sociaaleconomische doelstellingen. Regionale ontwikkeling wordt vanuit het perspectief van de ‘eigen’ belangen voortgezet. Dit laat zien dat regionale handelingen, percepties en attitudes niet los gezien kunnen worden van de territoriale identiteit en solidariteit, die wederom gewekt zijn op het niveau van de nationale staat. Het behouden van de soevereine staat of de weerstand om (financiële) middelen aan ‘het buitenland’ te verstrekken verzwakken de gezamenlijke doelstellingen ten faveure van de gekoesterde eigen belangen.

Dit resulteert in regionale strategieën die volgens de nationale prioriteiten worden opgezet en in het gebrek aan een oprechte grensoverschrijdende visie en plan voor de regionale voortgang. Derhalve bestaat er ook geen interregionaal beleid voor de langtermijn ontwikkeling van de bio-based economie tussen Vlaanderen en Zeeland/Nederland. Dit zou meer vergen dan alleen het opzetten van een project en vervolgens het loslaten op de deelnemers.

Tekort aan harmonisatie tussen activiteiten en losse projecten en het prioriteren van de eigen regio leiden tot fragmentatie en een matig grensoverschrijdende samenwerking. Terwijl een gezamenlijk gedragen strategische plan op de ‘groene’ economie juist wezenlijk is voor de regionale ontwikkeling van de bio-based economy. Hoewel het project Bio Base Europe een eerste stap hierin is, de systematische transformatie vergt juist een langtermijn en coherent beleid waarlangs een veelheid aan partijen – ook op regionale of nationale schaal- moet samenspannen.

### *Juridische begrenzing*

Deze nationale manier van denken en dus de staatsgrens werken ook door in de management structuur en werkmethodes van het project. De onder de internationale koepelorganisatie opgezette nationale samenstelling (Pilot plant: Vlaanderen; Training centrum: Zeeland) vloeit niet slechts voort uit de scherpe afbakening van verschillende typen producten. De variaties in de Vlaamse en Nederlandse regel- en wetgeving maken het creëren van een echte grensoverschrijdende organisatie bijna onmogelijk. Deze inventieve oplossing is een antwoord op ‘de grens als beton’.

### *Mentale grenzen, sociaal-culturele verschillen*

De opzet van de organisatie en de verdeling van de taken langs nationale lijnen is echter meer dan de het vindingrijk ontlopen van bestuurlijke belemmeringen. De nette scheiding van (nationale) verantwoordelijkheden zorgt ook ervoor dat

er geen verassingen komen vanuit de partners over de grens. Hoewel de geografische afstand klein is tussen de partners, de ‘wij-zij’ opsplitsing illustreert de mentale voorprogrammering die de ruimtelijke begrenzing weerspiegelt. Percepties zijn gekoesterd over de andere partij en de mogelijke (negatieve) impact hiervan op de samenwerking. Deze behoedzaamheid laat zien dat het – overigens nationaal gedefinieerde – vertrouwen nog moet groeien, wil men het geloof in de samenwerking op lange termijn behouden. Vertrouwen is namelijk de geneigdheid tot het nemen van het risico om in de betrouwbaarheid van anderen te geloven.

Het ‘wij-zij’ gevoel tussen de projectpartners wordt voortdurend gereproduceerd door de percepties van de ervaren sociaal-culturele verschillen. De Kanaalzone is het gebied waar ‘Zuid- en Noord-Europa elkaar ontmoeten’ waardoor de mentaal bewerkstelligde afscheiding tussen de twee bevolkingsgroepen ook een ruimtelijke afgrenzing krijgt. Ondanks de gedeelde taal en de gemeenschappelijke culturele en historische erfenis, lijken de mentaliteit, de manier van werken, denken en leven vanwege de ‘*totaal uiteenlopende nationale aarden*’ onverenigbaar. Vanwege het volharden in de sociaal-culturele afwijkingen en stereotypering blijft de psychische grens in de hoofden stevig.

Het zorgen voor de permanente nationale reciprociteit in de dagelijkse samenwerking en dat ‘*wij zonder kleerscheuren onze gezamenlijke doelen bereiken*’ en het ‘*continue op eieren lopen*’ demonstreren hoe uitdagend en veeleisend grensoverschrijdende samenwerking is. Het is wel opmerkelijk voor een regio waar mensen dezelfde taal spreken en waar de fysieke grens al sinds vier decennia openstaat.

Aan de andere kant, een onderneming waarin nationale gevoeligheden een hoofdrol krijgen kan inboeten aan efficiëntie. Het constant waarborgen van korte termijn regionale/nationale preferenties en de verdeling van het project als Vlaamse en Nederlandse zaken kunnen ten koste gaan van beslissingen voor de gezamenlijke doeleinden. Economisch wenselijk handelen en rationeel zaken doen kunnen hierdoor belet worden.

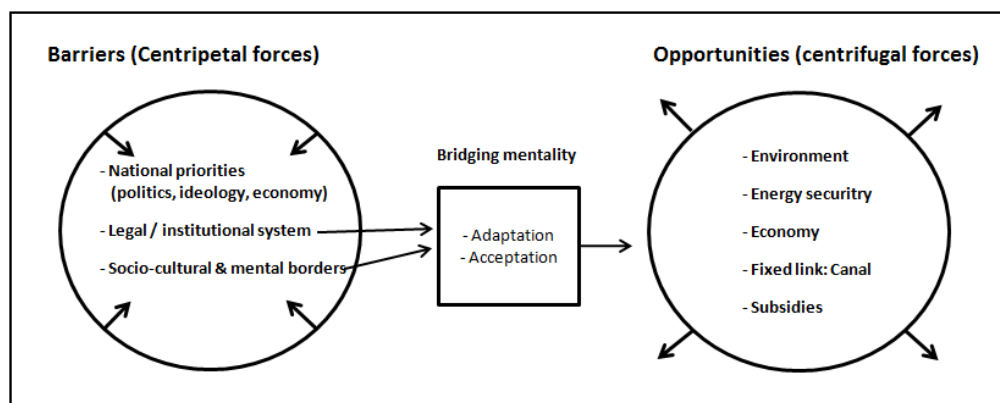
### Grensoverbrugging

Het bio-based project toont aan hoe partners samenwerking toevoegen aan de onderlinge concurrentie. Het is beide tegelijkertijd. Dit voortdurende balanceren tussen de gemeenschappelijke en eigen doelstellingen belicht de wisselwerking tussen macro en micro niveau. Karakteristieken en belemmeringen die op het nationale (macro) schaal worden gecreëerd en voortgezet worden op het lokale (micro) niveau deels ook gereproduceerd of juist getrotseerd en overbrugd.

Ondanks de irritaties en frustraties die uit de sociaal-culturele verschillen en de mentale houding voortkomen, spannen de projectpartners zich in voor een goede samenwerking. De economische werkelijkheid en de bereidheid tot samenwerking brengt een brugmentaliteit en open houding teweeg. Bio Base Europe toont dat grensoverschrijdende samenwerking een leerproces is waarin partijen elkaar verkennen, de verschillen proberen te accepteren en zich aan de omstandigheden aanpassen. In de Kanaalzone is het kennen van regels en conventies in het buurland een belangrijke grensverzachtende factor.

In het preservareren en weerstaan van staatsgrenzen door lokale partijen om te kunnen manoeuvreren tussen de hinderende en kansmakende effecten van de grens ligt de paradox van grensregio’s. In de hoogtijdagen van Europese integratieretoriek blijven zones rondom de grens verscheurd in het spanningsveld van tegenwerkende krachten. Hun ontwikkelingstraject wordt beïnvloedt door de confrontatie tussen ‘hun’ nationale prioriteiten en ‘hun’ grensregionale belangen (figuur 2).

**Figuur 2: Het krachtenveld rondom Bio Base Europe (en grensregio’s)**



## 8. Samenwerken op transnationale schaal

Partijen vanuit de Kanaalzone en de Provincie Zuid-Holland benadrukken het belang van samenwerken voor de vooruitgang in de bio-based economy. Echter, een grensoverschrijdende manier van verlangen en spreken vertaalt zich niet in grensoverschrijdende acties. Het zwak ontwikkelde besef van samenwerking kent verschillende oorzaken. De initiële fase van Be-Basic Consortium, het gebrek van zowel het gevoel van urgentie als van het besef van gezamenlijke afhankelijkheid werden in het onderzoek als redenen geobserveerd. Ook de fragmentatie van bio-based initiatieven in Zuid-Holland en de resulterende onwetendheid werden door respondenten genoemd.

Als belangrijkste aanleiding voor de gereserveerdheid tegenover elkaar wordt echter de inconsistente en ondoordachte nationale bio-based strategie van Nederland genoemd. Met het oprichten van het grensoverschrijdende Bio Base Europe werd door de partners aanvankelijk gedacht dat Nederland en Vlaanderen een gezamenlijke onderneming zouden vormen voor het ontwikkelen van de bio-based economy. Daarentegen, de staatsteun voor en intrede van een ander bio-based hub binnen dezelfde supra-regionale ruimte schept een aanmerkelijk groot gevoel van rivaliteit tussen de bio-based clusters. Vooral dat het opkomende cluster in Zuid-Holland ook de leidende rol in de bio-based ontwikkelingen in Europa opeist. Wantrouwen en argwaan karakteriseren de ontstane situatie, hetgeen onderstreept wordt door de perceptie van dreiging voor de deelnemers van Bio Base Europe.

De eerdergenoemde nationale prioriteiten, de bescherming en het promoten van de economische belangen van BV Nederland brengt de Vlaamse-Nederlandse grensoverschrijdende samenwerking in verlegenheid. Het levert frustraties en teleurstelling op bij de projectpartners in het grensgebied. De ruimtelijke demarcatie (en begrenzing) van hogere nationale belangen belicht nog eens de tegenstrijdigheid van de positie van grensregio's. Het is ingegeven door de retoriek over Europese samensmelting tegenover het gevoel van marginalisatie en verwaarlozing vanuit politieke centra. Dit nuanceert enigszins de eerdere constatering over de gegroeide macht van grensoverschrijdende allianties richting politieke centra. De actoren in de Kanaalzone voelen zich niet gerespecteerd door de regering die nu het meeste aandacht aan het andere bio-based project schenkt. Dit, ondanks de gecreëerde voordelen als "first movers" op het bio-based terrein en de vele overwonnen moeilijkheden.

De casus laat zien hoe een grensgebied slachtoffer kan worden van het Brusselse kartel, in de game van Europese staten wiens centripetale nationale krachten gezamenlijke actie of samenwerkingsresultaten matigen (figuur 2). De analyse van de transnationale samenwerking laat zien hoe de botsing van nationale en grensregionale belangen, uitgelegd bij het bespreking van de Kanaalzone, op een hogere schaal wordt getild.

### *De ontgrensde Kanalzone*

Het bekijken van het potentieel van transnationaal partnerschap geeft een interessante, nieuwe dimensie aan de samenwerking in de Kanaalzone. Een nieuwe betekenis van de staatsgrens doemt op vanwege de genoemde omstandigheden. De reactie van de projectpartners op het nationale beleid en de ervaren concurrentie duwen de Vlaamse-Nederlandse partners in Bio Base Europe naar dezelfde kant van de grens. Hiermee wordt en nieuw politieke basis gevormd voor de grensregionale alliantie waarin niet enkel tegen de gezamenlijke vijand van de fossielgebaseerde risico's wordt gestreden. Het verschijnsel van een regionale / (inter)nationale concurrent maakt de "grenzeloze" banden in de Kanaalzone nauwer. De staatsgrens en de nationale prioriteiten die in de Gent-Terneuzen verbintenis de samenwerking bemoeilijken werken in een transnationale context juist bevorderend.

De ervaren verschillen in sociaal-culturele aspecten en de mentale grenzen worden tevens verminderd voor de internationale deelnemers in de Kanaalzone. Een nieuwe affectieve afscheiding is zich aan het ontvouwen waarin een alternatieve "imagined community" wordt ontworpen. In deze veranderde "wij-zij" opstelling is "wij" vertegenwoordigd door Vlamingen en Zeeuwen vis-à-vis "de Hollanders" in de rest van Nederland. Onder de "dreiging" van het andere in een andere geografische zetting worden de gelijkheden van de Kanaalzone zoals de gedeelde historie en de economisch-ruimtelijke samenhang benadrukt. Een interessante vraag voor een toekomstig onderzoek is of dit tekenen zijn van een gedeeltelijke opkomst van een grensoverschrijdende regionale identiteit of dat ze vergankelijk zijn onder de druk van economische belangen.

Het emotionele ontgrenzen van de gebieden aan weerskanten van de Vlaams-Nederlandse grens illustreert hoe de officiële scheidingslijn in de Kanaalzone irrelevant wordt voor de deelnemers. Of preciezer: *hun* grens wordt als irrelevant beschouwd door deze te verleggen in de noordelijke richting (figuur 9.3, pagina 110). De virtuele grens in de bio-based actieradius is opnieuw getrokken tussen Zeeland en Zuid-Holland omdat "*Zeeland zit hier met ons in Vlaanderen*". De contextuele eigenschappen hebben de inhoud, functie en betekenis van de staatsgrens tussen Vlaanderen en Nederland getransformeerd door uitdaging en verplaatsing (subvraag 6).

### *Europa en de bio-based economy: regio's in hun eigen cocon*

Er bestaat een uitgesproken verlangen onder de geïnterviewden naar de noodzaak om samen te werken voor de Noordwest-Europese ontwikkeling van de bio-based economy. Breed wordt erkend hoe door het samen optrekken voordelen kunnen worden behaald. Verwezen werd naar het mogelijk koppelen van specialisaties en complementariteiten in de hele Rijn-Schelde Deltaregio. Volgens de percepties zou dit noodzakelijk zijn om de Europese en globale concurrentiekracht van de gehele regio te vergroten maar ook om de totstandkoming van het bio-based systeem te versnellen. Een doordachte transnationale strategie en een sterk, elkaar aanvullend partnerschap zullen ook de overcapaciteit in aangeboden bio-based activiteiten en services in "dezelfde" ruimte voorkomen. Hiermee zou vermeden kunnen worden dat vanwege subsidies onnodig wordt geïnvesteerd in projecten die nooit rendement zullen gaan opleveren.

Echter het onderzoek vond een zeer sceptische houding van de informanten. Samenwerking, zelfs op het bio-based terrein, zal niet van de grond komen omdat het echte Europa bestaat ' *uit geïsoleerde regio's die in hun eigen cocon terugtrekken* ' en hun korte termijn hun eigen economische belangen najagen. De interviews schilderden de regio's van de Europese Unie af als plaatsen zonder Europese perspectief, laat staan met een globaal vooruitzicht. De houding van de diverse actoren in de arena van de bio-based economy geeft de impressie dat vooral de gretigheid overheerst om allereerst de individuele economische voordelen te waarborgen. De "groene" economie gaat immers over onverzettelijke economische belangen en oververhitte rivaliteit. Dit leidt tot conflicterende strategieën, fragmentatie en wantrouwen wat aan het eind kan resulteren in zelfvernietiging in de transnationale ruimte.

De mening dat nationale politici zich enkel onder een enorme ecologische/economische druk gedwongen zouden voelen om echt werk te maken van het ondernemen van ware grensoverschrijdende en transnationale acties, werd vaker geuit.. Onvermijdelijke voorwaarden zouden grensoverschrijdende zaken depolitiseren waardoor de collisioneers plaats zal maken voor coöperatief partnerschap. Zal de drang voor de bio-based transitie zulke druk opleveren?

Het gebruik van een paar casussen maakt het lastig om algemene conclusies te trekken voor grensregio's. Echter, dit onderzoek over grensoverschrijdende en transnationale samenwerking leidt tot voorzichtig geformuleerde ideeën als definitieve conclusie. Er kan gesteld worden dat grensregio's hun optimale ontwikkelingspad niet zullen kunnen bereiken zolang de structuur van Europa in de Westfaliaanse orde van natiestaten aanhoudt. Grensregio's zullen blijven steken tussen hun "eigen" nationale en hun "eigen" gresregionale belangen, hetgeen een voortdurend gevecht tussen belemmeringen en kansen oplevert. De oplossing voor het grootste obstakel kan in het politieke systeem gezocht worden. Grensoverschrijdende samenwerking en grensregio's zullen het beste uit hun potentieel kunnen halen als echte –en niet op papier bestaande- grensoverschrijdende structuren met politieke macht voor het gezamenlijk gebied worden opgezet.

Op basis van de analyse en de conclusies werd er een reeks aanbevelingen geformuleerd in hoofdstuk 9 (9.5).



## References

- Aan de Brug, M (2010), "Green" employers association is founded. NRC Handelsblad, Attachment Economy, 11 February, 2010, pp-12-14. (in Dutch)
- Acke, M (2002), The history of the Canal zone Ghent-Terneuzen. Accessed on 1 May, 2010. Available on the world wide web: < <http://www.martin-acke.be/geschiedenis/geschiedenis-3.html>>. (in Dutch)
- Akinwumi, A E (2006), Changing spaces, emergent places: Transborder regionalism in the new Europe. Political geography 25, pp.850-867.
- Anderson, B (1991), Imagined Communities. Verso: London.
- Arias, J T G (1995), Do networks really foster innovation? Management Decision, Vol. 33 No. 9, pp. 52-56.
- Atzema, O & J. Lambooy & T.van Rietbergen & E. Wever (1997), Spatial Economic Dynamics. Coutinho: Bussum.
- Atzema, O & E.J. Visser (2007), Beyond clusters: Fostering innovation through a differentiated and combined network approach. Papers in Evolutionary Economic Geography. 07.05. Utrecht: University of Utrecht.
- Atzema, O; L.Boelens, B. Veldman (2009), "Over the Lock-in". An economic institutional repositioning of the Rotterdam harbour. October, 2009, University of Utrecht. Den Haag: Stratagem Group.
- Baarda, D B & M.P.M. De Goede (2006), Basis book Methods and Techniques. Groningen/Houten: Wolters-Noordhoff. (in Dutch)
- Bakos, L (2000), Nationalism, borders and violence. Minority studies, Vol. 9, No.4, Accessed on 20 March, 2010. Available on the world wide web: <<http://epa.oszk.hu/00400/00462/00008/42.htm>>. (in Hungarian)
- Be-Basic (2010), Official website. Accessed on 26 March, 2010. Available on the world wide web: < <http://www.be-basic.org>>.
- Benelux (2010), The Beneluc cooperation. Official website. Accessed on 26 May, 2010. Available on the world wide web: <[http://www.benelux.be/nl/home\\_intro.asp](http://www.benelux.be/nl/home_intro.asp)>.
- Beth, A A (2010), Bio based Industries of the future. Cornell University, College of Agriculture and Life Sciences. Accessed on 15 February, 2010. Available on the world wide web: < <http://vivo.cornell.edu/impact/individual/vivo/individual20623>>.
- Bio Base Europe (2010), Official website. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.biobaseeurope.org/>>.
- Bionity.com (2009), Moving towards the biobased economy. First Biobased economy conference at Biotechnica. Accessed on 20 February, 2010. Available on the world wide web: < [http://www.bionity.com/news/e/107086/?WT.mc\\_id=ca0068](http://www.bionity.com/news/e/107086/?WT.mc_id=ca0068)>.
- Biopark Terneuzen (2009), Stimulus for new economic activities in the Province of Zeeland. Accessed on 13 November, 2009. Available on the world wide web: <<http://www.bioparkterneuzen.com/cms/publish/content/showpage.asp?themeid=73>>. (in Dutch)
- Biopark Terneuzen (2010), Official website. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.bioparkterneuzen.com/cms/publish/content/showpage.asp?themeid=73>>.
- Blatter, J (2004), From Spaces of Place" to "Spaces of Flows"? Territorial and Functional Governance in Cross-border Regions in Europe and North-America.
- Boelens, L (2010), Theorizing Practice and Practicizing Theory: Outlines for an Actor-Relational-Approach in Planning. Planning Theory 2010, 9, pp. 28-60.
- Boosten, G & J. de Wilt (2006), Bioport: The Netherlands as mainport for biomass. December 2006, Utrecht: Innovatienetwerk

- Boschma, R (2005), Proximity and Innovation: A Critical Assessment. *Regional Studies*, 39, 1, pp. 61-74.
- Boschma, R. A. & A.L.J. ter Wal (2007), Co-evolution of firms, industries and networks in space. *Papers in Evolutionary Economic Geography*. 07.07. Utrecht: University of Utrecht.
- Brenner, N (2009), *New state spaces. Urban governance and the Rescaling Statehood*. New York City: OUP.
- Brons, L (2005), Cultural borders as barriers to firm relocation in: van Vilsteren G, v & E. Wever (2005), *Borders and economic behaviour in Europe. A geographical approach*, pp. 62-76.
- Bröcker, J & D. Dohse & R. Soltwedel (2003), *Innovation clusters and Interregional Competition*. Springer Verlag: Berlin.
- Brundtland, G H (1987), *Our common future – The report of the World Commission on Environment and Development*. Oxford: Oxford University Press.
- Buck Consultants International (2009), *Cross border chain collaboration: ‘‘unknown makes preferred’’*. Presentation on 30 November, 2009, IJzendijke.
- Buck Consultants International (2010), *Bio as Basis. Policy strategy for the Biobased Economy in the Province of Zeeland*. Nijmegen: Buck Consultants. (in Dutch)
- Bucken-Knapp, G (2001), Just a train-ride away, but still worlds apart: Prospects for the Øresund region as a binational city. *GeoJournal* 54, pp. 51-60.
- Buuron, M (2006), *Cross-border regional cooperation. A view on the Channelzone Ghent-Terneuzen*. Dissertation. Rotterdam: Erasmus University of Rotterdam.
- Cappellin, R (2004), *International knowledge and innovation networks for European integration, cohesion and enlargement*. UNESCO ISSJ 180. Blackwell Publishing: Oxford.
- Castells, M (1996), *The rise of the network society*. Oxford: Blackwell.
- CBCED-EU (2008), *Cross-Border Cooperation and Entrepreneurship Development*. European Policy Brief. European Commission: Brussels.
- City of Ghent (2004), *Nautical access to the canal zone*. 22 November, 2004. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.gent.be/gent.htm?id=VRAGENUUR&rec=115123>> (in Dutch)
- Colomb, C (2007), *The Added Value of Transnational Cooperation: Towards a New Framework for Evaluating Learning and Policy Change*. *Planning, Practice & Research*, Vol. 22, No. 3., pp. 347-372, August 2007.
- Commission of the Wises (2009), *Advice on Be-Basic*, 2 June, 2010. The Hague, The Netherlands. (in Dutch)
- Cooke, P (1995), *The New Wave of Regional Innovation Networks: Analysis, Characteristics and Strategy*. *Small Business Economics* 8, pp. 159-171.
- De Langen, P & E. Braun & M.H. Nijdam & A.H.J. Otgaar & C.J.M. Speller & A. Heene & F.L.M. de Vreese (2006), *The harbour areas of Ghent and Zeeland Seaports: together stronger?* Rotterdam: EURICUR/Erasmus University Rotterdam /Ghent University. (in Dutch)
- De Pater, B & P.Groote & K. Terlouw, *Thinking about regions. Geographic perspectives*. Bussum: Coutinho. (in Dutch)
- De Vriend, H & P. Schenkelaars (2010), *Bio technology: expensive or sustainable?* *Milieu Defense Magazine*, February, 2010. (in Dutch)
- Ecorys (2008), *A Study on EU spending*. Ecorys Nederland BV: Rotterdam.
- EMG (2009), *Bio Base Europe Training centre opens in 2011*. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.pressreleasefinder.com/item.asp?id=12022>>. (in Dutch)
- Engelfriet, A (2002), *Yes or no for the Moerdijkkanaal and how further went with Belgium*. Accessed on 20 April, 2010. Available on the world wide web: <<http://www.engelfriet.net/Alie/Hans/verseput9.htm>>. (in Dutch)

EnergieRaad (2009), (The Dutch Energy Council), Report. Cabinet: Rotterdam will become the largest biobased energy harbour. Accessed on 20 February, 2010. Available on the world wide web: < <http://www.algemene-energieraad.nl/newsitem.asp?pageid=13594>>. (in Dutch)

EnergieTransitie (2009), Bio-based economy in the Netherlands. Macro-economic analysis. Platform green resources. Sittard: EnergieTransitie.

ERAC (2010a), Inspiration from the region. Yearly publication. 2010. ERAC: Boxtel. (in Dutch)

ERAC (2010b), Concept project plan for the Bioprocess Pilot Facility. 10 January, 2010. Erac, Boxtel. (in Dutch)

Ernste, H (2005a), Border regions seen in a new perspective in van Vilsteren et al. Borders and economic behaviour in Europe. A geographical approach. Royal Van Gorcum: Assen, pp. 96-115.

Ernste, H (2005b), Debordering subjectivity in Houtum, van, H, O.Kramsch, W. Zierhofer, (2005), B/ordering space, pp.155-170.

Ernste, H (2010), Bottom-up European Integration: How to cross the threshold of indifference? TESSG (Journal of Economic and Social Geography), Volume 101, No. 2, pp. 228-235.

Euregio Scheldemond (2009), Twenty years crossing borders.Zeeland, East- and West-Flanders. Ghent: Euregio Scheldemond.

Euregio Scheldemond (2010), Bio Base Europe. Accessed on 26 March, 2010. Available on the world wide web: <[http://www.euregioscheldemond.be/detail.phtml?infotreeid=78#Bio\\_Base\\_Europe](http://www.euregioscheldemond.be/detail.phtml?infotreeid=78#Bio_Base_Europe)>. (in Dutch)

Europa (1993), Fifth European Community environment programme: towards sustainability. Accessed on 15 February, 2010. Available on the world wide web: < [http://europa.eu/legislation\\_summaries/other/128062\\_en.htm](http://europa.eu/legislation_summaries/other/128062_en.htm)>.

Europa (2010), Summaries of EU legislations. Energy. Accessed on 15 February, 2010. Available on the world wide web: <[http://europa.eu/legislation\\_summaries/energy/index\\_en.htm](http://europa.eu/legislation_summaries/energy/index_en.htm)>.

European Commission (2005), Report from the Commission to the European Parliament, the Council, the Committee of the Regions and the European Economic and Social Committee. Life Sciences and Biotechnology – a Strategy for Europe. Third progress report and future orientations. Brussels: European Commission.

European Commission (2006), Innovation in the National Strategic Reference Frameworks: Working document of the Directorate General for Regional Policy. European Commission: Brussels.

European Commission (2007), Accelerating the Development of the Market for Bio-based Products in Europe. Report of the Taskforce on bio-based products. Composed in preparation of the Communication ‘‘A Lead Market Initiative for Europe’’. Brussels: The European Commission.

European Commission (2008), Interregional Cooperation Programme, INTERREG IVC, Operational Programme. 18 September 2008. Brussels: European Commission.

European Commission (2010a). Energy. Energy policy for a competitive Europe. Accessed on 15 February, 2010. Available on the world wide web: < [http://ec.europa.eu/energy/index\\_en.htm](http://ec.europa.eu/energy/index_en.htm)>.

European Commission (2010b), Lisbon Strategy for Growth and Jobs. Accessed on 8 March, 2010. Available on the world wide web: <[http://ec.europa.eu/growthandjobs/index\\_en.htm](http://ec.europa.eu/growthandjobs/index_en.htm)>.

European Commission (2010c), Europe 2020. A new economic strategy. Accessed on 8 March, 2010. Available on the world wide web: < [http://ec.europa.eu/eu2020/index\\_en.htm](http://ec.europa.eu/eu2020/index_en.htm)>.

Europe decentraal (2010), Environment. Accessed on 8 March, 2010. Available on the world wide web: < <http://www.europadecentraal.nl/menu/414/Milieu.html> > (in Dutch)

European Parliament (2009), Transforming the EU into an innovation society. Speech J. M. Barroso. European Innovation Summit, 13 October, 2009, Brussels.

Fadeeva, Z (2004), Promise of sustainable collaboration – potential fulfilled? Journal of Cleaner Production 13, pp. 165-174.

Financial Times (2010), DSM claims biofuel breakthrough by Clive Cookson. 27 June 2010. Accessed on 5 July, 2010. Available on the world wide web: < <http://www.ft.com/cms/s/0/bd6866b2-8212-11df-938f-00144feabdc0,s01=1.html>>.

Fischer, M (2006), *Innovation Networks, and Knowledge Spillovers*. Berlin: Springer

Ford Runge, C & B. Senauer (2007), How Biofuels Could Starve the Poor. *Maj/June 2007. Foreign Affairs*. Accessed on 20 February, 2010. Available on the world wide web: < <http://www.foreignaffairs.com/articles/62609/c-ford-runge-and-benjamin-senauer/how-biofuels-could-starve-the-poor>>.

Ghent Bio-Energy Valley (2010), Official website. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.gbev.org/>>.

Gielis, R (2009), Borders make the difference: migrant transnationalism as a border experience. *TESG (Journal of Economic and Social Geography)*, Volume 100, Nr. 5, December 2009, pp.598-609.

Gijzen, M & F.Timmer & J. Dagevos & F. Boekema (2009), Biopark Terneuzen: A sustainable and innovative concept in Southwest\*Netherlands. In: Smulders, H & M. Gijzen & F. Boekema (2009), *Agribusiness clusters: Building blocks of the regional bio-based economy?* Maastricht: Shaker Publishing, pp. 37-52. (in Dutch).

Glas, G. F. (1996), *Industrial networks: space, regions, culture and policy*. Dissertation University of Groningen.(in Dutch)

Granovetter, M (1985), Economic action and social structure: the problem of embeddedness. In: *American Journal of Sociology* 91, pp. 485-510.

Guinet, J (2003), Drivers of Economic Growth: The Role of Innovation Clusters. In: Bröcker, J & D. Dohse & R. Soltwedel (2003), *Innovation clusters and Interregional Competition.*, pp. 150-162.

Gulati, R (1998), Alliances and Networks. *Strategic Management Journal*, Vol. 19, No. 4, Special Issue, pp. 293-317.

Hajer, M (2000), *The politics of environmental discourse: Ecological modernization and the policy process*. Oxford: Clarendon Press.

Hamm, R & J.Hensgens & H. Webers (2009), Cross-border economic chances. *ESB* 94 6 February, 2009. (in Dutch)

Hardi, T (2002), *The border and cross-border cooperation in the emerging border regions*. PhD dissertation. Pécs-Győr (in Hungarian).

Hassink, R & B. Dankbaar (1995), Technology networking in border regions: case study of the Euregion Maas-Rhine. *European Planning Studies*, March 1995, Vol. 3 Issue 1, pp. 63-84.

Hbvl.be (2009), Start of negotiations for financing of the second sea sluice in Terneuzen. Accessed on 26 March, 2010. Available on the world wide web: < <http://www.hbvl.be/nieuws/geldzaken/aid864998/onderhandelingen-financiering-tweede-zeesluis-terneuzen-van-start.aspx>>. (in Dutch)

Het Bedrijf (2009), *Industrial News*. Ghent Bio-Energy Valley. Van petro naar bio. October 2009, No. 3081, pp. 16-18. (in Dutch).

Hendrikse, G.W.J., Tuunanen, M., Windsperger, J. & Cliquet, G. (2008). *Strategy and Governance of Networks; Cooperatives, Franchising, and Strategic Alliances*. Heidelberg: Physica-Verlag.

Hospers, G.J. & S. Beugelsdijk (2002), Regional Cluster Policies: Learning by Comparing? *Kyklos*, Vol 55, Fasc. 3, pp. 381-402.

Inland Navigation (2004), *Seine-Scheldt Connection on the European priority project list*. Brussels: Inland Navigation Europe.

Institute of Science in Society (2006). *Biofuels: Biodevastation, Hunger & False Carbon Credits*. ISIS Report 11/12/06. Accessed on 20 February, 2010. Available on the world wide web: <<http://www.isis.org.uk/BiofuelsBiodevastationHunger.php>>.

Interreg Vlaanderen-Nederland (2009), Bio Base Europe develops the Dutch/Flemish border region Ghent-Terneuzen into a European growth centre for the biobased economy. Press release, Ghent 27<sup>th</sup> April, 2009.

Interreg IVB North-West Europe (2010), *Strategic initiatives*. Accessed on 20 June, 2010. Available on the world wide web: <<http://www.nweurope.org/index.php?act=page&id=47>>.

- IPCC (Intergovernmental Panel on Climate Change) (2007), The Fourth Assessment Report "Climate Change 2007". Geneva: IPCC.
- Janssens, M (2009), "Deepening" the relation between Belgium and the Netherlands. *Nederlands Dagblad*, 26 August, 2009. Accessed on 20 April, 2010. Available on the world wide web: <<http://www.nd.nl/artikelen/2009/augustus/26/relatie-nederland-en-belgie-verdiepen->>. (in Dutch)
- Jenkins, T (2008), Toward a biobased economy: examples from the UK. *Biofuels, Bioproducts and Biorefining*. Volume 2 Issue 2, pp. 133-43.
- Johnson, C M (2009), Cross-Border Regions and Territorial Restructuring in Central Europe: Room for More transboundary Space. *European Urban and Regional Studies*, Vol 16, pp.177-191.
- Kamann, D J F (1993), Bottlenecks, Barriers and Networks of Actors in Ratti et al. *Theory and Practice of Transborder Cooperation*. Verlag Helbing & Lichtenhahn: Basel.
- Koppejan, J & E.H. Klijn (2004), *Managing Uncertainties in Networks. A network approach to problem solving and decision making*, Routledge: London, 2004
- Kranendonk, R P & P.H.Kersten & B.J. Regeer (2009), Greenport Venlo: A mutual search for sustainable regional development. In: Smulders, H & M. Gijzen & F. Boekema (2009), *Agribusiness clusters: Building blocks of the regional bio-based economy?* Maastricht: Shaker Publishing, pp. 65-80. (in Dutch).
- Krätke, S (1998), Problems of Cross-Border Regional Integration: The Case of the German-Polish Border Area. *European Urban and Regional Studies*, pp. 24-9262.
- Krätke, S (1999), Regional Integration or Fragmentation? The German-Polish Border Region in a New Europe. *Regional Studies*, 33, pp.631-641.
- KNAW (The Royal Netherlands Academy of Arts and Sciences) (2008), Project Biobased Economy: From fossil towards biological resources. Accessed on 18 November, 2009. Available on the world wide web: <<http://www.onderzoekinformatie.nl/nl/oi/nod/knaw/knaw/OND1327445/>>.
- Kuper, A (2004), *Democracy beyond borders: justice and representation in global institutions*. Oxford University Press: Oxford.
- Legendijk, A (2005), Regions and regional boundaries in the minds and practices of policymakers in a unifying Europe. In: Vilsteren G, v & E. Wever (2005), *Borders and economic behaviour in Europe. A geographical approach*, pp. 116-137.
- Leimgruber, W (1991), *Boundary, Values and Identity: The Swiss-Italian Transborder Region*. In: Rumley et al. *The Geography of Border Landscape*. Routledge: New York.
- Leimgruber, W (2005), Boundaries and transborder relations, or the hole in the prison wall: On the necessity of superfluous limits and boundaries. *GeoJournal* 64, pp.239-248.
- Lundquist, K J & M. Trippel (2009), *Towards Cross-Border Innovation Spaces: A theoretical analysis and empirical comparison of the Oresund region and the Centrope area*. Institute for the Environment and Regional Development. SRE-Discussion 2009/5.
- Martinez, O (1994), *The Dynamics of Border Interaction*. New Approaches to Border Analysis in: Schofield, C H, *Global Boundaries*. Routledge: London, New York., pp. 1-15.
- Mezei, I (2008), *The chances of the Hungarian-Slovakian cross-border relations*. Dialóg Campus: Budapest-Pècs. (in Hungarian).
- Ministry of Agriculture, Nature and Food quality (of the Netherlands) (2007), *State vision on the bio-based economy in the energy transition*. October, 2007. The Hague. (in Dutch).
- Ministry of Agriculture, Nature and Food quality (of the Netherlands) (2008), *Biobased Economy. Combining Agro and Chemical*. January, 2008. The Hague.
- Ministry of Economic Affairs of the Netherlands (2009a), *Physical investment tasks for campuses of national interests*. November 2009, The Hague.

- Ministry of Economic Affairs of the Netherlands (2009b), Economic vision on the long-term development of the Mainport Rotterdam. On the way towards a Mainport Network of the Netherlands. June 2009, The Hague, The Netherlands.
- Ministry of Economic Affairs (of the Netherlands) (2009c), ‘Pinnacles in the Delta’ (Pieken in de Delta). Accessed on 16 November, 2009. Available on the world wide web: < <http://www.ez.nl/content.jsp?objectid=140519>>. (in Dutch)
- Moodysson, J & O. Jonsson (2007), Knowledge Collaboration and Proximity: The Spatial Organization of Biotech Innovation Projects. *European Urban and Regional Studies* 2007, 14, 2 pp.115-131.
- MOT (Mission opérationnelle transfrontalière) (2007), ‘Cross-border territories: day to day Europe’. European Conference 8 & 8&9 November, 2007 in Lille, France.
- Municipality of Delft (2010), Japan offers to Delft full of chances in the new sector. Accessed on 20 February, 2010. Available on the world wide web: < <http://www.gemeentedelft.info/gvscriptvk/dspage.asp?pageid=19&objectid=40153>>. (in Dutch)
- Municipality of Terneuzen (2006), Initial report: Spatially addresses approach Canal Zone. From ROM to Rome. 16 January, 2006. Municipality of Terneuzen. (in Dutch)
- Municipality of Terneuzen (2009), Discontinuation Cooperation Exploitation company Scheldt-Maas. 8 September, 2009. Terneuzen.
- Municipality of Vlissingen (2009), Supervisory Board of the municipality agrees on finishing ESM. Accessed on 26 March, 2010. Available on the world wide web: < <https://www.vlissingen.nl/Nieuws-2/Nieuws/Nieuws/College-Vlissingen-stemt-in-met-beeindiging-ESM.htm>>. (in Dutch)
- Nárai, M (2009), Ideas about Regional Identity – Elements of Identity in West-Transdanubian Region. *Tér és Társadalom (Space and Society)*, XII, Vol 4, pp. 137-159. (in Hungarian)
- NGI (2010), Netherlands Geonomics Initiative, Minister Van der Hoeven lays first bio-brick BE-Basic. 1 March, 2010. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.genomics.nl/NewsAndEvents/1%20March%202010.aspx>>.
- Newman, D (2006), The lines that continue to separate us: borders in our borderless worlds. *Progress in Human Geography* 30, 2, pp. 143-161.
- OECD Insights (2010), Fuelling hunger? Biofuel grain “could feed 330 million”. Accessed on 16 February, 2010. Available on the world wide web: <“<http://oecdinsights.org/2010/01/25/biofuel/>”>.
- OECD Task Force (2001), *The Application of Biotechnology to Industrial Sustainability*. Paris: OECD.
- OP-Zuid (2010), *European Economic Stimulation Programme South-Netherlands*. Accessed on 8 March, 2010. Available on the world wide web: < <http://www.stimulus.nl/>>.
- Orsaatto, R (2001), *The ecological modernisation of industry: developing multi-disciplinary research on organisation and environment*. Sydney± Sydney University of Technology.
- One world.net (2010), Biofuels accelerating hunger. Accessed on 20 February, 2010. Available on the world wide web: <<http://uk.oneworld.net/article/view/164602/1/5795>>.
- Paasi, A (1996), *Territories, Boundaries and Consciousness*. Chichester: Wiley.
- Paasi, A (2005), *The Changing Discourses on Political Boundaries in* : Houtum, van, H, O.Kramsch, W. Zierhofer, (2005), *B/ordering spac*, pp. 17-32..
- Peeters, H & B. van Hove, B & A. Verhallen & W. Cofion (2009), *The Scheldt Estuary: from conflict to cooperation*. Wageningen University.
- Perkmann, M (2003), *Construction of New Territorial Scales: A Framework and Case study of the EUREGIO Cross-border Region*. *Regional studies*, Vol. 41, 2, pp. 253-266.

- Perkmann, M (2007), Policy entrepreneurship and multilevel governance: a comparative study of European cross-border regions. *Environment and Planning C: Government and Policy*, vol. 25, pp.861-879.
- Platform for Green Resources (2005), Recommendations for the bio-based economy in the Netherlands. Sittard: EnergieTransitie.
- Port of Ghent (2007), No fusion between harbours Ghent and Terneuzen-Vlissingen. Accessed on 16 April, 2010. Available on the world wide web: <<http://havengentpaulduym.spaces.live.com/>>. (in Dutch)
- Port of Ghent (2009), Port of Ghent glad with start of financial negotiations on the second sluice. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.portofghent.be/nieuwsdetail.aspx?id=10>>. (in Dutch)
- Port News (2010), Volume 5. Edition 1, January/February 2010. Oost-Souburg/Terneuzen: Zeeland Port Promotion Council & Zeeland Seaports.
- Power Link (2010), Consortium Be-Basic bundles power for bio-economy. 8 January, 2010. Accessed on 26 March, 2010. Available on the world wide web: < <http://www.power-link.be/consortium-be-basic-bundelt-krachten-voor-bio-economie>>. (in Dutch)
- PricewaterhouseCoopers (2010), Appetite for Change. Accessed on 16 February, 2010. Available on the world wide web: < <http://www.pwc.com/NL/nl/persbericht/bedrijven-leggen-initiatief-klimaatkwestie-bij-overheid.jhtml>>.
- Project bureau Canal zone Ghent (2009), Year programme Network Canal zone Ghent. 4 March 2009, Ghent, Belgium.
- Prokkola, E. K. ( 2008), Making bridges, removing barriers. Cross-border cooperation, regionalization and identity at the Finnish-Swedish border. Oulu: Nordia Geographical Publications.
- Province of East-Flanders (2010), Borderless canal zone. Accessed on 26 March, 2010. Available on the world wide web: <<http://www.gouverneurdenys.be/public/oostvlaanderenopdekaart/economieenbuitenlandsebetrekkingen/Internationalecontacten/grensoverschrijdendestreekprogrammas/GrenzelozeKanaalzone/index.cfm>>. (in Dutch)
- Province of Zeeland (2007), Start document for the Development vision for the Canal Zone Ghent-Terneuzen 2030 "Working together in the Canal Zone". Middelburg: Province of Zeeland. (in Dutch)
- Province of Zeeland (2008a) Newsletter Borderless Canal Zone. No. 1 2008. Middelburg: Province of Zeeland. (in Dutch)
- Province of Zeeland (2008b), Reports of progression on the projects Canal Zone Ghent-Terneuzen. 27<sup>th</sup> of May, 2008. Middelburg: Province of Zeeland. (in Dutch)
- Province of Zeeland (2009), Regional vision Zeeuws-Flemish Canal Zone. December 2009. Middelburg: Province of Zeeland. (in Dutch)
- Rees, K (2004), Interregional collaboration and innovation in Vancouver's emerging high-tech cluster. *TESG (Journal of Economic and Social Geography)*, Volume 96, No. 3, pp. 298-312.
- Remmers, A (2008), References at cross-border innovation cooperation? Master thesis Human Geography at Radboud University of Nijmegen. (in Dutch)
- Reuters (2010), Time to invest in Europe's bio-clean tech delta by Luuk van der Wielen & Roger Wyse. Accessed on 20 May, 2010. Available on the world wide web: <<http://blogs.reuters.com/great-debate-uk/2010/02/04/time-to-invest-in-europe%E2%80%99s-bio-clean-tech-delta/>>.
- RSD (Rhine-Scheldt-Delta Co-operation) (2010), Official website. News letter 34, April 2010. Accessed on 20 April, 2010. Available on the world wide web: <<http://www.rsdelta.eu/nl/portal?p=main>>.
- Rutten, R P J H (2002), The Entrepreneurial Coalition: Knowledge-based collaboration in an regional manufacturing network. Dissertation. University of Nijmegen.
- Said, E (2003), Orientalism. Penguin Group: London.
- Sack, R D (1986), Human Territoriality: Its Theory and History. Cambridge: Cambridge University Press.

- Scheer, H (2010), Talking globally, putting the brakes on nationally. *Le Monde Diplomatique*. Accessed on 20 May, 2010. Available on the world wide web: < [http://www.hermannscheer.de/en/index.php?option=com\\_content&task=view&id=274&Itemid=11](http://www.hermannscheer.de/en/index.php?option=com_content&task=view&id=274&Itemid=11)>.
- Schmidt, T D (2005), Cross-border regional enlargement in Øresund. *GeoJournal*, 2005, vol. 64, pp.249-258.
- SER, (The Dutch Socioeconomic Council), The economic chances of green. Accessed on 20 February, 2010. Available on the world wide web: < [http://www.ser.nl/nl/publicaties/overzicht%20ser%20bulletin/2009/maart\\_2009/05.aspx](http://www.ser.nl/nl/publicaties/overzicht%20ser%20bulletin/2009/maart_2009/05.aspx)>. (in Dutch)
- Smallbone, D & L. Labrianidis & U. Venesaar & F. Welter & P. Zashev (2007), Challenges and prospects of cross border cooperation in the context of EU enlargemnet. Deliverable 7: State of the art literature review. CBCED, Kingston University.
- Smulders, H & M. Gijzen & F. Boekema (2009), *Agribusiness clusters: Building blocks of the regional bio-based economy?* Maastricht: Shaker Publishing (in Dutch).
- Soja, E W (1971), *The Political Organization of Space*, Commission on College Geography, Resource Papre No. 89, Association of American Geographers: Washington D.C.
- Soja, E W (2005), *Borders Unbound in: Houtum, van, H, O.Kramsch, W. Zierhofer*, (2005), *B/ordering space*, pp. 33-46.
- Spoormans, H.C.G & E.A Reichenbach & A.F.A Korsten (1999), *Grenzen over: Aspecten van grensoverschrijdende samenwerking*, Coutinho: Bussum
- Stern Review (2006), *The economics of climate change*. Cambridge: Cambridge University Press, 2006.
- Strüver, A (2002), Significant Insignificance: Boundaries in a Borderless European Union – Deconstructing the Dutch-German Transnational Labour Market. *Journal of Borderlands Studies* 17, pp. 21-36.
- Strykiewitz, T (1998), The changing role of border zones in the transforming economies of East-Central Europe: The case of Poland. *Geojournal* 44, Vol. 3, pp.203-213.
- Task Force GROS (2008), *the Netherlands. Cross-border administration*. The Hague: Dutch Council for Public Administration.
- Taşan-kok, T (2010), Entrepreneurial governance: Challenges of large scale property-led urban regeneration projects. *TESG (Journal of Economic and Social Geography)*, Volume 101, No. 2, April 2010. pp. 126-149.
- Tegenlicht (2010), *The Green Masterclass*. Television programme with discussion on the bio-based economy. Accessed on 14 April, 2010. Available on the world wide web: <<http://tegenlicht.vpro.nl/nieuws/2010/april/groene-masterclass.html>>.
- Telos / ERAC (2009) Presentation and meeting for the research project *Agribusiness and Bio-based economy*, at TELOS on 28 September, 2009, in Tilburg.
- Te Roller, E (2010), ‘‘Will the Netherlands remain a delivery room or are we going to stand still?’’ Marcel Wubbolts (DSM) about the bio based economy. *Chemie magazine* February, 2010., pp. 50-52.
- Transforum (2009a), *Sustainable entrepreneurship with knowledge*. Accessed on 18 November, 2009. Available on the world wide web: < [http://www.transforum.nl/component/option,com\\_frontpage/Itemid,1/lang,en/>](http://www.transforum.nl/component/option,com_frontpage/Itemid,1/lang,en/>). (in Dutch)
- Transforum (2009b), *Biopark Ghent-Terneuzen*. Accessed on 18 November, 2009.: Available on the world wide web: <<http://www.transforum.nl/content/view/73/43/lang,en/>>>.
- Trippl, M (2010), Developing cross-border regional innovation systems: key factors and challenges. *TESG (Journal of Economic and Social Geography)*, Volume 101, No. 2 April 2010, pp.150-160.
- TU Delft (2008), *Initiative for bio based technology in Delft*. Accessed on 26 March, 2010. Available on the world wide web: < <http://www.tnw.tudelft.nl/live/pagina.jsp?id=2e7eb421-7689-4763-8bf2-09091c78981e&lang=nl>>.
- UNCED (1992), *The Earth Summit*. United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992



- Van der Marel, C (2008), To learn to digitalize: E services and WIG04it. Dissertation. Management Studies Erasmus University, Rotterdam. (in Dutch)
- Vandervoorde, J-L (2010), ‘Ghent is a port of splendour’. De Lloyd Gent. March 2010, p. 8. (in Flemish)
- Van Geenhuizen, M (1996), Transborder European Networking: Shifts in corporate strategy? European Planning Studies, Vol. 4, issue 6, pp. 1-13.
- Van der Wielen, L (2010), Presentation at the symposium the Province of South Holland and the Bio-based economy. 13 April, 2010. The Hague, the Province of South Holland.
- Van Gorp, N (2009), Backwardness of border regions. TEGS Journal of Economic and Social Geography, Vol. 100, Nr. 3, July 2009, pp.358-364.
- Van Houtum, H (1998), The Development of Cross-Border Economic Relations. Dissertation at the Catholic University of Brabant. Tilburg: Tilburg University
- Van Houtum, H (1999), Internationalisation and mental borders. TEGS (Journal of Economic and Social Geography), Volume 90, No. 3, pp. 329-335.
- Van Houtum, H & T. Van Naerssen (2001), Bordering, ordering and othering. . TEGS (Journal of Economic and Social Geography), Volume 93, No. 2, pp. 125-136.
- Van Houtum, H (2002), Borders of Comfort: Spatial Economic Bordering Processes in the European Union. In: Anderson et al. (2002) New Borders for a Changing Europe, Regional and Federal Studies, Vol. 12, No. 4, Winter 2002, pp.37-58.
- Van Houtum, H, O.Kramsch, W. Zierhofer, (2005), B/ordering space. Aldershot: Ashgate Publishing Ltd.
- Van Peeterssen, G (2007), GOL (Cross-border public organ) - Gent and Terneuzen work together. Accessed on 30 May, 2010. Available on the world wide web: <<http://www.belg.be/leesmeer.php?x=5431>>. (in Dutch)
- Van Vries, J & A. Harbers & F. Verwest (2007), Cross-border projects in the Netherlands and in Flanders. Rotterdam: NAI Publishing. (in Dutch)
- VeGHO (Association of harbour-related enterprises in Ghent) (2006), Policy document 2006. Ghent, Belgium: VeGHO. (in Dutch)
- VeGHO (Association of harbour-related enterprises in Ghent) (2010), Official website. . Accessed on 30 March, 2010. Available on the world wide web: <<http://www.portofgent.be/pages/aboutUs.html>>.
- Verbout, A & A. Travailler (2008), Successful cooperation is not incidental. Government Management, Nr. 3, March, 2008. (in Dutch).
- Verburg, G (2008), Speech at the Regional Conference for the Biobased Economy, 1 April, 2008, Rotterdam. Accessed on 15 February, 2010. Available on the world wide web: <[http://www.minlnv.nl/portal/page?\\_pageid=116,1640884&\\_dad=portal&\\_schema=PORTAL&p\\_news\\_item\\_id=23187](http://www.minlnv.nl/portal/page?_pageid=116,1640884&_dad=portal&_schema=PORTAL&p_news_item_id=23187)>. (in Dutch)
- Vilsteren G, v & E. Wever (2005), Borders and economic behaviour in Europe. A geographical approach. Royal Van Gorcum: Assen,
- VNSC (2010) (Flemish-Dutch Cooperation in the Scheldt area), Accessed on 15 June, 2010. Available on the world wide web: <<http://www.vnsc.eu/>>.
- Wageningen University (2009), Biobased economy and Logistics. Agrologistics, Monster, 16 February, 2009.
- Walter, A I & R. W. Scholtz (2007), Critical success conditions of collaborative methods: a comparative evaluation of transport planning projects.
- Wender, E C & W.M. Snyder (2000), Communities of Practice: The Organizational Frontier. Harvard Business Review, January-February, 2000.
- World Congress of Industrial Biotechnology and Bioprocessing, the (2010), Business Development, Infrastructure and Public Policy. The Role of Biobased Industrial Clusters as “Enablers” for Development of the BioEconomy. Accessed on

13 February, 2010. Available on the world wide web: <  
<http://www.bio.org/worldcongress/applications/breakout/PrintSingle.aspx?pid=22&appid=3635>>.

Worldwatch Institute (2006), State of the World Report 2006. Washington D.C.: Worldwatch Institute.

Zeeland Seaports (2008), Meeting of the Executive Committee 17 September, 2008, Middelburg. Project Bio Base Europe. (in Dutch)

Zeeland Seaports (2010), Official website. Interview with H. Van der Hart, General Manager ZSP. Accessed on 13 February, 2010. Available on the world wide web: <  
<http://www.lievense.com/nl/pers/Nieuwsbrief+online/Nieuwsbrief+7+mei+2009/Zeeland+Seaports+is+ambitieuus>>. (in Dutch)

## **Attachement 1.**

### **Questions for the semi-structured interviews (During the interviews the Dutch version was used)**

#### **1. The cross-border co-operation Ghent-Terneuzen Canal Zone**

##### **Rationale/motives/interests**

What are the main (common) goals of the project/cooperation?

What is the reason for your organization to enter into the bio-based economic project?

##### **Coordination/management/governance**

Which organisational (negotiating) structure is set up in the cross-border co-operation?

Which organizations do have a central role in the project? Which parties are leaders and which are the followers?

Is the present form of cooperation effective? How intensive is the collaboration?

How are decisions taken among the partners?

What is the role of the central/national and local/regional governments in the project and which impacts it has on the cooperation?

##### **Evaluating the (future) development**

How do you evaluate the whole evolution phase up till now and the actual situation in the implementation of the project ?

What is the chance that the cooperation/project will be successful? When can the project be considered as successful?

Which factors do you think are the most significant for the successful development of the project?

Which are the biggest chances and threats in furthering the project?

##### **Feeling of urgency**

Which actions should be urgently taken to help the project for further progression?

Is there a less sense of urgency because of the start-up of the Bio Base Europe project?

##### **Strategy**

Is there a common vision and strategy/policy constructed with the involvement of all stakeholders?

What are your ideas/visions/opinions regarding the strategy, implementation and coordination of the project?

Are the interests of your organization well represented?

##### **Commitment/involvement/responsibilities**

What are your responsibilities and tasks in the project?

How would you characterize the commitment of the various organizations in the project?

### **Interdependencies/complementarities**

To what extent does interdependency/complementary play a role in the cooperation?

Is there a need for new partners? (sectors etc.)

### **Opportunities of the border**

In which sense does the border and cross-border cooperation offer added value/ possibilities/advantaged for the participants?

Do you see advantages to broaden the project on supranational scale and are you willing to develop it (and with which region/partners)?

### **Affective border space**

What does the border mean in general and for the co-operation?

Do the various business conventions, habits and perceptions impede the cooperation?

What is your perception on the Dutch/Flemish with regard to collaboration?

### **Interaction/internal communication**

How can be the cross-border co-operation characterized regarding the form/intensity of interaction and communication?

Is information/knowledge of actors taken over for and being used in the cooperation?

### **External communication (marketing)**

How is the external communication on the bio-based cluster in the Canalzone arranged towards potential new partners (acquisition)? How does acquisition occur?

Is the Ghent-Terneuzen Canalzone mutually promoted as (European) hotbed for the biobased economy and one/united contiguous border region ?

### **Trust/cohesion**

Is there an informal and open culture in the interactions?

How can the overall collaboration be described regarding the mentality/attitudes of the various partners? (trust, rivalry)

How can the various separate projects and strategies/ambitions of both the Flemish and Dutch part of the Canal zones be combined for the hole trajectory of the Canal?

### **Difficulties / obstacles**

Which problems and difficulties are perceived by the participants in the cooperation?

Has the border a role in the existence of these difficulties?

Which elements are missing from the cooperation for achieving a better performance?

## **2. Possibilities for transnational cooperation between the Netherlands (Rotterdam/Delft bio-based clusters) and Belgium (Gent-Terneuzen Canal Zone)**

Is the establishment of a North-West European bio based hub/energy cluster essential and urgent that can be realized by the collaboration of (the harbours and bio-based clusters) in the Netherlands and Belgium? (arguments)

How realistic is this opportunity of a transnational cooperation in the biobased economy referring to a mutual action between Rotterdam/Delft and Ghent/Terneuzen?

*Biopark Terneuzen: Dutch Cabinet: Mainport Rotterdam and the various Dutch harbours should cooperate more intensively in order to strengthen their international competitiveness. Aim by 2040: Mainport Netwerk Nederland largest bio based energy hub in Europe.* How do you see the possibilities for this ambition regarding cooperation within the national territory?

How do you see the position and possibilities of the Flemish and Dutch harbours and bio-based clusters with regard to the development of a Northwest European bio hub?

## **Attachement 2.**

### **Most frequently named hindrances/conditions for the development of the bio-based economy:**

Fluctuating oil and energy prices

Bio-based competition from emerging regions and US

Competition against vested interests ( oil-based business)

Competition against oil-based production system (developed and cheaper)

Unsustainable production of bio masses & insecurity of supply

Uncertainty around bio-based economy due to other sustainable methods (solar, wind)

Availability to develop adequate technologies

Killing national/regional competition and fragmentation within Europe + overcapacity

Without a strong industry: BBE doomed to fail

Willingness of companies to use pilot plants (have their own R&D at home)

Bio-based development in itself is not enough: attractive location factors for companies

Economic crisis

(Lack of) legal regulations - for instance obligatory mixture of bio fuels

Incoherent policies and strategy for the bio-based economy (EU, state, regions)

Limited (INTERREG) public subsidies

Getting enslaved to subsidies / lack of private investment

Lack of global outlook/ the primacy of (short-term) individual economic benefits