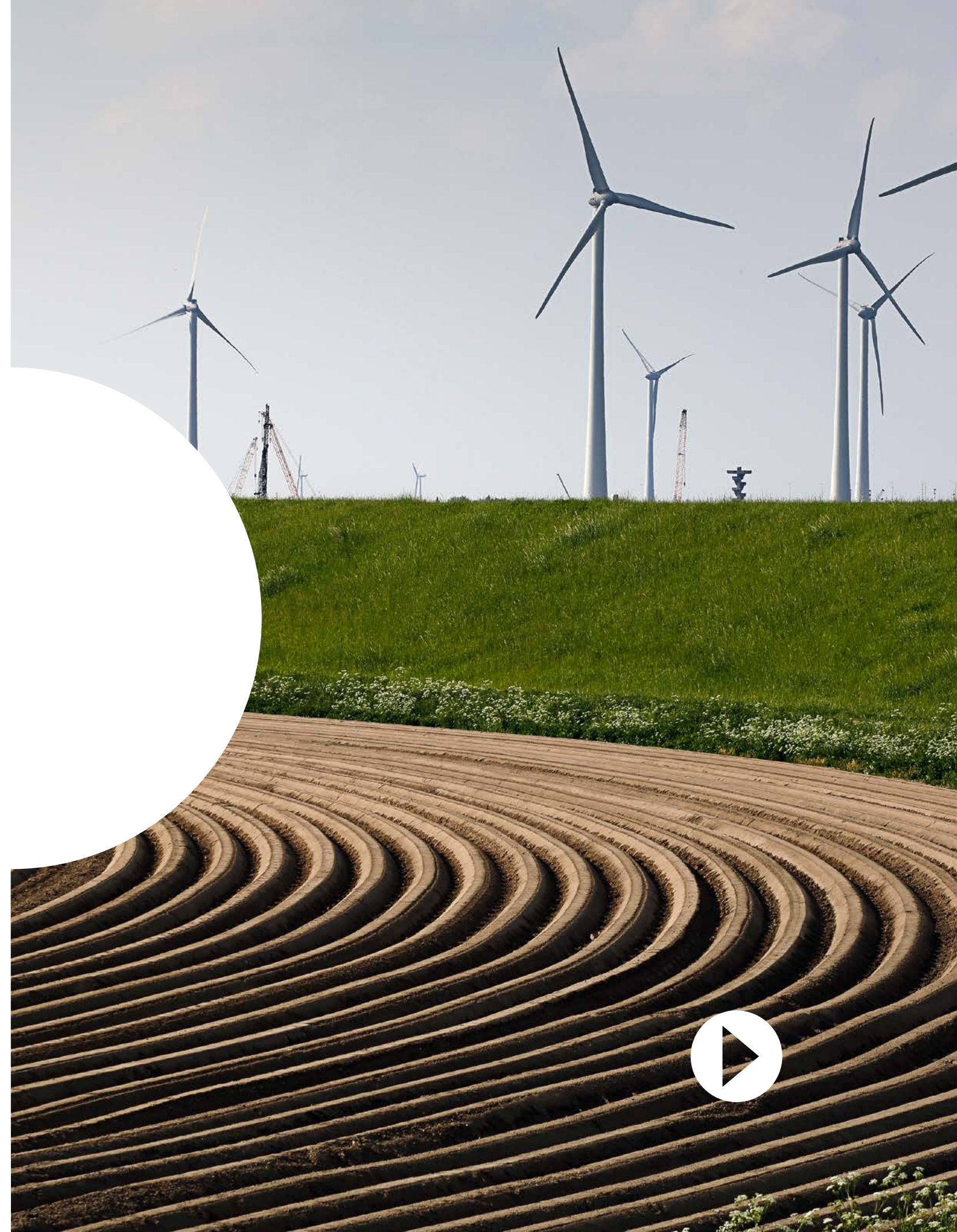


THE SUM OF THE PARTS

CONVERGING NATIONAL AND REGIONAL CHALLENGES

MARCH 2019



About the Council for the Environment and Infrastructure

The Council for the Environment and Infrastructure (*Raad voor de leefomgeving en infrastructuur*, Rli) advises the Dutch government and Parliament on strategic issues concerning the sustainable development of the living and working environment. The Council is independent, and offers solicited and unsolicited advice on long-term issues of strategic importance to the Netherlands. Through its integrated approach and strategic advice, the Council strives to provide greater depth and breadth to the political and social debate, and to improve the quality of decision-making processes.

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SUMMARY

The Netherlands faces several major policy challenges arising from the need to transition to a sustainable economy and society. These sustainability agendas are being tackled on various scales – national, regional and local – but they tend to overlap at the regional level. Not only is there common ground among the national sustainability agendas themselves, but also between the national agendas and specific regional challenges. It can be expected that in the longer term they will all increasingly converge and coalesce. This report examines how this affects the way the agendas should be implemented, focusing on the Southwest Delta region of the Netherlands. The Council for the Environment and Infrastructure examined four sustainability agendas that are currently having a major impact on the region: the energy transition, the food transition, the transition to a circular economy and climate adaptation.

Early stages

The four sustainability agendas are urgent and imply structural change. The Southwest Delta is no exception. The changes that will have to be made in this region concern the transformation of the industrial base, the transition to large-scale generation of renewable energy, greening the housing stock and the recreation sector, adapting the natural and built environment to the changing climate, and switching to closed-loop agriculture. Various initiatives in the region are already working on these agendas, but most are

small scale and limited to one specific sustainability agenda. The results are also limited in comparison with the targets for 2050. The process of realising these sustainability agendas is therefore still at an early stage.

Little sign of substantive linkages between agendas

The sustainability agendas in the region still consist overwhelmingly of policy intentions, but as soon as the realisation of the agendas starts to pick up, the linkages between them will become more apparent. The Council therefore expects that the need for a more coherent and integrative approach will soon be felt, both in substance and procedure. Combining different agendas could generate unique opportunities, but there may also be situations where priorities will have to be set at the cost of certain interests. In addition, the sheer number of issues and problems to be tackled may lead to competition between the sustainability agendas for political attention. Such difficulties must be anticipated well in advance.

Weak links in the region

The Council observes that an impetus is needed to drive forward the structural changes that will be needed to achieve the sustainability targets. Work on the separate agendas must be expedited and scaled up, while remaining alert to the linkages between them. Exploiting the growing convergence between the agendas will depend crucially on the existence of a strong regional system of partnerships between government, market players, knowledge institutes and civil society organisations. The Council notes that there are a number of weak links in this regional system of cooperation which could frustrate an integrative approach to the

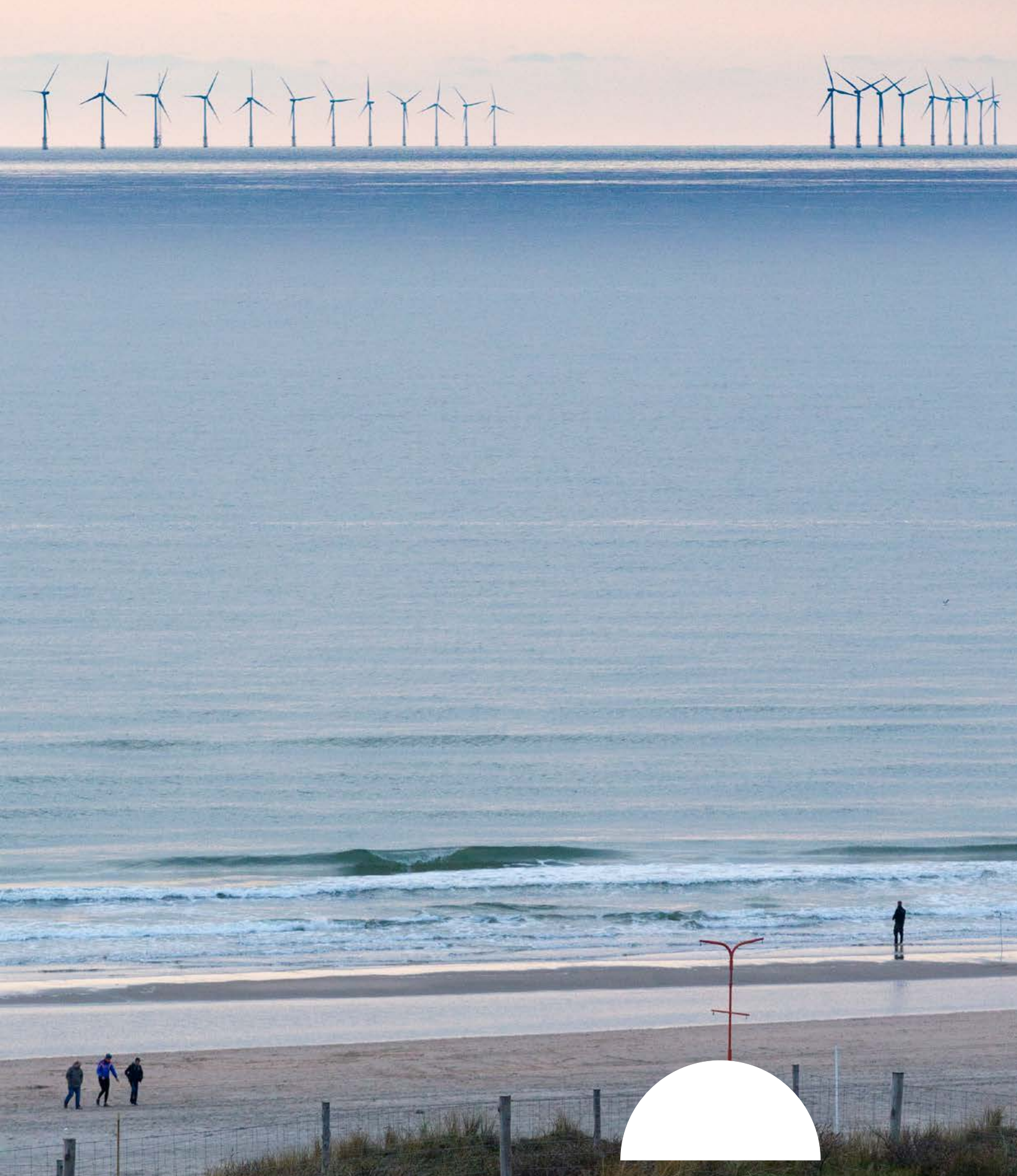
sustainability agendas. These weak links can be found in political steering, the knowledge and innovation system, the labour market, recognition of the social impact of the sustainability agendas, dealing with vested interests and the governance of sustainability.

Conclusion: link actors and agendas, focus on innovation and exploit the power of design

The Council concludes that an integrative approach is needed to deliver the sustainability agendas in the region. On the basis of the findings and analysis, the Council identifies five – interrelated – strategies for a more coherent and integrative approach to the sustainability agendas at the regional level:

1. Create stronger links between national government and the region.
2. Involve society more closely in addressing the challenges and developing solutions.
3. Turn the sustainability agendas into an opportunity to tackle regional challenges.
4. Focus efforts on innovation and knowledge building for sustainability.
5. Use the power of design to cement the interrelations between the sustainability agendas.





1 INTRODUCTION

1.1 Background

Over the next few decades the Netherlands faces several major policy challenges, all of which arise from the need to transition to a sustainable economy and society. To avert climate change, transitions are needed in:

- *the energy system*: switching to renewables such as solar and wind power;
- *the food system*: switching to dietary patterns with fewer animal products;
- *the production and consumption system*: switching to a circular economy in which raw materials are used and reused as efficiently as possible;
- *the water system, coastal defences and spatial development*: switching to a climate-proof and water-resilient infrastructure and spatial structure (climate adaptation).

National objectives and ambitions¹ have been formulated for these four sustainability agendas, often with 2050 as the target year. These four agendas cannot be considered in isolation from each other. They are being worked on concurrently, they all require new policy with budgets and resources, and they are all in response to the urgent need to reduce

¹ This study refers to national agendas and national objectives. 'National' indicates that these agendas and objectives are important for the whole of the Netherlands – public and private – and not just for the national government.

carbon emissions. At the moment efforts to realise these four sustainability agendas are at an early stage. The Council for the Environment and Infrastructure therefore decided to investigate how the sustainability agendas may soon *converge*, and what this means for how they should be implemented.

The Dutch response to these sustainability challenges is being delivered on three scales: national, regional and local (see [Figure 1](#)). In this report the Council focuses on the *regional scale*. This is because the Council – in line with government policy² – expects that much of the implementation will be at the regional scale (see [Box 1](#)). Each region has its own characteristic context within which specific agendas play out. Whereas in one region a multiple sustainability agenda will have to be dovetailed into existing economic and labour market challenges, in another region the sustainability drive will have to address issues to do with liveability, tourism and housing, while in yet other regions solutions to the sustainability challenges will have to be found mainly in nature conservation and landscape quality. This regional context can have a positive or a negative influence on the approach taken to meet the national challenges. Unique opportunities may arise by combining several issues, but there may also be situations where priorities will have to be set at the cost of certain interests.

² The 2017–2021 Coalition Agreement ‘Confidence in the Future’ (Tweede Kamer, 2017a) pays a great deal of attention to the regions and particularly to the role of the Regio Deals, the partnerships between national government and the regions for tackling regional challenges (see also section 4.6).

1.2 Problem definition

In this report the Council examines not only the interplay in regional implementation between the four sustainability agendas (the energy transition, the food transition, the transition to a circular economy and climate adaptation) but also how they interact with specific regional challenges. The central question the Council seeks to answer in this regard is: *To what extent does the convergence of sustainability agendas at the regional level require an integrative approach?*

To answer this question the Council decided to explore a single region as an example: the Southwest Delta. This region consists of the province of Zeeland, the islands belonging to the province of Zuid-Holland to the north, and the western edge of the province of Noord-Brabant to the east (see [Figure 2](#)). The Council looked at the impact the four major sustainability agendas are expected to have in this region. It examined (a) the substantive *interrelations* between the four agendas in this region and how (in time) they will *converge*, and (b) what this will mean for their *implementation*. The Council’s aim is – where possible and meaningful – to draw conclusions from this Southwest Delta case study that can be applied to other regions in the Netherlands as well.



1.3 Methods

In this study the Council used a range of methods to acquire information:

- desk research into the four sustainability agendas;
- interviews with public officials in the region and with representatives from a large number of intermediary organisations (see Appendix);
- working visits to ongoing sustainability initiatives in the Southwest Delta region to identify opportunities and constraints;
- two round table meetings with professionals from the region to gain an impression of the regional context of the national sustainability agendas and the interaction with specific regional challenges;
- a further two round table meetings to test the interim results of the analysis, one with representatives from the Southwest Delta region and one with representatives from other regions.

1.4 Structure of the report

In Chapter 2 the Council sketches a fictitious scenario for the Southwest Delta to illustrate the urgency of the radical changes that will have to be made here between now and 2050. The opportunities presented by an integrative approach are also discussed. This scenario forms the basis of a description, in Chapter 3, of the concrete regional agendas in the Southwest Delta and what action is currently being taken to implement them. Based on these observations on the situation in the Southwest Delta, Chapter 4 presents an analysis of the regional implementation of the sustainability agendas. A description is given of several weak links in the cooperation

between government authorities, market players, knowledge institutes and civil society organisations in the region.

In Chapter 5 the Council formulates its conclusions on strengthening the regional implementation of the sustainability agendas and on recognising the interrelations between these agendas. This conclusion is not limited to the Southwest Delta region, but is relevant to all regions in the Netherlands and for the government's regional policy in general.





2 THE DELTA IN 2050

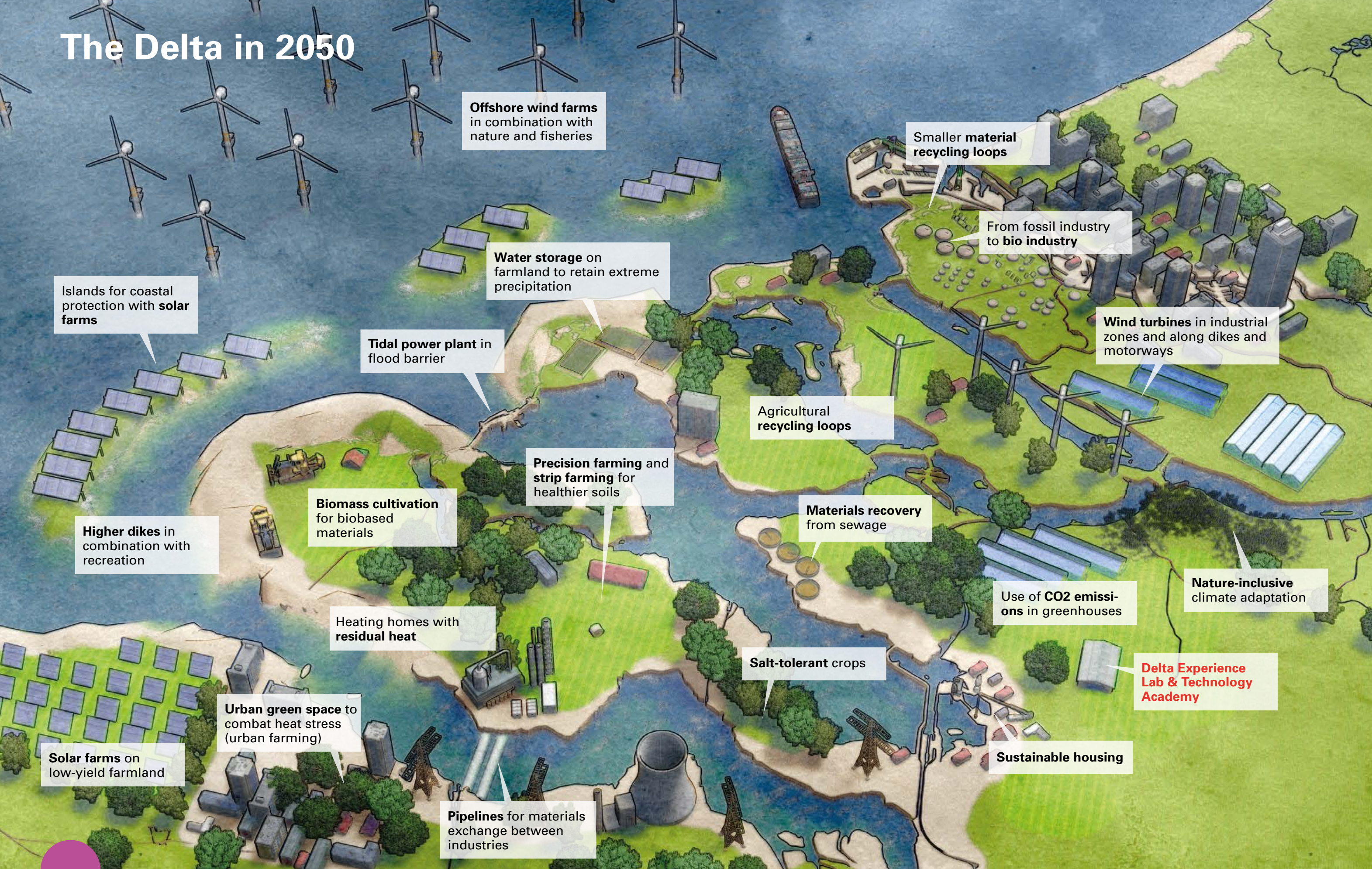
In this chapter the Council describes a possible scenario for the Southwest Delta in 2050. This is written as a report of a visit by Queen Amalia to a museum about the region, which she has come to open. In this fictitious museum each of the exhibition rooms illustrates a different aspect of the Southwest Delta in 2050.

Cradle of innovation

On 7 December 2050 in Bergen op Zoom, Queen Amalia opened the brand new Delta Experience Lab & Technology Academy, or simply: DELTA. Visitors arriving from the Brabant mainland can experience how the Southwest Delta has undergone a transformation over the past thirty years in the response to climate change. DELTA shows how the region has become a cradle of innovation for cutting edge solutions linking renewable energy, the circular economy, closed-loop agriculture and water management.

Like the Delta Works, built almost a century ago following the disastrous flood of 1953, the response to climate change has had a major impact on the region. However, the recent transformation drew on an important lesson from the past. The Delta Works offered the region protection against flooding, but no more than that. That one-dimensional approach did not secure a sustainable living environment or guarantee employment for the long term.

The Delta in 2050



Offshore wind farms
in combination with
nature and fisheries

**Smaller material
recycling loops**

**From fossil industry
to bio industry**

**Wind turbines in industrial
zones and along dikes and
motorways**

**Islands for coastal
protection with solar
farms**

**Water storage on
farmland to retain extreme
precipitation**

**Tidal power plant in
flood barrier**

**Agricultural
recycling loops**

**Precision farming and
strip farming for
healthier soils**

**Materials recovery
from sewage**

**Nature-inclusive
climate adaptation**

**Higher dikes in
combination with
recreation**

**Biomass cultivation
for biobased
materials**

**Use of CO2 emissi-
ons in greenhouses**

**Heating homes with
residual heat**

Salt-tolerant crops

**Delta Experience
Lab & Technology
Academy**

**Urban green space to
combat heat stress
(urban farming)**

**Solar farms on
low-yield farmland**

Sustainable housing

**Pipelines for materials
exchange between
industries**

Since the 2019 Climate Agreement a conscious decision has been made to adopt an *integrative* approach to regional transformations that addresses other social and economic issues in the region as well. Accordingly, the sustainability transition in the Southwest Delta – a region that not so long ago was known for its shrinking population and island mentality – marked the beginning of its development into a vibrant, innovative and attractive region to live and work in.

Leisure economy drives sustainability

The tour of the exhibition begins at the replica of a holiday home in 2018, when it was lived in by Polish migrant workers. By current standards the building is incredibly primitive. A gas boiler is used to heat water, the radiators are operated by hand, the walls are made of concrete and the window frames are plastic. The sight of the thin, uninsulated walls alone gives visitors the shivers.

It is no wonder, then, that thirty years ago the sustainability transitions in the delta began in the recreation sector. The old-fashioned, run-down holiday parks and campsites desperately needed renovating or replacing. Recreation was by then the main economic sector in the region, thanks to its unique open landscape, and climate change was already extending the length of the holiday season. It is hard to believe today that events such as Film by the Sea and the Late Summer Festival were held in September and not after the autumn break in late October or early November.

The decision to make tourism the focus for the future development of the Southwest Delta was prompted by the pricing policy for air travel introduced at the end of the 2020s, which made holidays in far off sunny destinations unaffordable to many people. In the delta a conscious decision was made to combine the expansion of the leisure sector with major investments in sustainability measures. The resulting attractive, clean and healthy environment increased the appeal of the area to tourists and holidaymakers. Other economic sectors picked up on this. Nature-inclusive farming, which also recreates a more attractive landscape, started to become the norm in the 2020s.

From petrochemicals to biochemicals

In a hall filled – highly appropriately – with holographic smoke, the Queen looked at the remains of an old naphtha cracker, a plant used to process crude oil. The machinery is from Dow Chemical, a relic from the petroleum era in Terneuzen and Moerdijk. In the wake of the 2019 Climate Agreement, the petrochemical industry was gradually transformed into the current biochemical industry, driven by renewable electricity and biobased fuels – now the most normal thing in the world.

But the transition to these forms of clean energy in industry did not go smoothly. In the mid-2020s the big companies, mostly in foreign hands, were reluctant to embrace the forward-looking Dutch policy. They had invested in the region because of the pool of cheap labour, the cheap land and the cheap natural gas from the Groningen field, and at a time when CO₂ emissions were not an issue and were untaxed. When the sustainability



transition emerged onto the scene many industrial companies thought about relocating and for some, Norway or Iceland turned out to be a more logical place to be. The region could live with their departure. After all, a large part of the added value of the businesses in question went to foreign employees and shareholders in any case. In the end, though, most companies decided to stay. They came to the conclusion that the availability of electricity from the North Sea wind farms, biomass from the arable farmland and the biobased expertise to be found at Ghent and Wageningen universities would become the new drivers of the regional business environment.

The delta, a green/blue oasis surrounded by highly urbanised areas, remained an attractive place to recruit highly skilled staff. Climate change meant a reshuffling of the cards. Factories were retrofitted in line with circular principles and industries that could use each other's residual wastes relocated to be close to each other or were connected by pipelines. This was the beginning of the current industrial-ecological system in which byproducts that were once considered wastes are used as feedstocks for other processes. So successful was the transformation that the European Union held up the delta zone as an example to the rest of Europe. In turn this attracted generous financial support for the major transitions.

Part of the exhibition space devoted to industry is essentially a tribute to the innovative businesses and entrepreneurs who settled in the Southwest Delta: enterprises that recycle plastics and recover scarce raw materials from the surrounding industries. The site of the Dow plant is now home to the biggest plastic recycling plant (PRP) in Europe. This innovative development

received a major boost when China, at that moment embroiled in the Great Trade War, was no longer prepared to process plastic wastes from the West. A problem was turned on its head and became what is now seen as a huge success. Other vacant industrial sites looking for a permanent use were temporarily used to station movable wind turbines and solar farms. The joint fund set up by the regional businesses to erect and later dismantle these installations exists to this day.

New islands off the Zeeland coast

A prominent place in the exhibition is reserved for water management. This engaging and appealing exhibit illustrates how the new islands off the coast continue a centuries old Dutch tradition of making new land. The islands of Wielingen, Schoneveld and Avekerke – named after villages and islands lost to the waters of the Westerschelde estuary long ago – were added to the existing archipelago in the 2030s to protect the coastline against the rising sea. The islands were created using the 'building with nature' method. Besides protecting the mainland, the islands are used for renewable energy generation, recreation, nature conservation and the production of shellfish, fish and seaweed. The vast physical transformation of the region is even visible from the permanently manned Chinese station on the moon. DELTA has the 3D images to prove it. In these images you can also see the large offshore wind farms, which appear as a regular pattern of dots in the sea.

With the construction of these offshore wind farms, Vlissingen has evolved from being a traditional port and logistical centre to become an important energy port. Engineers and technicians from all over Europe, especially



Great Britain, have since come to the region to work on the development of innovative technologies such as energy recovery from sewage, tides and saline gradients. The Southwest Delta is now the main centre of expertise for modern water and energy technologies.

Circular agriculture

The exhibition room devoted to Agri & Food shows the changes in the way the land has been worked, from the Belgian draft horse via the tractor to the robots we now see in the fields. From the beginning of the 21st century tractors and other agricultural machinery grew bigger and heavier, which had an adverse impact on the structure of the soil. The autonomous robots which became popular at the end of the 2020s ushered in the modern strip farming era. The huge monoculture fields were replaced by large ecological vegetable gardens fitted with hi-tech equipment, which has now become the standard: sensors that allow growers to match crops and varieties with great precision to the patchwork of soil conditions and microenvironments, and the sometimes surprising presence of fresh water. These technologies also made farming possible in our cities on fields between buildings or on roofs. The food cultivated in these urban farms may make a modest contribution to total food production, but the many green areas help to mitigate urban heat stress and provide valuable water buffering.

The dry summers of the 2020s left arable farmers without an income. The answer that was found was to add more organic matter to the soil. Nowadays these organic fertilisers are part of the closed-loop materials recycling economy. They are produced by the anaerobic digestion of

composted organic wastes from the tourism sector and from poultry manure (which in the past used to be incinerated at Moerdijk). Biodigestion also produces enough energy for periods when there is no wind in winter or at night (called *Dunkelflaute*). The fertiliser produced by the biodigesters can be produced to the required specifications for delivery to individual farmers in the region.

Seaweed, algae, flax and common madder

At the end of her visit the Queen enjoyed a weedburger with salty sea spaghetti from DELTA's own aquaculture facility. In the DELTA restaurant visitors can experience for themselves how our crops and eating habits have changed. Sugar beet has lost much of its attraction: consumption has dwindled and the competition from cane sugar is acute, also because refining cane sugar requires less energy. Protein crops, on the other hand, are back in force: there are again just as many varieties of peas and beans as a hundred years ago. They are processed in vegetarian and vegan products. The same goes for algae and seaweed from the Oosterschelde estuary and the new islands. During the 2020s and 2030s the many top restaurants in Zeeland played a big part in upgrading the image of these products. Shellfish are still the traditional top culinary attractions in the region, though, while the brackish agriculture crops which thirty years ago were expected to have a bright future have remained a regional niche product. The brackish areas are now mostly in use as solar farms, which is a lucrative business.



The crops growing outside the DELTA restaurant are not intended for consumption. They are the raw materials for biodegradable plastics, building materials and aromatics. Once harvested they are destined for industrial use. Flax has made a comeback in the production of textiles without artificial fibres. And the experiments with common madder as a feedstock for the biobased chemicals industry in West-Brabant and Tholen at the beginning of the century have also paid off. The biomass that cannot be recovered and used is incinerated in the local biogas power station.

DELTA invites the visitor to experience the latest developments in the Southwest Delta region. Within a few years the centre wants to become a place where tourists can take stock of the changes that have taken place over the last hundred years. In that sense it is a wonderful addition to the Flood Museum in Ouwekerk and the Neeltje Jans Deltapark for the Delta Works and is well worth a visit.



3 IMPLEMENTING THE SUSTAINABILITY AGENDAS

The previous chapter illustrates what can be achieved by successful implementation of the sustainability agendas. One thing that stands out is the *interrelations* between the solutions. But how realistic is this picture, given the current progress (or lack of it) being made with the separate sustainability agendas in the Southwest Delta region? In this chapter the Council discusses what is being done to make the necessary structural changes. Many initiatives are still embryonic and in a trial and error or ‘muddling through’ stage of development. The lack of cohesion between initiatives is partly due to the fact that the transitions are in different stages. The Council expects that in time the sustainability agendas will fall into step and also become more integrated with specific regional challenges. In turn this will influence how best to tackle the implementation of these agendas.

3.1 Need for structural changes

The transitions that need to be made over the coming decades in the fields of energy, food, the economy and climate resilience are wide-ranging and far-reaching: much of the fabric of the country will be altered (see [Box 2](#)). For the Southwest Delta this will mean:

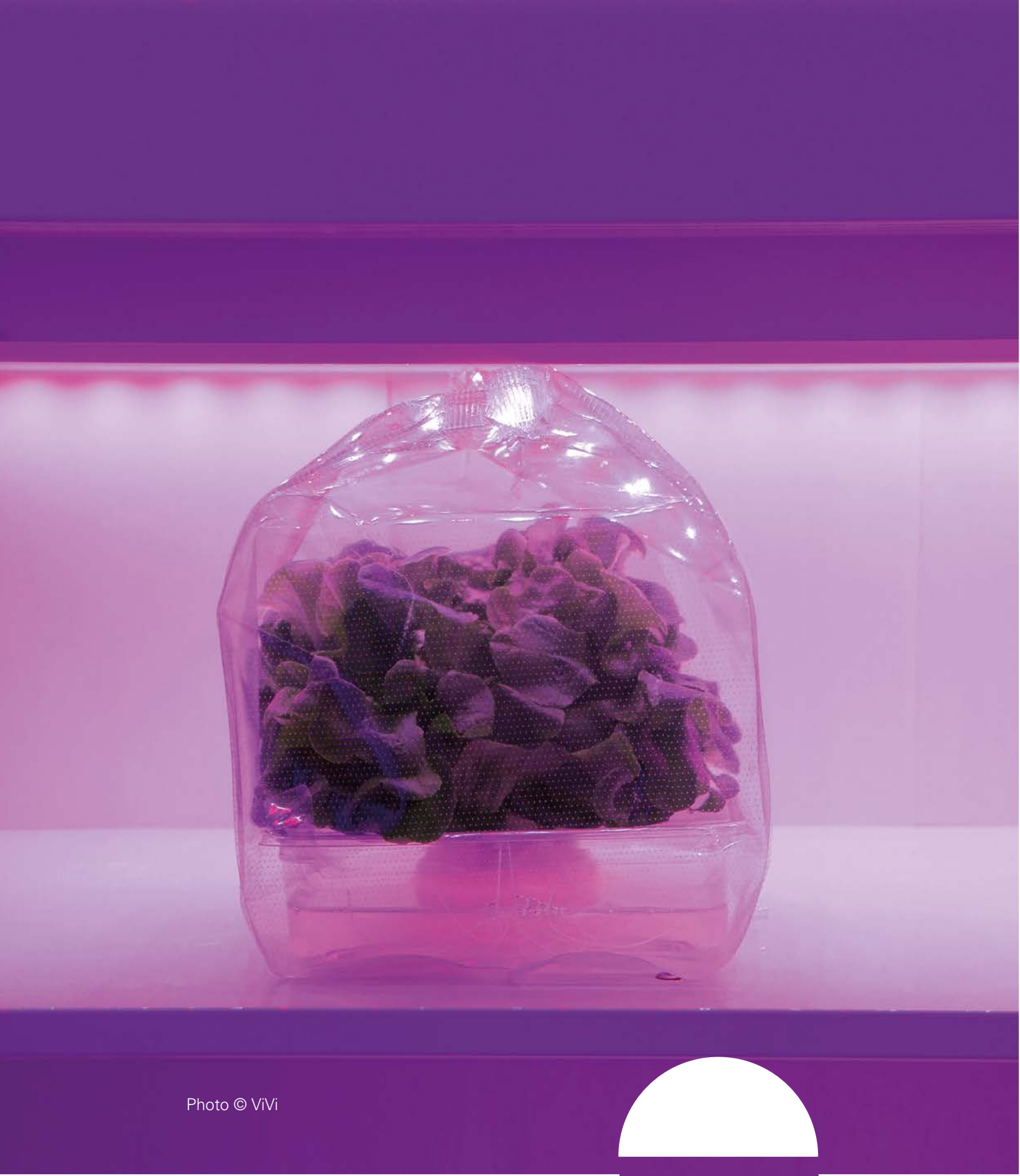
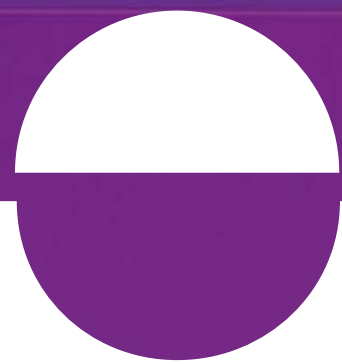
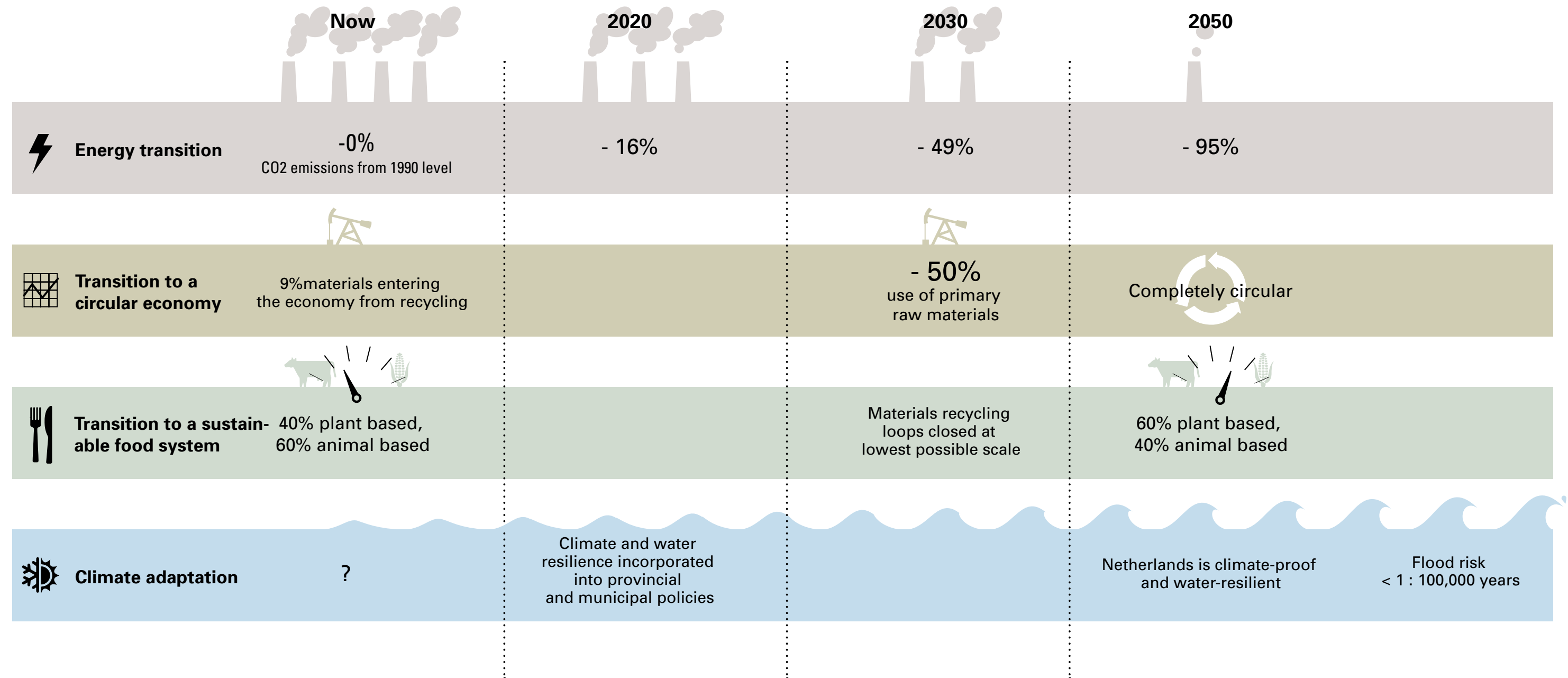


Photo © VIVI



National policy objectives



- a fundamental transformation of the industrial base, which now relies mostly on fossil raw materials (Luman, 2018);
- radical alterations to the coastal defences;
- more green space in urban areas for water storage and urban climate mitigation (Ministerie van IenM, 2016);
- integration of considerable wind and solar power capacity into the open delta landscape;
- greening the built environment and the tourism sector;
- adapting production processes and value chains to create a circular economy and closed-loop agriculture (Rli, 2005).

The Southwest Delta, which faces a number of specific problems, such as the stagnating population and (partly as a consequence of this) shortages in the labour market (see [Box 3](#)), will have to go through a number of major structural changes. These changes will have a major impact on the regional economy. Table 1 lists several examples which show that each sustainability agenda implies changes in almost all sectors of the economy. These sectors will not only have to undergo these changes, they will also have to drive them forward. In the process they will have opportunities to create smart synergies (as can be seen in each row of [Table 1](#)).

3.2 Small initiatives, big agendas

In the Southwest Delta region there are numerous initiatives and projects that contribute towards the objectives of one or more sustainability agendas. Most initiatives are small scale, isolated and limited to their

own policy area. They are generating results, but these are minimal in comparison with the goals for 2050. Other studies back this up. ‘The many experiments and initiatives do not yet add up to a fundamental transformation. They are the exception rather than the rule. And so the more ambitious goals for climate, energy, the circular economy and social equity are still a long way off’ (Alkemade et al., 2018). Much therefore remains to be done. Given the complexity of the four sustainability transitions it is no surprise that progress is slow. Besides, 2050 seems a long way off.

The lack of any large-scale initiatives that can make a significant impact is typical of the initial, exploratory phase of a transition (Hekkenberg & Koelemeijer, 2018). Transition experts often work with a model characterised by a short burst of initial rapid progress followed by a long period of trial and error, or ‘muddling through’, after which the transition finally takes off. There are now signs that the energy transition is starting to pick up speed. Much of this momentum is due to the combined effect of the Paris Agreement (United Nations, 2015), the Dutch Climate Agreement (Klimaatberaad, 2018), the decision to set a date for the end of the exploitation of the Groningen gas field (Tweede Kamer, 2018b) and the ruling on the Urgenda court case on Dutch climate policy (Gerechtshof Den Haag, 2018). However, there is no guarantee that progress will pick up on its own, and so it is unwise to blindly assume that such a change of gear will eventually spontaneously occur for all the sustainability agendas.



3.3 Interrelations between transitions

The four sustainability transitions examined in this report are clearly interrelated: their aim is to tackle the problems of climate change. The energy transition and the transition in the food system aim to do this by reducing emissions of carbon dioxide. The transition to a circular economy, even though its main aims are different, will also contribute to reducing carbon emissions by reducing the use of fossil raw materials ([Box 4](#)) (Drissen & Vollebergh, 2018). Finally, the transitions in the water system and in spatial development also aim to limit the consequences of climate change. Climate change can therefore be seen as an urgent connecting theme.

The Council sees little evidence in practice of this common ground between the four sustainability agendas, and there is no sign at all of an integrative, coherent approach. Implementation of initiatives seldom involves cross-connections with projects in other transitions. The initiators of these projects tend to stay on safe ground within the confines of their own economic sector. In its study of the Southwest Delta the Council found almost no cross-sectoral initiatives, such as between agriculture and construction or between agriculture and industry. Sustainability policies have also been limited mainly to sectoral approaches.

This lack of cohesion is not necessarily a problem at this stage; the Council has not seen any signs that this sectoral approach is thwarting implementation of the agendas. However, it is highly likely that interesting

opportunities will soon arise for combining one or more sustainability agendas.

The Council already sees indications here and there in the region of future linkages between the sustainability agendas:

- The agro-food sector is likely to be asked to produce biomass for the energy transition, grow more protein rich crops for a more sustainable food system, make sure that soils are healthy and provide freshwater storage for climate adaptation (see [Table 1](#)).
- When petrochemicals make way for biochemicals, structural changes in production processes will contribute to the energy transition and the transition to a circular economy.
- Changes in the spatial structure of the region for climate adaptation can in future be combined with the integration of renewable energy (wind and solar) and the clustering of industries that can use each other's residual products.
- Regional energy strategies will have to incorporate circular principles, such as reusing residual heat, which will no longer be obtainable from waste incinerators.

There may also be conflicts. For example, adapting to climate change by creating more space for tidal dynamics may lead to salinisation of agricultural land.

The Council came across some initiatives in the Southwest Delta that already incorporate elements from different sustainability agendas,



although they are still scarce. An example is the Multi Utility Provider, a pipeline corridor through the Ghent-Terneuzen Canal zone for the transport and exchange of raw materials and residual products between industries (Rho Adviseurs, 2014). This will serve not only the energy transition, but also the circular economy. A concrete initiative-in-the-making that would support both the energy transition and climate adaptation is the construction of a tidal power plant in the Brouwersdam barrier (part of the Delta Works) (see [Box 5](#)).

3.4 Transitions out of step

The limited interrelatedness between the sustainability agendas in the Southwest Delta region is partly down to the fact that the transitions are at different stages. They are out of step.

Transitions tend to go through five stages: an initial period of *experimentation*, followed by *acceleration*, then a period of *strong growth*, followed by *institutionalisation* and finally *stabilisation*. This build-up is often accompanied by a concurrent breaking down of the 'old system', also in stages: first it is *optimised* and then it enters a period of *destabilisation*, followed by a *chaotic* phase leading to the *dismantling* and finally the *phasing out* of the old system (see the 'X Curve' in [Figure 3](#)).

At the moment, climate adaptation (especially the Delta Programme and the National Adaptation Strategy) are already in the institutionalisation phase of the upward transition curve. The energy transition has past the

strong growth stage. The transition to the circular economy, on the other hand, is still in the experimentation stage and is largely concerned with optimising the existing system. The existing food system has started on a downward curve. At the moment it is showing signs of destabilisation, given the problems in the intensive livestock sector, the excessive use of pesticides and the growing concerns about soil health. At the same time there are already signs of innovation, but this is still in the experimental phase. The food system is still clinging to the dominant strategy of large-scale production for the global market. Recently the Minister of Agriculture, Nature and Food Quality has raised the need for a shift in the food system in a vision document (Ministerie van LNV, 2018). The above shows clearly that transitional stages can be out of step, both *between* sustainability agendas and *within* the same sustainability agenda.

Another way to reveal phase mismatches in the transition process is to determine where the four sustainability agendas are in the policy life cycle (see [Figure 4](#)). Climate adaptation has reached a stage (for the most part) of fully developed policy with national targets, regional implementation strategies and packages of measures. In contrast, the transition to a more sustainable food system has none of these yet. In the transition to a circular economy the government has not got any further than setting national objectives or ambitions for 2030 and 2050 for a number of sectors (Ministerie van IenM et al., 2016). The policy goals for the energy transition are more concrete and regional energy strategies are being prepared (Klimaatberaad, 2018).



The general picture for the Southwest Delta region is that implementation of the sustainability agendas is still predominantly in the initial stages and the initiatives taken so far have not yet led to the desired structural changes. As soon as these changes do take place, the interrelations between the agendas will become more obvious. The Council expects that the structural changes will interact and combine in such a way as to create synergy between the sustainability agendas. The scenario sketched in Chapter 2 illustrates this synergy.

3.5 Increasingly convergent agendas

As work on all four sustainability agendas in the Southwest Delta region picks up, the Council expects that in time they will increasingly *converge*. This will have consequences for the way they are implemented. Practical decisions will have to be made on phasing, the division of budgets and political priorities. In addition, the opportunities and constraints in relation to public support, physical footprints and consequences for the labour market should be taken into account.

Phasing

As described above, converging sustainability agendas tend to be out of step. This can lead to conflicts that prevent at least one of the objectives being achieved. For example, in the Dutch Climate Agreement generating energy from the incineration of biomass is viewed as a temporary bridging measure that can be used as a first step in the energy transition (Klimaatberaad, 2018). However, this is at variance with the action plan for

a circular economy. From the perspective of circularity, biomass should be reserved for higher grade uses: the production of food and livestock feed, for example, or as a feedstock in the manufacture of textiles, paper and board, building materials, chemicals and plastics (Sociaal-Economische Raad (SER), 2018a).

Budget and political priorities

As work on the transitions becomes more synchronised, competition may arise for policy resources, simply because it is hard to maintain political focus when the number of issues and problems to be tackled is so large. The Biobased Delta and Energy Island Goeree-Overflakkee initiatives (see [Box 6](#)) are examples in the Southwest Delta of successfully concentrating on a single agenda, which in practice proves difficult enough. It can be questioned whether the same level of commitment can be expected when a range of sustainability projects are to be tackled at the same time. Moreover, such projects cost money and each euro can only be spent once. The government, the market and society will therefore have to make choices: when and on what should the available budget be spent?

Public support

In time, the sustainability agendas may also have to compete with each other for public support. Greening the food system requires a change in diet, a circular economy requires a shift in consumer behaviour, the energy transition requires changes in the landscape and climate adaptation requires a different approach to the planning of both rural and urban areas. Faced with several of these radical changes all at once, the public may well



resist. But there are also opportunities. The sense of urgency surrounding the need to reduce CO₂ emissions can be exploited to build support for greening the energy, food, economic and planning systems.

Physical footprint

The various sustainability agendas present opportunities for multifunctional land use. For example, offshore wind farms could present an opportunity to restore or enrich marine ecosystems (Stichting Natuur en Milieu & Stichting De Noordzee, 2018). But the scarcity of available land can be an obstacle in the energy transition and climate agenda (Posad et al., 2018). The recent analysis by the Netherlands Environmental Assessment Agency (PBL) of the main messages in the Dutch Climate Agreement indicates that until 2030 the energy transition will not run up against any major land conflicts, but after that the availability of land will become problematic (Hekkenberg & Koelemeijer, 2018). Public support for new wind farms on land could then evaporate.

Consequences for the labour market

Implementing the sustainability agendas will require special knowledge and skills. The current shortages on the labour market in the Southwest Delta (as a result of demographic trends) could therefore pose a threat (Central Bureau voor de Statistiek CBS, 2018b). There may not even be enough sufficiently qualified people to work on the energy transition in all the regions of the country (SER, 2018c). By the time all the sustainability transitions are in full swing, it is expected that the competition for labour

will be intense, both between transitions and between the regions where they are to be realised.

3.6 Prospects for an integrative approach

The Council sees the sustainability agendas becoming increasingly interrelated in future. They will also become more integrated with other regional challenges, both in substance and procedure. Anticipating and preparing for this now may help with charting a successful implementation pathway in future. The Council feels it is important to develop a clear vision on the policy synergies between the sustainability agendas well in advance. The Netherlands Environmental Assessment Agency also recently emphasised the importance of this: ‘Draw attention to these linkages as policymaker and join with other parties in nurturing them to fruition’ (Muskee, 2018). The earlier the interrelations between all the regional challenges are brought to light, explored and given shape, the greater the possibilities for taking advantage of the opportunities to exploit these linkages and to forestall potential hazards.

Incidentally, the indications of future correlations between the sustainability agendas are no reason to precipitously make a ‘forced’ attempt to implement all the agendas in unison. An integrated approach is not a goal in itself. Besides, at the moment there is still much uncertainty about future developments. At a time when there is still much we do not know, it can



do no harm to ‘muddle through’ for a while.³ It is not necessarily wrong to make progress within your own sector by experimenting and coming up with new ideas. A forced attempt at an ‘all encompassing’ approach can have a paralysing effect and inhibit progress.

Nevertheless, an integrative vision on the challenges facing a region can avoid missing out on opportunities. The Council notes that the way the climate panels worked on proposals for the climate policy in 2018, with separate panels for different policy areas and a strong emphasis on reducing CO₂ emissions, actually increased the chance of missing out on opportunities. For example, increasing renewable energy generation in the Moerdijk industrial zone was not included in the West-Brabant Regional Energy Strategy simply because industrial areas belonged to the climate panel on Industry. Line departments are still taking this blinkered approach to climate change. They focus on targets, policy and implementing their ‘own’ sustainability agendas. The Ministry of Economic Affairs and Climate Policy, for example, has asked all the regions to prepare regional energy strategies, but without any central guidance on how these strategies tie in with the circular economy and/or climate adaptation. Neither have the subnational authorities attempted to make a division into regions that encourages integrated policy responses. See also the Council’s advice on the National Environment and Planning Strategy (Rli, 2018).

³ In the ‘muddling through’ view of planning, the decision-making process involves many laborious incremental steps. Proceeding in big steps is impossible because many aspects of the complex policy context are not yet known. In most cases, change is an evolutionary process, not a revolutionary one (Lindblom, 1959).



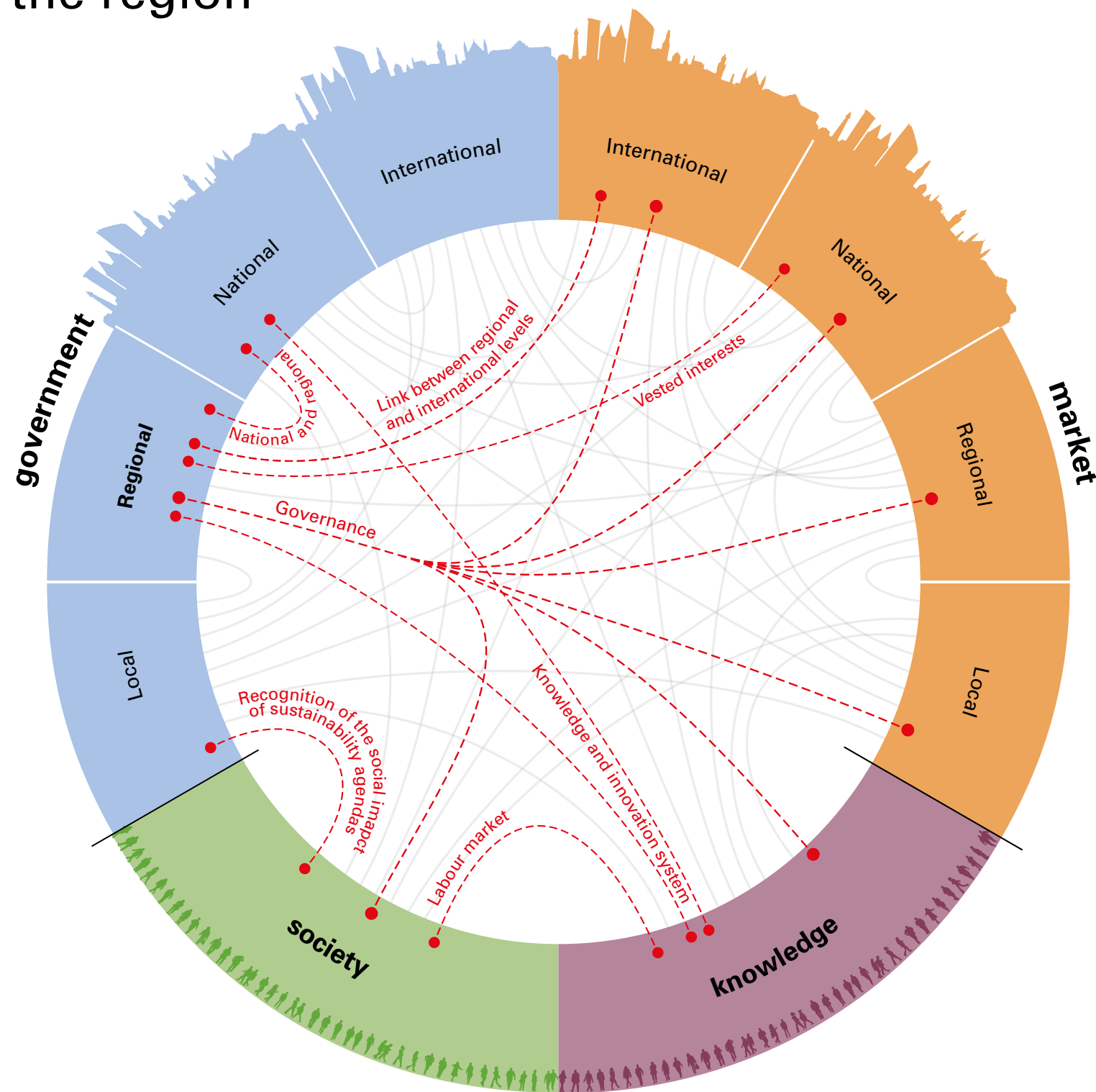


4 WEAK LINKS IN THE REGION

In the previous chapter it was observed that the Southwest Delta needs to build up sufficient momentum to drive forward the structural changes that are needed to achieve the sustainability goals. Key to generating such an impetus, in the Council's view, is strengthening the regional system of partnerships between government, market players, knowledge institutes and civil society organisations (see [Box 7](#)).⁴ Greening the region implies structural changes and embracing mutual interdependence. A strong regional system of cooperation strengthens existing bonds and encourages the development of new connections, making it easier to identify new areas of common ground. In this chapter the Council identifies six weak links in the regional system that need to be addressed to boost implementation of the regional sustainability agenda in the Southwest Delta.

⁴ In regional policy this is increasingly referred to as the 'regional ecosystem'. An ecosystem approach provides an analytical framework for identifying strengths and weaknesses. It helps stakeholders to prioritise initiatives that will redress the weak links in the ecosystem (Toren, 2018).

Weak links in the region



4.1 Weak link: Sectoral steering of the sustainability agendas

According to the Council the study of the situation in the Southwest Delta region shows that the sustainability agendas are still being tackled on a *sector by sector basis*. By taking this sectoral approach, the policymakers in national, provincial and local government have little eye for the areas of common ground between the sustainability agendas. This is borne out by the lack of any integrated, overarching strategies with indicative choices (Rli, 2018a). A telling fact in this connection is that, as described in section 3.3, the Council found hardly any examples of policy initiatives that promote innovation across transitions or that exploit cross-sectoral opportunities. In itself this is not necessarily a big problem – and certainly not in the inception phase of a transition. A possible advantage of sectoral steering of sustainability innovations is that the task is not made bigger than it has to be, keeping it simpler and possibly more effective.

An exclusively sectoral steer, however, may in time clash with the need to capitalise on opportunities where sectors overlap. An example of this is the plan for the Brouwersdam tidal power plant mentioned earlier, which would combine water management with renewable energy generation (see [Box 5](#)). This project encompasses diverse interests (water quality, flood protection, agriculture, recreation and renewable energy) and is hampered by the fact that at the national government level these interests are handled by different departments. As a result, no single government body considers themselves responsible for adopting the opportunity the region sees for a tidal power plant.



In short, initiators often find themselves caught in the mismatch between an integral reality and a sectoral system (De Jong et al., 2017). Cross-sectoral initiatives have a hard time gaining a foothold in government circles because they do not easily fit within a single policy 'silo'. A related problem is that such initiatives often have to deal with several government authorities or agencies, but in the absence of any horizontal or vertical coordination (within and between tiers of government). For example, Seaweed Harvest Holland had to deal with six government bodies to obtain permission to cultivate additional areas in the Oosterschelde estuary.

4.2 Weak link: Deficiencies in the knowledge and innovation system

In its study of the Southwest Delta region the Council has observed that opportunities for implementing the sustainability agendas are sometimes missed because of deficiencies in the regional knowledge and innovation system in which government, businesses, civil society organisations and knowledge institutes participate. A salient fact in connection with this is that in 2018 the ING bank rated the province of Zeeland bottom of its Innovation index (Brink, 2018). The reasons are that the population is ageing, business dynamism is weak, the level of education is low and few patents are applied for.

Various studies have established that the current innovation system in the region is too sector oriented, has few connections with the national sustainability objectives and is tied too much to the established order

(Janssen et al., 2016; AWTI, 2016). Opportunities for innovation where one or more sustainability agendas overlap are not being encouraged, it is difficult for cross-sectoral initiatives to make headway in the innovation system and there is little room for initiatives that fall outside the established order.⁵ Moreover, focusing knowledge building and innovation on the sustainability agendas is difficult because the region does not have a common knowledge agenda that identifies where the gaps are. National government gives little or no direction, which makes it hard to select innovations that could be scaled up or copied.

The dissemination of knowledge throughout the region could also be better. Innovative solutions to sustainability challenges tend to come from the bottom up, but the knowledge they generate is not translated for use at a collective level. There is no link with the rest of the region, the wider market or the national agendas (Maas et al., 2017). The initiatives have little or no contact with knowledge institutes such as universities, which do have a broader view of the knowledge needs in the relevant sectors and agendas (see [Box 8](#)).

The Council also notes an insufficiency of 'reflexive monitoring' in the Southwest Delta, in which lessons are learned from positive and negative experiences in sustainability projects. This makes it difficult for government authorities in the region to choose which initiatives to back, to identify

⁵ In a relevant development, on 13 July 2018 the Minister of Economic Affairs and Climate Policy stated that he would revise innovation policy (Tweede Kamer, 2018d). The new policy is built around the challenges facing society – including the sustainability agendas – and focuses more on innovators and those who challenge the established order (backing challengers) (Raspe et al., 2017).



when there is potential for scaling up and to find common ground between sustainability agendas. Information on this is available among the diversity of existing initiatives, but remains untapped because there is little or no monitoring of initiatives. There is no regional or national strategy for assembling knowledge from both successful and failed approaches and feeding it into a continuous learning process at the collective level (Vogelzang et al., 2009). Obstacles or sticking points experienced in practice may therefore not be passed on to inform changes to policy or legislation. For example, businesses in the biobased industries are continually constrained by the waste management legislation because they are still classified as waste processors. Water authorities that recover raw materials from sewage face the same problem. Such recurring problems could already have been sorted out if there had been a good monitoring system in place.

4.3 Weak link: Shortages on the labour market

The findings of this study give the Council cause for concern about the growing shortages on the labour market in the Southwest Delta, which are already adversely affecting the implementation of the sustainability agendas in the region. Businesses and entrepreneurs indicated that they are having difficulty finding qualified people to fill job vacancies.

The province of Zeeland has the lowest unemployment rate in the Netherlands, at 3.6%. At the moment there are 1,900 vacancies that cannot be filled (CBS, 2018b) and this number is expected to rise to 6,000 in 2022

(Wouw, 2017). In future these problems will be made worse by the two dominant demographic trends in the region:

- a mortality surplus, which is expected to lead to a 3% reduction in the population by 2040 (source: Databank Planbureau en Bibliotheek van Zeeland);
- a changing population structure, in which the number of young people in the region is steadily declining and the number of older people is rising.⁶

These trends are expected to result in a considerable decline in the size of the working population in Zeeland from 240,000 now to 200,000 in 2040. This a drop of 16.67% (Provincie Zeeland, 2015).

Implementing the sustainability agendas will require an increase in the labour pool, for example for the construction of wind turbines and greening the housing stock (see [Box 9](#)) (SER, 2018c). This situation could lead to shortages on the regional labour market to implement the sustainability agendas and to ‘labour competition’ between regions.⁷

⁶ Compared with 2018, in 2040 there are expected to be 0.8% fewer 0–14 year olds, 12.8% fewer 15–29 year olds, 1.2% fewer 30–44 years olds, 21.1% fewer 45–59 year olds, 5.8% more 60–79 year olds and 94.5% more people in the 80 plus age group. Source: Databank Planbureau and Bibliotheek van Zeeland.

⁷ In the second progress report on the government’s action plan on population decline (*Actieplan Bevolkingsdaling*) the Minister of the Interior and Kingdom Relations announced a change of course. The minister wants to work more closely with the regions on the chronic problems on the housing market, the shortage of skilled labour and the provision of services and facilities (Tweede Kamer, 2018e).



4.4 Weak link: Social impact of the sustainability agendas

The Council concludes from the findings of this study that insufficient attention is being given to the social impact of the sustainability agendas in the Southwest Delta region. This impact will be considerable (Van Egmond et al., 2018). Implementing the sustainability agendas will not just involve complex technical issues, but also social aspects such as changes in the landscape, changes in diet and changes in buying habits. Moreover, major investments will be needed and these will affect people financially (Koelemeijer et al., 2018). This social impact of the sustainability agendas does not seem to be properly recognised in national, regional or local sustainability policies.

The sustainability agendas can be considered to be ‘wicked problems’. People tend not to feel ownership of such problems, because they cannot always see or feel the effects directly. In fact, the effects often only materialise in the future. Nevertheless, public support is crucial. There could be a role here for the market, knowledge institutes and civil society to take the initiative in bringing about the necessary changes and to carry public opinion with them (see [Box 10](#)).

4.5 Weak link: Vested interests

The fifth weak link in the sustainability process in the Southwest Delta is connected with the dominance of just a few industries in the region. It will be particularly difficult to ignore the vested interests of these economic sectors, particularly the petrochemical industry and agriculture.

The four main economic sectors in the Southwest Delta are the ports and logistics sector, the chemical industry, the leisure economy and the agro-food sector (Commissie Structuurversterking en werkgelegenheid Zeeland, 2016). The sustainability agendas cannot be successfully brought to fruition without structural changes being made in these sectors in particular. However, the companies in these sectors have little gain from change, certainly not in the short term. Their contributions to sustainability tend to be in the form of ‘optimising’ measures, also for cost reasons. Essentially, they continue to invest in the current situation, which makes it increasingly difficult to switch to an entirely different process (see [Box 11](#)).

There would appear to be a role here for government to initiate a shift in approach, but current government policy fails to do that. By setting annual reduction targets for industry (such as the 1.5% target in the 2013 Energy Agreement) national government is effectively encouraging companies to invest in incremental optimisation steps. National and regional government could also provide incentives for real change. This will require vision and political leadership. In 2018 the climate panels on Industry, Agriculture and Land Use made the first steps towards a structural change in industrial processes and business practices in these sectors.

4.6 Weak link: Governance of sustainability

The Council also sees room for improvement in the governance of the sustainability transition in the Southwest Delta region. The following three aspects in particular need to be tightened up:



- the links between national government and the region;
- regional organisational capacity;
- the connections between regional and international activities.

Links between national government and the region

The Council notes that the present government is taking action to improve policy alignment between national and regional government. Nevertheless, it is not always possible to translate national policy into measures at the regional level. It has proven difficult to make the link between national government and the region.

The national government needs the regions if it is meet its national sustainability objectives. The Netherlands Environmental Assessment Agency (PBL) underscores this fact: ‘Regions can play a significant role in generating certain transitions because initiatives that facilitate a system change come together at specific locations (knowledge, know-how, experience and energy among relevant players)’ (PBL, 2018). The region is therefore a logical scale on which to get to grips with the interrelations between agendas. It is where the necessary networks are formed and where the knowledge and experience is gained that can make integrated solutions work in practice, as illustrated by the Biobased Delta, Smart Delta Resources and Green Chemistry Campus initiatives (see [Box 7](#)). All stakeholders recognise the importance of the region for achieving national sustainability objectives and this is in line with the principles of

subsidiarity.⁸ Players in the region know each other, trust each other and regularly meet each other. Intermediary organisations such as the Brabant development agency (BOM), the West-Brabant regional development agency REWIN and Impuls Zeeland confirm this picture.

Conversely, the region needs the national government. Making the rigorous system changes that are needed is a complex task; sustainability is a multisector and multilevel challenge (Teisman et al., 2018). Although the decentralisation of national government policy places considerable responsibility for implementing the sustainability agendas in the Southwest Delta at the feet of the region, the study shows that the region cannot tackle these successfully on its own and is therefore dependent on national government:

- first, because the agendas can transcend the regional scale;
- second, because the region does not always possess the organisational capacity or resources to support the further development of initiatives and/or break up vested interests;
- third, because national government plays a crucial role in brokering agreements between companies operating on national and international markets (see [Box 12](#)).

The Council points out that national government policymaking tends to ignore the question of how the resulting policy can be translated into

⁸ Subsidiarity concerns the division of tasks between ‘higher’ and ‘lower’ tiers of public authorities. In general, it means that the higher tier authorities should not do things that can be done by lower tier authorities.



measures and actions at the regional and local levels. National government sets generic goals and it is then up to the region to turn those goals into concrete objectives and measures. Unfortunately, national policy often contains no entry points for regional interpretation and implementation. The implicit assumption by national government is that the regions are perfectly capable of putting national policy goals into practice, but this is simply not the case for complex challenges like these. Where necessary, national government is willing to facilitate this process, but budgets are often limited and the assistance given is of little practical value. Sometimes national government is not involved at all (see [Box 13](#)). The complexity of the convergent sustainability agendas makes it difficult for the region to decide on the direction to take, make decisions or organise a course of action. The region cannot go it alone and so national government must help it translate national goals into regional objectives and roll out appropriate measures.

Certain aspects of the picture sketched out above are already changing. The translation of generic policy into regional policy is starting to be facilitated, although this is still patchy at present. For example, the regional energy strategies have been developed this way and regional climate adaptation strategies have already been made (see [Box 14](#)). However, the Council has the impression that national government could take a firmer hand in directing the production of the regional energy strategies. The lack of a clear roadmap means that each region has to reinvent the wheel. Another problem is that the regions have been defined in a bottom-up process, which does not make it easy to link into other sustainability agendas. For

example, the municipality of Goeree-Overflakkee has drawn up its own 'regional' strategy, which complicates the process of intra-regional dialogue and policy coordination.

National government has various instruments at its disposal to bring the regions up to speed, including Green Deals (Tweede Kamer, 2017a) and Regio Deals (Tweede Kamer, 2018c) (see [Box 15](#)). These are partnerships between national government and the region to implement specific sustainability agendas, with government support for regional initiatives. The Regio Deals are not primarily concerned with regional sustainability, but can improve supporting conditions, such as education and the labour market. In the recently launched Inter-Authority Programme (IBP) (see [Box 16](#)) the Government also acknowledges this mutual dependence and the need to act in unison when implementing policy agendas that span multiple scales of governance (Ministerie van BZK, 2018). Despite this, discussions the Council held with government authorities in the region indicate that in general they feel that national government is taking a back seat. It is difficult for them to identify the right department or desk (and there are frequently several) where they can obtain support for tackling the challenges they face in the region. Exceptions are the Ministry of Economic Affairs and Climate Policy and the Ministry of Agriculture, Nature and Food Quality, which have appointed a joint *regional ambassador* who operates as a link between the government ministers and senior civil servants at the national level with public officials, the business community and social actors in the region (Staatscourant, 2017). Other departments do not have a similar post. The regional ambassador represents the two ministries in various



governmental and consultative bodies on climate, energy, the Multi-Year Programme for Infrastructure, Spatial Planning and Transport (MIRT), the Grevelingen strategic vision and such like. According to both ministries the regional ambassador is tasked not simply with explaining national policy, but also with listening to the region and coordinating national and regional objectives. However, the latter function of the regional ambassador is not experienced as such by all project initiators in the Southwest Delta.

Regional organisational capacity

The Council notes that the organisational capacity in the Southwest Delta region could be improved and that the existing institutional structure is insufficient to make a real contribution to achieving national sustainability objectives. The 2016 Balkenende Commission report and others have already recognised this to be a problem in the province of Zeeland (see [Box 17](#)). Research also indicates that the province of Zuid-Holland suffers from administrative fragmentation, especially between town and country (Van Oort et al., 2018). The decentralisation of policy has thrown this problem into sharper relief in recent years.

The provincial and municipal authorities in the Southwest Delta are often unable to provide sufficient support to initiatives that demonstrably contribute towards sustainability objectives. The region does not have the necessary financial resources, administrative capacity or know-how to translate national policy into practice. Making new connections between sustainability agendas often requires the skills needed to ‘broker and bridge’ and the willingness to let initiators stray off the beaten track.

Surprisingly, the regional authorities (provinces and municipalities) in the Southwest Delta do not have a shared vision for the future that includes the sustainability agendas. In 2018 Zeeland Provincial Council decided to update its existing environment and planning strategy; the preparation of a more forward-looking environment and planning strategy was postponed at the request of the municipalities.

Connections between regional and international activities

In its study the Council observed that it is difficult to make direct connections between regional and international activities. National government has a key part to play in this.

One of the major challenges in the region is to phase out the reliance of industry on fossil resources. The petrochemical industry, for example, will have to switch to biochemicals, but an obstacle in this case is that many of the companies involved are foreign owned. These companies operate in an international market and demand a level playing field, which means that if they are forced to convert their plants they demand government subsidies to compensate them for unprofitable investments. Moreover, decisions about changes to production processes are taken in head offices in the United States or Dubai, where the need to wind down the use of fossil resources is not yet perceived to be urgent enough. Regional governments are not powerful enough to play this international field. Their call for support from the national government has long been unanswered (see [Box 12](#)), although the negotiations in the Industry climate panel suggest this situation may change in future.





5 CONCLUSIONS

Based on the findings discussed in the previous chapters, the Council concludes that an integrative approach to implementing the sustainability agendas in the regions is needed. In this chapter the Council formulates five – interrelated – strategies for a stronger integrative approach to implementing the sustainability agendas at the regional level. These strategies are designed to give regions the capacity to (a) expedite implementation of the sustainability agendas in the region and (b) anticipate and exploit the interrelations between these agendas. The strategies are not mutually exclusive and a combined approach may be more effective in achieving the desired results than pursuing them separately. The core elements of the strategies are *linking players and agendas, focusing on innovation* and *using the power of design*. The Council thinks these strategies can be useful for other regions in the Netherlands as well.⁹

5.1 Create stronger links between national government and the region

In this study the Council has established that the national government needs the region to achieve its sustainability objectives and that,

⁹ This study has been reviewed by representatives from other regions regarding its wider relevance and applicability. The findings were found to be familiar and there was widespread agreement on the need to tackle converging challenges at the regional level (Round table discussion on 1 October 2018 (see Appendix) and additional interviews).

conversely, the region needs the national government to help it implement the sustainability agendas. This mutual dependence needs a governance philosophy that is less hierarchical and does not advocate a rigid division of tasks, but is more geared towards collaboration. This government's governance philosophy, as set out in the Inter-Authority Programme (IBP), takes such an approach and is based on working closely together on the regional challenges as equal partners. This implies that those involved take a different view of their roles. National government has to assume co-ownership of the regional sustainability agendas and take joint responsibility with the region for implementing them. In turn, the provinces and municipalities must see their own roles as more than just implementing national policy, but will have to act as full partners of the national government.

A different way of working will also be needed. A traditional project-based approach in which the scope, budget, planning and intended results are defined in advance can be inhibiting and prevent the discovery of new possibilities and linkages with other sustainability agendas. A *programmatic* approach, on the other hand, pays more attention to the quality of the process itself and allows more room for experimentation and exploring new avenues and connections, while not losing sight of the long-term goal. In this respect it is important always to bring in players that are involved with one or more other sustainability agendas, not in an attempt to create some sort of forced synergy, but to identify potential linkages and anticipate areas of common interest.

This proposed way of working implies that the national government has a well-conceived policy strategy in which it makes clear choices. Moreover, a more action-oriented national government is needed, one that supports the region with deeds. At the moment the national government is too often *reluctant to act* in the pursuit of regional objectives. Having set national goals, it tends to sit back and wait for them to be translated into regional policies and measures (Raspe et al., 2017), whereas the region is in need of clear guidance and steering mechanisms.

The draft National Environment and Planning Strategy (NOVI) to be published by the Ministry of the Interior and Kingdom Relations in 2019 proposes working with regional environment and planning agendas and area-based strategies. The Council believes this planning approach will be an important means of identifying and acting on the interrelations between the sustainability agendas in the region. The Council also hopes that this working method will induce the national government to be a more active partner in the region. The Council is also in favour of the national government having a structural policy presence in the region.

5.2 Involve society more in the sustainability agendas

Reluctance to act is not limited to national government. The Council sees this phenomenon in other government authorities as well. National government, provinces and municipalities are all often reticent to take steps towards a joint and integrative regional implementation of the sustainability agendas. The excuse for this cautious attitude is often uncertainty about



the future. However, where there is uncertainty it falls to government to *share responsibility* for implementing the sustainability agendas and to offer support and mobilise other parties. During the course of this study, the Council has talked to many organisations and companies in the region who expect more support from government for sustainability initiatives. In their opinion, it is up to the government to provide grant aid and finance,¹⁰ risk hedging and opportunities to experiment, to adapt legislation, provide policy frameworks for appraising options, make international agreements, arrange for leadership (e.g. the Delta Commissioner), back market introductions (as a launching customer), make government property available for public goals and/or introduce new innovative players.¹¹

But this is not a one-way relationship; society has to step up to the plate as well. An active response to opportunities requires a dialogue between government and society, consisting of market players, knowledge institutes, and intermediary and civil society organisations. This could take the form of *area dialogues* in which players and stakeholders in a region discuss sustainability challenges and solutions. Inspiration for such arrangements can be drawn from the climate panels in which national players looked for ways to achieve the energy transition targets. The Provincial Council of Zeeland has already gained experience with organising a provincial

¹⁰ A question to be addressed here is how to define legally enshrined financing arrangements that genuinely facilitate and feed the dynamism to be found in society (Scherpenisse & Van der Steen, 2018).

¹¹ The State Secretary for the Interior and Kingdom Relations has recently indicated the desire to make more use of state property for social ends and regional development (Tweede Kamer, 2018f).

energy dialogue.¹² If the national government and the region together prepare regional objectives for the sustainability agendas, market players, civil society organisations and the public can then be asked what they can contribute towards these objectives and what they need to empower them to do so.

A key question when bringing government and society together is what impacts the sustainability transitions will have on society. People will have to adopt a different mindset and way of doing things. They will have to make an effort to become involved, embrace the changes and take an active part in the process. Moreover, the major impacts of the sustainability agendas on society will put the legitimacy of policy severely to the test.

5.3 Turn the sustainability agendas into an opportunity to tackle regional challenges

Implementing the sustainability agendas can be made more effective if it is coupled with work on other regional challenges. The sustainability drive is sometimes seen as a threat to the region, but the rich variety of initiatives the Council discovered in its study show that sustainability also provides *opportunities* and can inject new life into solving the region's 'own' problems. It therefore makes a lot of sense to try to tie the sustainability

¹² In the energy dialogue businesses, knowledge institutes, government authorities, individuals and civil society organisations from Zeeland discussed how the province can contribute towards the Paris climate targets.



agendas into the specific regional context and the challenges that are recognised as urgent across the whole region.

In practice this means entering into dialogue with local stakeholders to identify regionally important and potentially effective projects and how national government can contribute. Some of the resulting measures may be suboptimal in terms of the higher transition objectives, but will be in tune with the regional context and can therefore count on support. Certain regions may decide to concentrate on one or more sustainability agendas (and take a more relaxed attitude to the others) and this may even lead to regional redistributions of sustainability investments and benefits.

In short, the Council recommends using sustainability as the motor for regional development agendas. Investing in sustainability can therefore be seen as investing in growth¹³ and in the social and economic fabric of the region (Raworth, 2017). Implementing the sustainability agendas can provide a boost to the regional economy and social welfare: it can lead to higher employment, attract investment into the region, improve the business and living environment, and create a more positive image of the region.

¹³ Socioeconomic growth assumes a 'broad' concept of welfare which includes not only material progress (growth in incomes and production), but also aspects of social progress (wellbeing and social cohesion) and a good quality environment.

5.4 Focus on building knowledge for sustainability

An essential requirement for implementing the sustainability agendas is a strong regional knowledge and innovation system. Since the end of the Peaks in the Delta subsidy programme,¹⁴ the regions have been responsible for maintaining and developing their own regional knowledge and innovation systems, although of course still within the context of national policy. The national government pursues generic policies,¹⁵ but can help the regions with specific questions. This means that requests for information and expertise on specific issues in the region must be brought clearly to the attention of national government (Leeuw et al., 2015).

In addition, it is important that the regional research and education policy for sustainability ties in with regional labour market policies. Shortages on the regional labour market and/or gaps in the regional educational offer must not be allowed to stall progress with the sustainability agendas in the region. Two things are needed:

1. *Targeted regional knowledge building* – Determine which economic sectors will be crucial for the region in the future and then focus knowledge building efforts for sustainability on topics that will support these sectors. In the Southwest Delta various initiatives are ongoing to align knowledge building with regional needs. For example, the

¹⁴ The aim of this government subsidy programme was to enhance the entrepreneurial climate and attractiveness of the Netherlands as a business destination. The programme came to an end in 2011.

¹⁵ National innovation policy is the responsibility of the Ministry of Economic Affairs and Climate Policy. This innovation policy is now largely coupled with the top sectors policy. A new 'mission-driven innovation policy' is being developed that centres on the major societal challenges (Ministerie van EKZ, 2018).



Campus Zeeland¹⁶ partners are setting up a 'Beta Campus' research and education institute for subjects in which Zeeland can lead the way (see [Box 9](#)): *water* (delta technology, water quality, estuarine development), *renewable energy* (wind, blue energy) and the *biobased economy* (chemicals, agro & food). The presence of academic institutes in the region¹⁷ bolsters the knowledge and innovation system, an example being the establishment of the Joint Research Centre (UCR and NIOZ) in Middelburg. Research is an increasingly significant motor of innovation and source of knowledge.

2. *Anticipating the demand for labour* – The education sector has to forecast and plan for the demand for labour, with an eye on the converging sustainability agendas. There is a demand for specific courses that will prepare people for the work involved. Educational curricula (especially higher professional and vocational education) must provide the right qualifications. Cooperation with industry and business is essential to ensure the educational offer matches current *and* future demand. Well-designed curricula can also attract final year students and PhD candidates to the region. This last point is particularly relevant for the economically less robust regions such as the Southwest Delta, where the potential working population is shrinking. These regions must find a way to attract people to prevent erosion of their knowledge and labour pools.

¹⁶ Campus Zeeland is a partnership between government, industry, and research and education institutes with the aim of strengthening Zeeland's competitive position through education and research.

¹⁷ Such as University College Roosevelt (UCR), NIOZ Royal Netherlands Institute for Sea Research and Wageningen Marine Research (WMR), with strong links to Utrecht University and Wageningen University.

5.5 Use the power of design to develop the interrelations between agendas

The Council notes that design-led research can be of help in the implementation of the sustainability agendas in the region. The design perspective gives a new angle when looking for creative solutions to abstract sustainability challenges. For example, in the Southwest Delta design-led research is being used in the development of the regional energy strategy.¹⁸ The Council believes that designers can also play a part in the development of policy and endorses the call by the International Architecture Biennale Rotterdam (IABR) to use design as a bridge between the numerous small initiatives and national goals (Alkemade et al., 2018).

Design can also be a powerful weapon in finding solutions. In the search for solutions, design-led research can illustrate the impact of the transition agendas, both literally and figuratively. It can show what is needed in practice for an integrated, or holistic, approach to the various sustainability agendas. Research through design cannot come up with off-the-shelf solutions, but it can give policymakers a better understanding of the issues involved and a feel for the problem. An example of this is *Plan Ooievaar* ('Plan Stork') (Bruin et al., 1986), which paved the way for the Room for the River programme in which flood risk management measures are combined with the restoration of riverine ecosystems. Such designs incorporate the sustainability agendas into a wider narrative. These narratives can then throw light on the opportunities for turning the threats posed by a transition

¹⁸ Source: interview with Future Urban Regions.



into a positive transformation. *Erfgoed in transitie: Energielinie* (Heritage in Transition: Energy Line), for example, shows how the energy transition and physical heritage can be combined in ways that enrich the landscape (H+N+S Landschapsarchitecten et al., 2017). Moreover, the process of designing such transformations in itself can change the mindsets of those involved. The Rotterdam Water City 2035 project may have delivered just one concrete result, the Waterplein (Water square) (Boer et al., 2010), but it has also led to a different way of looking at flooding and how to prevent it in Rotterdam.

To make use of the added value of design, designers must be involved in the process of visioning, policymaking and implementation. Design can play different roles during the course of this process. At the start, design methods can be used to investigate and describe the context and uncover all sorts of possibilities. Later in the process, design can be used to explore practical options until concrete solutions are found.

Various regions are already working with design-led research to paint pictures of possible futures. The Dutch professional organisation of urban designers and planners BNSP is working on a project called 'Region of the Future' (*Regio van de toekomst*) as an input to the new National Environment and Planning Strategy. The study explores development scenarios for four regions, each of which takes the lead in a different transition (BNSP, 2018). In 'Panorama Nederland' the Board of Government Advisers sketches a future based on responses to climate change, transformations in agriculture, new forms of urbanisation and

the energy transition (College van Rijksadviseurs et al., 2018). This vision shows how the major social issues of the day can be the key to structural improvements.

5.6 Closing observation

In this study the Council has explored the case of the Southwest Delta to identify what is needed to better prepare the regions for the major challenges ahead. Of course, each region has its own unique characteristics and administrative capacities, but the Council is of the opinion that the five strategies argued for in this chapter do have wider applicability than just in the Southwest Delta. Similarly, the weak links described for the Southwest Delta can alert other regions to the potential shortcomings in their capacity to introduce and manage the structural changes that will be necessary to make the sustainability transitions.

This study can also be seen as a supporting document underpinning the recommendations made earlier by the Council in its advice 'National Environmental Strategy: Litmus Test for Environmental and Planning Policy' (Rli, 2018a). That report points to the need to strengthen the government's policy presence in the regions and the need for additional financial resources to pull together sectoral budgets and provide sufficient funding for integrated projects.



BOXES AND FIGURES

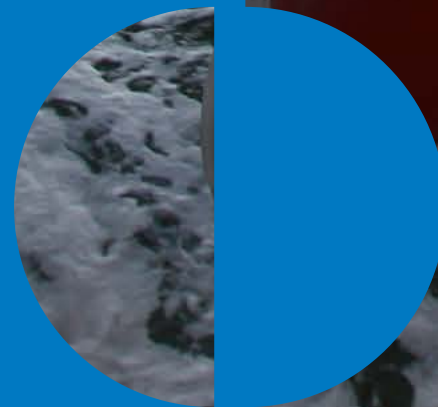
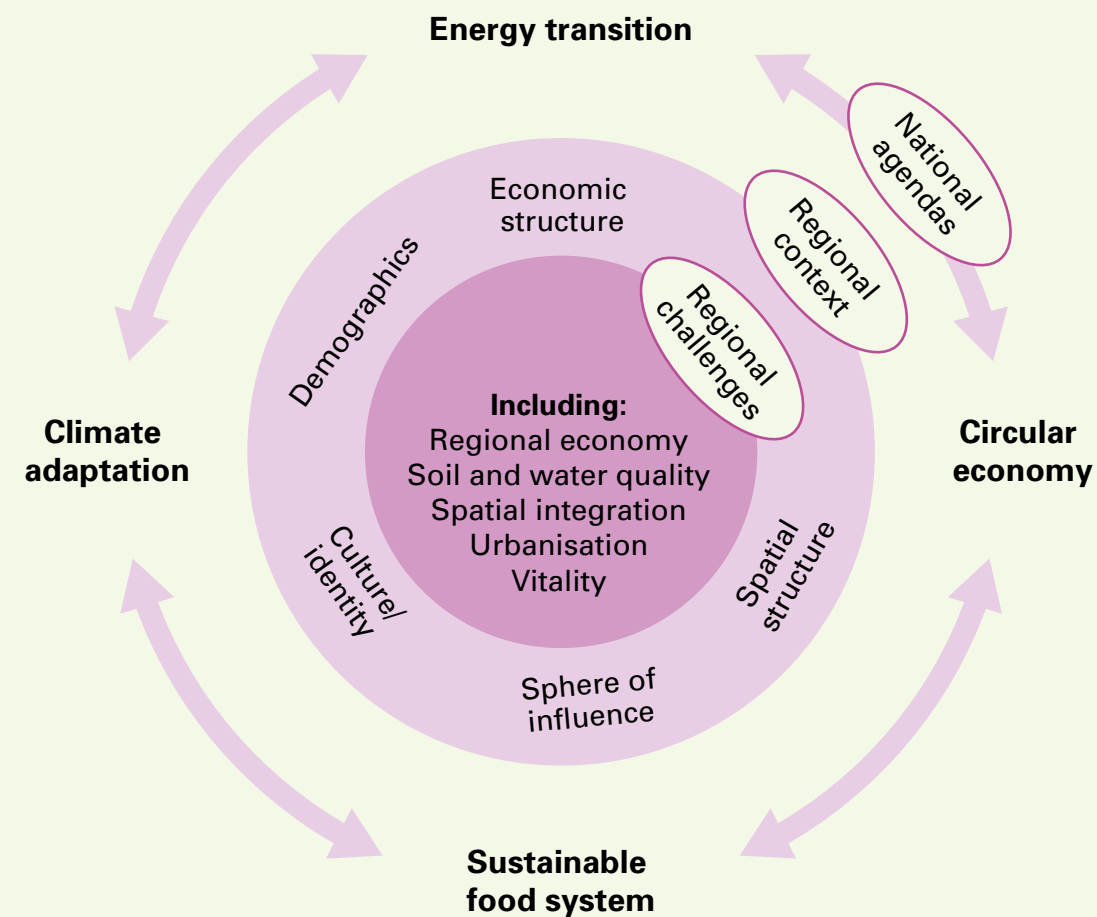


Figure 1. The four sustainability agendas are interlinked. They will be implemented largely in a regional context in conjunction with other regional challenges.



Box 1: What is a region?

In this study a 'region' is taken to be an area defined by a coherent set of spatial and economic characteristics, not one delineated by an administrative boundary (Rli, 2018a). This broad definition of a region was chosen because most regional issues do not respect administrative boundaries. In practice, they are tackled by regional partnerships

entered into by provinces and municipalities for the implementation of decentralised government policies.

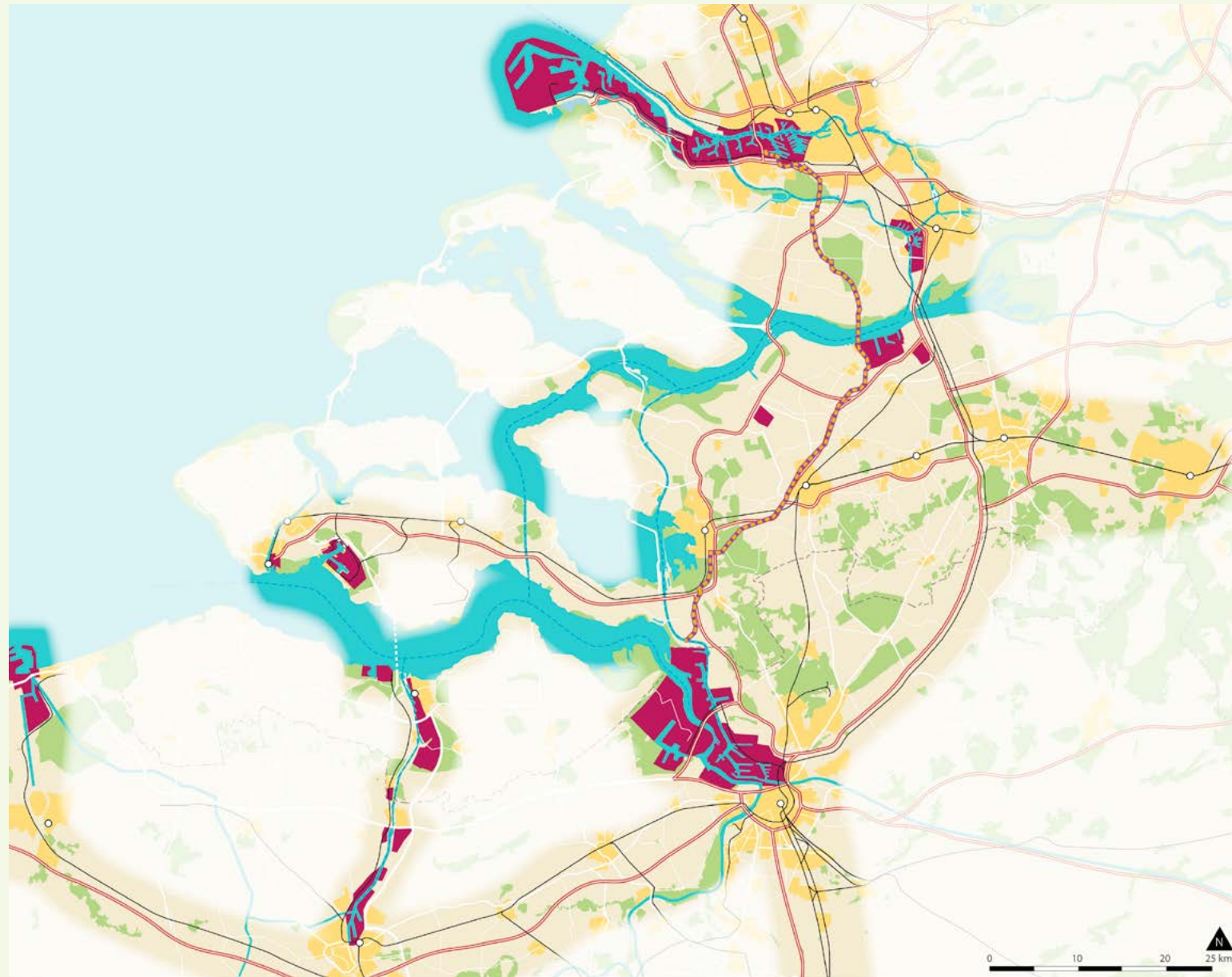
Within these regions there are usually several, sometimes overlapping regional administrative networks. The number and importance of these networks has grown in the last ten years (Groenleer & Hendriks, 2018; SER, 2015; Theissen, 2017). Examples include the three metropolitan regions, the Twente region and the Limburg Parkstad region. The national government encourages regional approaches, for example in energy policy, housing market policy, the Delta Programme and the Multi-Year Programme for Infrastructure, Spatial Planning and Transport (MIRT). The sizes of these regions varies according to the policy agenda in question, which gives rise to a patchwork of overlapping regional administrative networks, each tailored to a specific task.

There is another type of region, one in which non-governmental organisations can participate. These are often bottom-up initiatives, such as Energy Valley (a partnership of the provinces of Drenthe, Friesland, Groningen and Noord-Holland with research institutes and companies) and Food Valley (a partnership of the provinces of Gelderland and Utrecht with companies and research institutes such as Wageningen UR). There are also examples of entirely privately run networks at the regional scale, such as North Sea Ports and Green Chemistry Campus in the Southwest Delta. All these regions and regional networks are relevant in the context of this advice.

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Figure 2. The urban and infrastructure 'horseshoe' surrounding the Southwest Delta



Source: RHDHV IReport, Corridorstudie Rotterdam Antwerpen, 2017

The Southwest Delta is the region within the 'horseshoe' ring of infrastructure and urban areas surrounding the province of Zeeland and parts of the provinces of Zuid-Holland and Noord-Brabant. This network of transport infrastructure and built-up areas is not included in this study. The danger of zooming out to this wider scale is that the major development agendas for the ports of Rotterdam and Antwerp then come into the picture and draw attention away from the region itself. The Council therefore chose to focus its attention on the area within the horseshoe, while not losing sight of the relations with the surrounding area.¹⁹

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¹⁹ In the past the Antwerp Rotterdam study for the Multi-Year Programme for Infrastructure, Spatial Planning and Transport (MIRT) (MIRT-VAR, 2010) and more recently the Corridor Rotterdam Antwerp study (2018) have examined in detail the consequences for the regions of the further development of the southern and eastern logistical corridors.



Box 2: Four sustainability agendas

The four sustainability agendas can be characterised as transitions because of their scale, complexity and impact. The Netherlands Environmental Assessment Agency (PBL) considers a transition to be a structural change in society as a whole that is the result of a mix of interacting large-scale technological, economic, ecological, social, cultural and institutional developments (Hekkenberg & Koelemeijer, 2018). But the concept is nowadays used for all sorts of changes in society and seems to be becoming devalued through overuse. Several possible definitions could be used instead, but in this report the Council prefers to use the term 'sustainability agendas', thus avoiding the issue of whether or not the implementation of these policy agendas amounts to a transition.

Towards a clean energy system

In 2015 the Netherlands, along with almost all other countries, signed the Paris Agreement to keep the global rise in temperature below 2°C and to attempt to limit the rise to no more than 1.5°C. To keep within the 2°C target, Dutch CO₂ emissions will have to be reduced by 80% to 95% from 1990 levels (Vuuren et al., 2016). To turn this agreement into national action the Rutte III government's coalition agreement of 2017 sets a target of reducing CO₂ emissions to 49% of the 1990 level by 2030. This will have to be achieved by switching over to renewables such as solar and wind power. In 2017 Dutch CO₂ emissions were as high as they were in 1990 (CBS, 2018a). Much therefore remains to be done.

Towards a circular economy

The growing demand for raw materials and the increasing volumes of wastes are putting ever greater pressures on the environment. Over the past century global raw materials use has increased eightfold as a result of rising incomes and population growth (Egmond et al., 2018). The pressures on the environment already exceed the limits of sustainable use of the earth's resources (Rli, 2015). The Dutch economy relies to a large extent on imported fossil raw materials, such as oil and gas (Bastein et al., 2014). Their use is not only damaging to the environment, but is also surrounded by uncertainty: raw materials prices and security of supply can fluctuate as a consequence of conflicts in raw materials supplying regions. In a circular economy, in which raw materials are used and reused as efficiently as possible, the demand for primary raw materials is reduced. The government's ambition as set out in its Circular Economy programme is a 50% reduction in the use of primary raw materials (minerals, fossil raw materials and metals) by 2030 and an entirely circular economy in 2050 (Ministerie van IenM et al., 2016).

Towards a sustainable food system

The food system in the Netherlands also stands on the threshold of a sustainability drive. Our production and consumption of food has negative impacts on the environment, biodiversity, climate, animal welfare and the health of consumers (Rli, 2018b). The Paris targets imply that the agriculture sector will have to take steps to reduce its CO₂ emissions. At the moment the Dutch dietary pattern contributes



35 Mtonnes CO₂ eq. per year to greenhouse gas emissions (Rijksinstituut voor Volksgezondheid en Milieu, 2017). Reducing these emissions to 49% by 2030 is feasible with technological innovations, but the target for 2050 is not feasible under the present system (Egmond et al., 2018). Establishing a sustainable food system will therefore require structural changes. This has been acknowledged by the Minister of Agriculture, Nature and Food Quality, who recently argued for the shift to circular, or closed-loop, agriculture (Ministerie van LNV, 2018). In addition, the transition agenda for biomass and food sets the following targets for 2050: a change in the balance between animal and plant proteins to 40/60 (from 60/40 now), a 10% to 15% reduction in the total protein consumption per person, and a 50% reduction in the environmental footprint of protein produced in the Netherlands (Tweede Kamer, 2018a).

Towards a climate-resilient environment

Reports by the Intergovernmental Panel on Climate Change show that the observed changes in the climate since the 1950s are almost certainly the result of human action (Ligtvoet et al., 2015). The consequences are higher temperatures, more extreme precipitation, drier summers and rising sea levels (Ministerie van IenM, 2016). Extreme weather conditions, such as heatwaves and severe rainfall events and hailstorms, will become more frequent and cause more damage and victims than before.

Adaptations in the built environment, infrastructure and water management regimes are needed to keep the Netherlands climate proof.

Both the National Climate Adaptation Strategy (Ministerie van IenM, 2016) and the Delta Plan on Spatial Adaptation (Ministerie van IenM & Ministerie van EZ, 2017) state the government's aim of expediting and intensifying climate adaptation efforts so that in 2050 the Netherlands is water-resilient and has a climate-proof spatial structure. By 2020 the national government, municipalities and water authorities must have incorporated climate and water resilience into their policies (Ministerie van IenM & Ministerie van EZ, 2014). The 2014 Delta Scenarios assume a maximum sea level rise of 40 centimetres in 2050 and 100 centimetres in 2100. However, in the 2019 Delta Programme it is assumed that after 2050 in the most extreme case the sea level rise in 2100 will be three metres (Haasnoot et al., 2018).

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Box 3: Regional context and challenges in the Southwest Delta

Sustainability agendas are generally implemented in regions with their own contexts and their own regional challenges. What is this region-specific context in the Southwest Delta?

Geography

The Southwest Delta is a complex delta landscape consisting of part of the mainland and several connected islands. Around this lies an infrastructural 'horseshoe' that connects the region to the polycentric urban regions of the Randstad, the Brabant urban ribbon and the Flemish Diamond. The area is strategically located around a number of deep navigable waterways and has a highly rural character, an extensive coastline and large areas of open water. The region differs from the surrounding areas because of the scale of the landscape, its low population density and its division into a number of islands.

Demographic trends

The population of the Southwest Delta is stagnating. The main concern is the changing composition of the population: it is 'de-greening' (the number of young people is declining) and shows a 'double greying' (the proportion of over-80s is growing and they are living longer). Over the next twenty years the potential working population in Zeeland is expected to fall from 240,000 now to 200,000 in 2040 (Provincie Zeeland, 2015). This will have consequences for the economy and the maintenance of services such as educational, healthcare and cultural facilities.

Economic structure

The regional economy of the Southwest Delta is modest by national standards. The four main economic motors are the ports and logistics sector, the chemical industry, the leisure economy and the agro-food sector (Planbureau en Bibliotheek van Zeeland, 2018; Commissie Structuurversterking en werkgelegenheid Zeeland, 2016). As a result of the economic upturn, unemployment is below the national average (Wouw, 2017). There is a risk that companies will leave the region because of labour shortages and the Economic Structure Enhancement and Employment Commission noted that the structure of the Zeeland economy has to be improved to prevent this happening. The Zeeland economy performs well on a number of macroeconomic indicators, but on several others the situation is precarious. Particularly worrying are its ability to compete in the areas of innovation, the labour market and the administrative structure.

Rural areas

The rural areas of the Southwest Delta face several issues: quality of life (viability of services), water management (flood risk, drought, water quality, salinisation, soil subsidence), agriculture (conservation of heritage landscapes in combination with the sustainability agendas) and nature conservation (protection of natural values in combination with the climate agenda and tourism policy).



Urban areas

Major issues to be tackled in the urban areas of the Southwest Delta are maintaining the level of service provision and urban amenities (important for an attractive living and business environment), the restructuring and greening of the housing stock (in the context of the demographic stagnation) and the restructuring and transformation of industrial sites (concentration on large industrial parks, avoiding oversupply, improving quality).

Administrative landscape

In administrative terms, the Southwest Delta consists of the province of Zeeland and parts of the provinces of Noord-Brabant and Zuid-Holland. Tackling the challenges facing the region requires good cooperation between the provincial and municipal authorities on various levels. However, various studies and advisory reports indicate that there is room for improvement in this regard.

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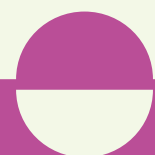


Table 1. Examples of possible changes per economic sector under the sustainability agendas in the Southwest Delta

Transitions Sectors*	Energy transition	Food transition	Climate adaptation	Transition to a circular economy
Leisure	- Greening holiday homes	- More 'slow food' in the hospitality industry	- Recreation combined with coastal protection - Longer season	- Use of biodegradable waste streams
Agro-food	- Electrification - Biomass production - Construction of solar farms	- More protein crops - Precision farming	- Freshwater storage - Healthy soil management - Cultivation of salt-tolerant vegetables	- Introduction of closed-loop agriculture
Chemicals	- Development of low-carbon energy carriers and production methods - Switch to biochemicals	- Reduced use of artificial fertilisers	- Efficient use and reuse of fresh water	- Switch to biochemicals - Pipelines to exchange residual materials
Ports & logistics	- Electrification - Development and maintenance of offshore wind farms	- More local production - Shorter supply chains and smaller volumes		- Circular logistics (return and repair)
Nature	- Clean energy generation (wind and solar) integrated into the landscape	- More nature-inclusive farming	- More nature and water in the city (countering heat stress and water storage)	

* The service sector (healthcare, education, etc.) has not been included in this table.

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Box 4: The energy transition and the circular economy²⁰

The processing of crude oil in the DOW Chemical naphtha crackers releases hydrogen. Since autumn 2018, DOW supplies this hydrogen to Yara for use in the production of fertilisers, and in the future also to ICL Industrial Products (Gasunie Waterstof Services, 2018). This was quite simple to arrange because use could be made of the existing gas pipeline, which had been out of operation for twenty years.²¹ As it lies underground, this pipeline provides an efficient, reliable and safe form of transport.

This feedstock exchange initiative not only contributes towards the circular economy, but is also a step in the energy transition. Gasunie expects that in the future hydrogen and other energy carriers will replace natural gas and sees this project as a first step towards a national hydrogen mains network.

The cooperation between DOW, Yara and ICL Industrial Products is part of the Smart Delta Resources platform, an initiative taken by eleven energy and feedstock intensive industrial companies in the delta region. The platform is supported by the Provincial Council of Zeeland, Zeeland Seaports and Impuls Zeeland and develops concrete business cases.

In 2016 the parties signed a Green Deal with the government on 'Hydrogen for the Region'.

However, several hurdles had to be overcome before this initiative could be realised. The existing pipeline is managed by Gasunie Transport Services (GTS). Before the pipeline could be used to transport hydrogen, permission had to be obtained from the government and the European Union (EU), and the municipality's local land use plan had to be amended. After permission was obtained from the EU, the Authority for Consumers & Markets (ACM) lodged an objection because they could not monitor or verify the quality of the gas. The Ministry of Economic Affairs and Climate Policy did not want to revise the relevant parts of the ministerial order on gas quality, but GTS came up with a solution: the pipeline was sold to a new division within the company, Gasunie Waterstof Services, which was not subject to regulation. This sidestepped the objection by the ACM. The amendment to the local plan also had considerable implications. About thirty bodies had to be kept informed about the project in a series of meetings. All in all, it took much time and effort to dispel the preconceptions about hydrogen, partly because of a lack of expertise at the Fire Brigade and the Regional Environment Agency.

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²⁰ Source: information obtained during the working visit on 11 June 2018.

²¹ In fact, there is a statutory obligation to fill disused pipelines with concrete or remove them after five years of disuse. This legislative requirement can result in the destruction of assets. Laying a pipeline costs about € 1 million per kilometre, but more in this case as it runs at a depth of 35 metres under a canal.

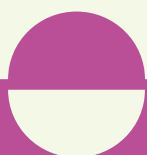
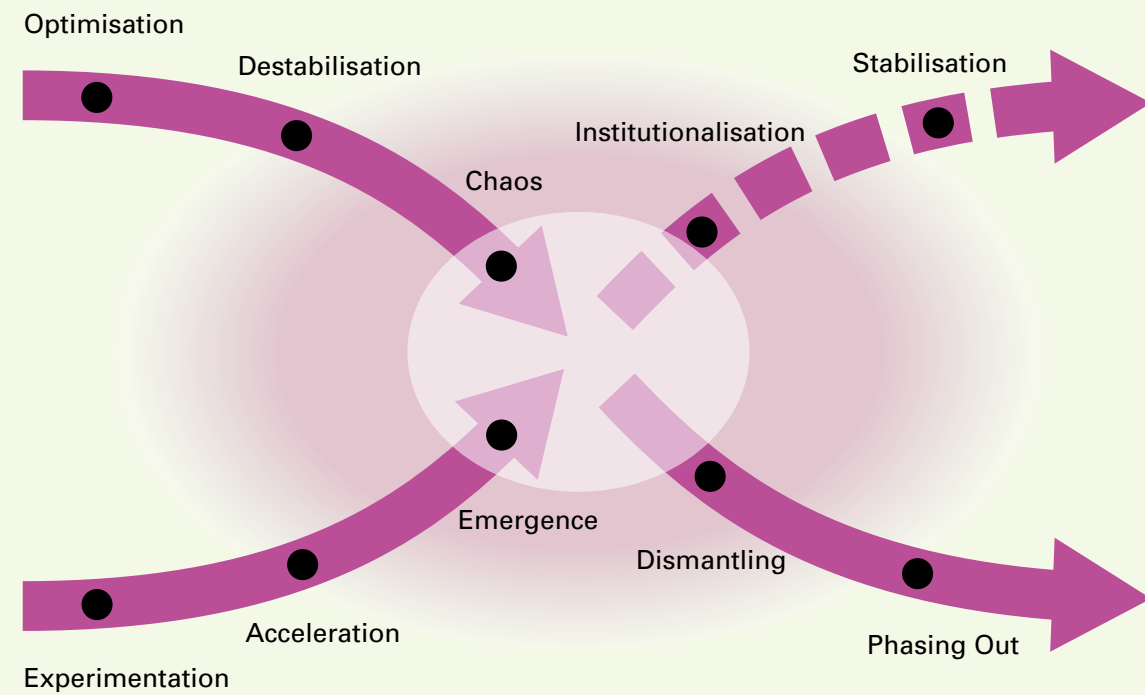


Figure 3. Drift's X Curve

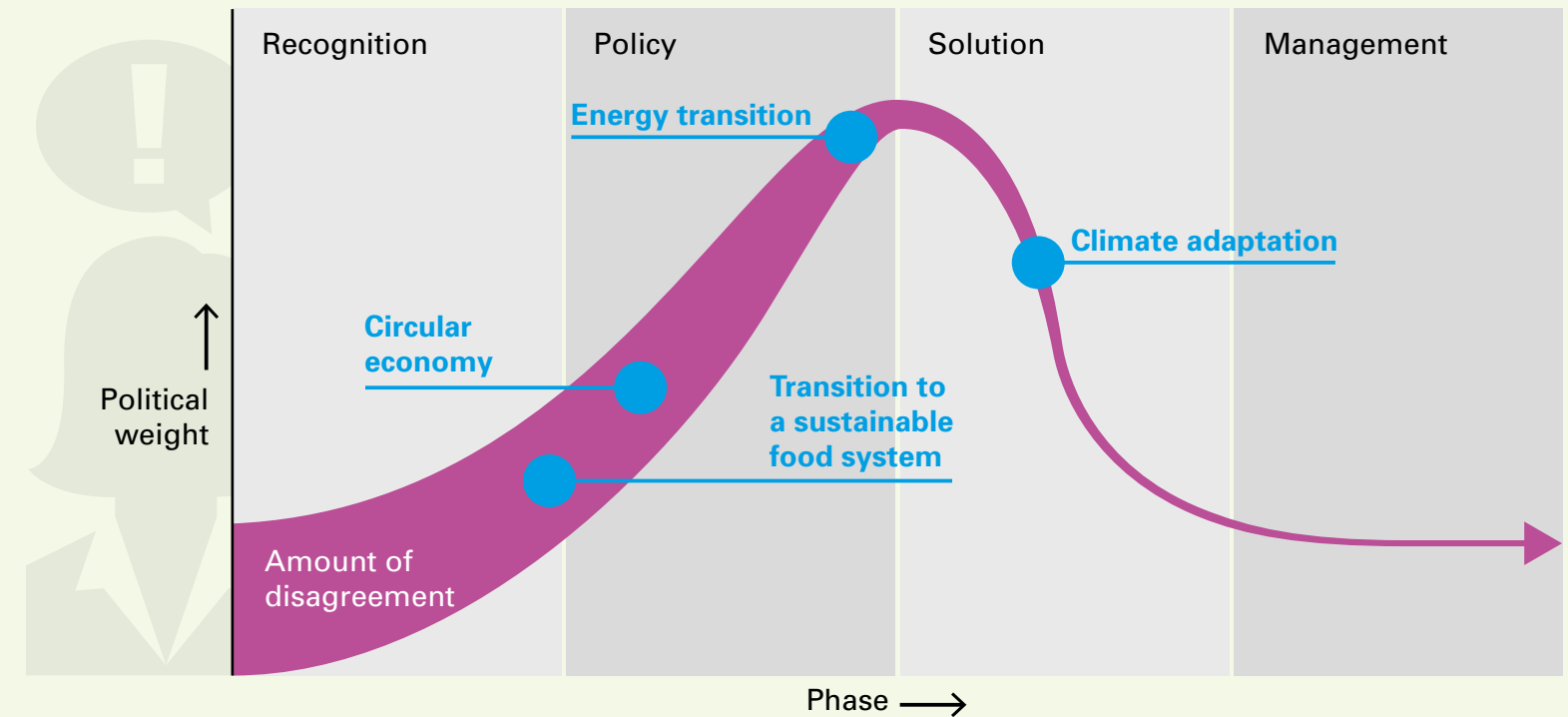


Source: Lodder et al., 2017

The X Curve for transitions consists of two curves: one showing the dismantling of the old systems (from top left to bottom right) and the other showing the construction of new systems (from bottom left to top right). Each of the sustainability agendas can be plotted on the curves. The X Curve is not a linear, scientific description of the stages in a transition, but is more of a starting point for a social dialogue on the state of the transition.

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Figure 4. Location of the four sustainability transitions on Winsemius's policy life cycle curve (1986)



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Box 5: Brouwersdam tidal power plant²²

The national strategic vision for Grevelingen Volkerak-Zoommeer contains a development perspective for reinstating a limited tidal regime in the Grevelingen and Volkerak-Zoommeer lakes to improve the water quality. This can be achieved by building a sluice in the Brouwersdam.

One of the variants for this project is to combine this with a tidal power plant. If implemented, this project will bring the water and energy sectors together. A tidal power plant would not generate a lot of energy, but would be of interest primarily because of its innovation and export potential.²³ The responsible steering group is now working up two project variants, one with and one without the tidal power plant, and it will be up to the region to decide whether or not to build a tidal power plant. The Ministry of Infrastructure and Water Management is interested mainly in water quality, because that is what the available budget is for. Neither is 'energy from water' a priority for the Ministry of Economic Affairs and Climate Policy, because of the limited amount of energy that would be produced, although the ministry has made a small innovation budget available.

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²² Source: Information obtained from interviews with policy staff at Rijkswaterstaat and the Ministry of Economic Affairs and Climate Policy.

²³ In March 2018 the national government made € 75 million available from the Nature and Water Quality allocation in addition to the previously assigned national and regional budgets. This has made a sluice in the Brouwersdam a financially feasible option.

Box 6: Policy competition in Goeree-Overflakkee²⁴

The municipality of Goeree-Overflakkee is a leader in the energy agenda and has set itself the ambitious goal of becoming fully energy neutral by 2020. This means that from 2020 it will not take more energy from the gas and electricity grids than it delivers to the grid from renewable sources. This goal is related to the task it has been set by the government of generating 225 megawatts of wind energy on the island. It also represents an opportunity for this declining region as the municipality expects that in 2020 it will generate more energy than it uses.

The Goeree-Overflakkee Municipal Council has three full-time positions devoted to sustainability, more than in other comparable municipalities, but they are fully dedicated to the energy transition, leaving the council understaffed for the other sustainability agendas.

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²⁴ Source: information obtained during the working visit on 11 June 2018.



Box 7: Governance networks in the Southwest Delta

To make structural changes in a region it is crucial to have a strong system of partnerships between government, market parties, knowledge institutes and civil society organisations. If these parties work well together new relations can be forged between initiators and between expertise, resources and policy. The Smart Delta Resources initiative is a striking example. It is a plan by eleven energy and feedstock intensive companies, including Yara, DOW and ICL Industrial Products, to reduce their use of energy and raw materials by creating an 'industrial symbiosis'. The eventual aim is a CO₂ neutral industry by 2050. The companies have produced a roadmap that sets out the transition pathways.

Intermediary organisations – such as Impuls Zeeland, the regional development agency REWIN West-Brabant and the Brabant Development Agency (BOM) – are essential for making the necessary connections for these types of initiative. REWIN has drawn up a strategic agenda with three principles: connected, smart and green. With this agenda REWIN aims to strengthen the economic ecosystem of the region by bringing together all the separate initiatives and parties and enhance the conditions for successful enterprise. The size of the region is just right to support the formation of such a system, and its strength lies in the network.

New partnerships also play a key role, such as Biopark Terneuzen, an initiative by North Sea Port for the exchange of residual heat and raw materials between companies. Other examples are Biobased Delta (a public-private partnership for the biobased industry in the Southwest Delta), Green Chemistry Campus (for the exchange of residual materials between companies in the region) and Visie Ambitie 2030, duurzaamheid werkt! ('Vision Ambition 2030, sustainability works!' for the development of a vision for a sustainable industrial/logistical complex in Zeeland by the regional companies, Zeeuwse Milieufederatie (Zeeland environmental federation) and the Provincial Council of Zeeland).

Although language and culture pose potential barriers, public, private and civil society organisations appear increasingly able to find common ground at the regional scale.

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Box 8: Bèta Campus Zeeland

Campus Zeeland is the name of a partnership between government, research and education institutes and industry with the aim of strengthening Zeeland's competitive position through education and research. One of the main objectives of Campus Zeeland is to establish the Bèta Campus (science campus) for research and education in those areas in which Zeeland can excel: water (delta technology, water quality, estuarine development), renewable energy (wind, blue energy) and the biobased economy (chemicals, agro & food). It will not be a physical campus located on one site, but a network of locations throughout Zeeland at existing companies and institutes.

The Campus is being set up in phases. The first step was to set up a laboratory for intermediate and higher education at all levels: vocational (MBO), professional (HBO) and academic/research (WO). This Joint Research Centre has been established in collaboration with University College Roosevelt, Scalda, HZ University of Applied Sciences and various companies in the region. In the second phase, University College Roosevelt is expanding the courses it offers in the field of Engineering & Innovation (at Bachelor level). The third and final phase is to make Zeeland a focal point in research networks for delta technologies and a letter of intent on cooperation on this aspect will soon be signed with Ghent University. The overall aim is to make Zeeland a world leader in research into energy, water and the biobased economy, and by focusing

efforts on these topics to unite the now fragmented landscape of initiatives and research projects.

The first two steps have already been taken, with financial assistance from the *Investeringsprogramma Zeeland in Stroomversnelling 1.0*. The third phase is already in full swing.

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Box 9: Scalda and HZ University of Applied Sciences deliver skills for the wind energy sector

Scalda, a school for senior secondary vocational education and adult education in the province of Zeeland, and HZ University of Applied Sciences are educating and training students to give them the skills needed to fill the 10,000 jobs which will be created in the region in the green energy sector (Scalda, 2017). Schools in Leeuwarden and Groningen in the north of the Netherlands are also participating in these programmes. HZ University of Applied Sciences is taking the lead in setting up the Centre of Expertise Water & Energy for practice-oriented research. Scalda is the driver behind DeltaLAB Zeeland, which will ensure better coordination between vocational education and training in the region and professional practice. Both projects are part of the investment programme *Investeringsprogramma Zeeland in Stroomversnelling* (Tweede Kamer, 2017b).



The goal of this education and training initiative is to support the development of the various sectors of the green energy industry in the region, such as offshore wind, terrestrial wind and tidal energy. A large workforce will soon be needed to maintain the offshore wind farms and Zeeland hopes this will be the start of a new service engineering industry. The prospects are good. Vlissingen is already the main port for the offshore wind industry and Zeeland is also the home of the informal platform Energy Port Zeeland, which is backed by the Provincial Council, Scalda, HZ University of Applied Sciences, Huis van de Techniek, Zeeuwind, Delta and Eneco.

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Box 10: Social impact of sustainability

Port of Moerdijk

Moerdijk village is situated next to the port of the same name on Hollands Diep. While the port is a source of nuisance, it provides employment and income for the village. Conversely, the port benefits from having a village in the immediate environment to house its workers. This mutual dependence means that good relations and cooperation with its neighbours is a major element in the port's strategy. For example, it has an agreement with all new home owners that whatever may happen in future, the port will guarantee 95% of the forced sale value of their home should it come to that (Gemeente Moerdijk, 2014). This guarantee

has revived the housing market in Moerdijk and put a halt to the decline in the population of the village. The village has a new lease of life.

Zeeuwind

Zeeuwind is a cooperative for the generation of renewable energy in Zeeland. The cooperative always makes a point of linking its energy transition projects to improving the quality of life, including improving landscape quality, taking a different approach to energy, providing social infrastructure, greening the housing stock and converting homes for ageing in place. This linkage is important because the energy transition has to come from within the region itself, which means there must be support, commitment and engagement. Zeeuwind plays its part by inviting residents to participate financially in its projects.

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Box 11: Wind farms on vacant industrial sites

Various industrial sites across Zeeland have been vacant for decades, waiting for possible future industrial expansion. The Zeeuwind renewable energy cooperative is planning to temporarily erect wind turbines on these sites. The idea is that wind farms sit better in the landscape on these sites than in more natural landscapes. The owners of these sites, however, are not eager to let them be used temporarily for energy generation.



The former Thermphos site near Vlissingen presents a different opportunity. This site is currently being cleaned up, but the remediation operation has been halted on several occasions for financial reasons. Zeeuwind has offered to erect ten wind turbines on the site and contribute the profits from their operation to cover some of the costs of the clean-up. The province has responded positively, but the owner of the site considers wind turbines to be a 'second rate business' and is not prepared to cooperate.

Both examples show that owners of vacant land tend to see the building of wind turbines as a risky business. Their reasoning is that in future the land can become more profitable with a different use. Moreover, most landowners and companies work with such short payback times that investing in a wind farm will never be profitable. The advantages of generating energy close to the place where it will be used – energy intensive industries – are ignored.

Zeeuwind sees it as a government task to break this stalemate.

Government can act as a broker to bring the energy and industrial parties together and could take on the responsibility of being the 'launching customer'. Large areas of land in the Southwest Delta are in public sector ownership, including land owned by the Central Government Real Estate Agency, Rijkswaterstaat (the government agency for public works and water management) and the water authorities. Public authorities could be much more active in responding to requests to lease land for renewable

energy generation or for other sustainable initiatives, but there has been little evidence of this so far.

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Box 12: International dimension of the regional economy

The North Sea Port is a sixty kilometre long cross-border port zone, stretching from Vlissingen in the Netherlands to Ghent in Belgium. The port is home to companies such as DOW, ICL Industrial Products and Yara, which operate in a global business environment. These companies employ large numbers of people and have a high turnover, which makes them crucial for the port and the region. As the energy transition and circular thinking are high on their list of priorities, they are participants in Smart Delta Resources (see Box 4). Despite this, the Provincial Council of Zeeland says it can find few opportunities to enter into discussions with these companies other than for issuing planning consents and environmental or other permits.

The Port of Moerdijk has similar experiences. It finds it hard to exert any influence on the major players in the port, which are the companies that have a considerable impact and influence in the area. For example, 60% to 70% of the 63PJ energy consumed each year in the port is used by a few large companies, such as Shell (Pfeiffer et al., 2017).

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Box 13: Experimental farm operates independently of government and knowledge infrastructure²⁵

Rusthoeve experimental farm is a private, independent institution that carries out research into arable farming. The experimental farm is a foundation with a board consisting of five farmers who have taken the farm over from Wageningen University & Research (WUR), which had to withdraw from the Southwest Delta due to cutbacks. The foundation works with Delphy, a research and consultancy firm for the food and flower sectors and a spin-off from the privatised Government Information Service.

Rusthoeve carries out research into conventional crops such as onions, potatoes, grass seed, sugar beet and cereals. It also runs thematic research programmes on long-term issues such as soil fertility, precision farming and production for the biobased and circular economies. The research is usually commissioned by companies in the plant protection and plant breeding industries, which control access to the results.

Rusthoeve therefore has little opportunity to conduct research into more radical solutions. Neither does it have links with the existing knowledge infrastructure. Cooperation with WUR, which receives the lion's share of Dutch public research funding in this area, and with other experimental farms is minimal. Contacts with the Ministry of Agriculture, Nature and Food Quality are few and there is no support at all from government departments outside the field of agriculture. However, under the EU Interreg programme Rusthoeve has found an opportunity to cooperate

²⁵ Source: information obtained during the working visit on 11 June 2018.

with Flemish research institutes (Ghent University, KU Leuven, the Research Institute for Agriculture, Fisheries and Food (ILVO) and Karel de Grote University College Antwerp) and HZ University of Applied Sciences.

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Box 14: Regional strategies for the energy transition and climate adaptation

Regional energy strategies

Under the Dutch Climate Agreement the energy transition is being formulated in several regional energy strategies (Klimaatberaad, 2018). These regional strategies must deliver an integrated and area-based approach to the energy transition in all the regions of the country. In general, each region is responsible for the details of its strategy, but the overall direction and contours of the transition are set by national government. This framework is very general. Each strategy must contain at least the following three points: (1) the *supply* of renewable energy in the region, (2) the *demand* for energy in the region, and (3) the necessary infrastructure. The emphasis, therefore, is on electricity and on greening the built environment. But each region can decide to expand its regional energy strategy to include things like plans for climate adaptation, making the economy circular and/or greening the food system. National government has also left it to the provinces and municipalities to decide on appropriate regions and form partnerships for this purpose. The



division into regions is therefore a bottom-up process. The national government says it is not in a position to identify the appropriate scale and regional boundaries.

Working regions for climate adaptation through spatial planning

In 2018 a countrywide partnership structure was set up for climate adaptation through spatial planning measures. Cooperation at the regional and local levels is needed to develop concrete plans for implementing the national ambitions contained in the Delta Plan on Spatial Adaptation (Ministerie van IenM & Ministerie van EZ, 2017). About forty working regions have already been formed. For the Southwest Delta these regions are Zeeland, West-Brabant, Goeree-Overflakkee and Hoeksche Waard. The working regions differ considerably in size: some are a whole province with all its municipalities and water authorities, others are a single municipality or an existing partnership of municipalities within a water chain.

The public authorities within each working region identify the vulnerabilities to extreme weather conditions by means of a stress test, determine their joint ambitions and policies, and take the necessary measures to achieve them. The goal is to ensure that the Netherlands has a water-resilient and climate-proof spatial structure (Ministerie van IenM & Ministerie van EZ, 2017). Progress is monitored each year under the Delta Programme.

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Box 15: Deals between national government and the region

Green Deal Biopark Terneuzen

In 2011 the Provincial Council of Zeeland, Zeeland Seaports and the two former ministries of Economic Affairs, Agriculture & Innovation and Infrastructure & the Environment signed a Green Deal for energy saving and energy efficiency projects (Provincie Zeeland, 2018a). One project was for recovering residual heat from the Lijnco Green Energy biomass power plant for use by ICL Industrial Products. The Green Deal contained provisions for the construction of the necessary infrastructure.

The key to the success of this Green Deal, according to those involved, are the straightforward cooperation arrangements between a limited number of parties and the short lines of communication. The companies involved are all participants in the Biopark Terneuzen platform, in which they have committed themselves to making their production processes sustainable. The platform is the glue that holds the initiative together.²⁶

Balkenende Commission on the Regio Deal Zeeland

In 2015, at the request of the House of Representatives, a commission was appointed to advise on how to strengthen the regional economy in Zeeland (Box 17). This commission, under the chairmanship of former prime minister Jan Peter Balkenende, identified and described the opportunities for and threats to the economy in Zeeland. The relevant

²⁶ Source: information obtained during the working visit on 11 June 2018.



government departments, the Provincial Council of Zeeland and regional parties all worked together closely during this process. The advice led to the establishment of a special investment programme for the province (*Investeringsprogramma Zeeland in Stroomversnelling 1.0*) with €25 million in government funding and €35 million co-financing from the region for projects to strengthen the economic structure in the region (Tweede Kamer, 2017b).

The recommendations of the Balkenende Commission in 2016 make up Zeeland's strategic agenda. As the agenda contains more than just measures to strengthen the regional economy, it requires additional investments and actions beyond the amounts mentioned above. For this reason the 2017 national coalition agreement identifies Zeeland as one of the regions the government intends to work with in its Regio Deals to resolve regional problems affecting the quality of life and the entrepreneurial climate. In the Regio Deal Zeeland the government has made €35 million available to improve the living and working environment (Tweede Kamer, 2018c). This budget is matched by the same amount from the region and will be spent on thirteen projects to improve the attractiveness of the region to industry and business. The thirteen projects are broken down into three groups: knowledge & innovation, quality of life and business facilities.

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Box 16: The Inter-Authority Programme (IBP)

Many societal challenges manifest across a number of scales and so solutions are not within the scope of a single tier of government. For this reason the solutions to many such challenges are sought at the regional level. Against this background the Inter-Authority Programme (Interbestuurlijke Programma) was launched in February 2018 under the motto 'You move quicker on your own, but you achieve more together'. The IBP is a product of the national government coalition agreement for 2017–2021, 'Confidence in the Future', which promotes an inter-authority and interdepartmental cooperation approach to major challenges. Inter-authority steering groups have been or will be formed for each challenge. Being alert to cross-connections between challenges is a task for the (top level) Steering Group IBP+ (Stuurgroep IBP+) and the inter-authority coordination panel (interbestuurlijke regietafel) (Ministerie van BKZ, 2018).

Under the IBP, societal challenges are tackled by exploiting opportunities for regional or area-based development and for deals between business and government. A common agenda is set up for societal challenges that cannot be tackled by separate tiers of government on their own. One of those agendas is 'Working together for the climate' (climate mitigation, climate adaptation and the circular economy). This joint working is founded on the following principles:

- (a) priority is given to urgent challenges that lay bare a mutual dependence between government authorities;
- (b) existing structures are used and the lead players ('pullers') are supported and activated;
- (c) all partners are equal.



Box 17: Regional organisational capacity

The report of the Balkenende Commission on Economic Development and Employment in Zeeland, *Zeeland in Stroomversnelling* (see Box 15), draws two main conclusions about the regional organisational capacity in the province.

- There is a shortfall in administrative capabilities for carrying through several important agendas. A significant factor underlying this shortfall is the lack of a major central city or municipality.
- There is an ‘island mentality’, epitomised by the division of resources between the various (former) islands, which the Commission refers to as ‘distributive justice’ (Commissie Structuurversterking en werkgelegenheid Zeeland, 2016).

The Tafel van 15 (the panel of 15 government authorities in the region: province, water authority and 13 municipalities) was established to improve this situation. It was agreed that a single governmental organisation would be formed in Zeeland to manage the various action lines proposed by the Commission (Tafel van 15, 2015).

A project in which the government authorities in Zeeland explore how public administration in the region can be strengthened is *Maak verschil* (‘Make the difference’), which is run by the Ministry of the Interior and Kingdom Relations (Provincie Zeeland, 2018b). To put this into effect the provincial executive of Zeeland established a committee called ‘External Reflection: strengthening public administration in Zeeland’ (Provincie

Zeeland, 2018c). In 2018 this committee announced that the idea of ‘the Zeeland disease’ needed to be revised: the authorities in Zeeland do work together on many issues and do get results. This cooperation works well as long as it is informal and voluntary, or when a problem is urgent enough. However, the patience and perseverance needed for a structural approach to problems is not there. Statutory cooperation imposed from above generally does not work well in Zeeland. The committee also observed that not enough use is made of the energy and initiative among the population, businesses and civil society organisations when tackling societal challenges. However, while there is an insufficient sense of urgency and responsibility for long-term issues, there is a consensus about the most important societal challenges, such as strengthening the housing and labour markets, access to education and care, the energy transition, climate adaptation, the demographic trends and economic development. The committee made a large number of proposals for simplifying and improving the consultation structures. One of these proposals was to set up a Zeeland government consultation process (*Overleg Zeeuwse Overheden*) with a regional office. In addition, the province was advised to give municipal partnerships more policy leeway, for example when drawing up regional environment and planning strategies, which the province can later amalgamate into a single provincial environment and planning strategy.

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REFERENCES

- Adviesraad voor wetenschap, technologie en innovatie (2016). *Flexibiliseren, differentiëren, scherper kiezen: balans van de topsectoren 2016*. Den Haag.
- Alkemade, F., Broeck, L. van & Declerck, J. (2018). *Curator statement, onderzoeksagenda, call for practices*. Rotterdam: Internationale Architectuur Biënnale Rotterdam.
- Bastein, T., Rietveld, E. & Zyl, S. van (2014). *Materialen in de Nederlandse economie: een beoordeling van de kwetsbaarheid*. In opdracht van het Ministerie van Economische Zaken. Delft: TNO.
- Beroepsvereniging van Nederlandse Stedebouwkundigen en Planologen (2018). *Regio van de toekomst: de koers*. Geraadpleegd 12 december 2018 op: <https://www.bnsp.nl/activiteiten/regio-van-de-toekomst-de-koers/>
- Boer, F., Jorritsma, J. & Peijpe, D. van (2010). *De Urbanisten en het wondere waterplein*. Rotterdam: Uitgeverij 010.
- Brink, H. van den (2018). *Hoogste innovatievermogen in Randstad: innovatie nog niet onder druk van krappe arbeidsmarkt*. ING Economisch Bureau.
- Centraal Bureau voor de Statistiek (2018a). *Emissies van broeikasgassen berekend volgens IPCC-voorschriften*. Geraadpleegd 10 oktober 2018 op <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/70946ned/table?dl=10757>.
- Centraal Bureau voor de Statistiek (2018b). *Werkloosheid daalt in alle provincies*. Geraadpleegd 18 september 2018 op <https://www.cbs.nl/nl-nl/achtergrond/2018/07/werkloosheid-daalt-in-alle-provincies>.
- College van Rijksadviseurs (2018). *Panorama Nederland: Rijker, Hechter, Schoner*. Den Haag: CRa.

- Commissie Structuurversterking en werkgelegenheid Zeeland (2016). *Zeeland in Stroomversnelling: actieprogramma voor duurzame economische groei, regionale inbedding en bestuurlijke daadkracht*.
- Drissen, E. & Vollebergh, H. (2018). *Kan de circulaire economie een bijdrage leveren aan de energietransitie?* Den Haag: Planbureau voor de Leefomgeving.
- Egmond, P. van, Elzenga, H. & Spoon, M. (2018). *Balans van de Leefomgeving 2018*. Den Haag: Planbureau voor de Leefomgeving.
- Gasunie Waterstof Services (2018). *Waterstofleiding Gasunie van Dow naar Yara in gebruik genomen*. Geraadpleegd 27 november 2018 op <https://www.gasuniewaterstofservices.nl/nieuws/waterstofleiding-gasunie-van-dow-naar-yara-in-gebruik-genomen>.
- Rho Adviseurs (2014). *Structuurvisie ondergrondse infrastructuur*. In opdracht van gemeente Terneuzen.
- Gemeente Moerdijk (2014). Besluit van Burgemeester en wethouders van 9 december 2014, houdende vaststelling De Moerdijkregeling. *Moerdijkse Bode* 2018, week 51.
- Gerechtshof Den Haag. (2018, 9 oktober). De Staat der Nederlanden/ Stichting Urgenda (zaaknummer 200.178.245/01).
- Groenleer, M., & Hendriks, F. (2018). Subnational mobilization and the reconfiguration of central-local relations in the shadow of Europe: the case of the Dutch decentralized unitary state. *Regional & Federal Studies*. DOI: 10.1080/13597566.2018.1502179.
- Haasnoot, M., Bouwer, L., Diermanse, F., Kwadijk, J., Spek, A. van der, Oude Essink, G., Delsman, J., Weiler, O., Mens, M., Maat, J. ter, Kaaij, T. van der, Plieger, R., Huismans, Y., Sloff, K., Mosselman, E. & Lenselink, G. (2018). *Mogelijke gevolgen van versnelde zeespiegelstijging voor het Deltaprogramma: een verkenning*. In opdracht van het Ministerie van Infrastructuur & Waterstaat, staf Deltacommissaris en Rijkswaterstaat, Water Verkeer en Leefomgeving. Delft: Deltares.
- Hekkenberg, M. & Koelemeijer, R. (eds.) (2018). *Analyse van het voorstel voor hoofdlijnen van het klimaatakkoord*. Den Haag: Planbureau voor de Leefomgeving.
- Bruin, D. de, Hamhuis, D., Nieuwenhuize, L. van, Overmars, W., Sijmons, D., & Vera, F. (1986) *Ooievaar: de toekomst van het riviereengebied*. Arnhem: Stichting Gelderse milieufederatie.
- H+N+S Landschapsarchitecten, Ro&Ad Architecten & Volharding Breda (2017). *Energielinie: erfgoed in transitie*. In opdracht van Rijksdienst voor het Cultureel Erfgoed en Provincie Noord-Holland.
- Janssen, M., Hertog, P. den, Korlaar, L., Groot-Beumer, T., Steur, J., Rienstra, Y, Boer, P.J. de & Erven, B. (2017). *Evaluatie topsectorenaanpak*. Utrecht: Dialogic.
- Jong, I. de, Hart, P. 't & Steen, M. van der, (2017). *Wat het nieuwe kabinet zich moet realiseren: bestuurskundige reflecties*. Den Haag: Nederlandse School voor Openbaar Bestuur.
- Klimaatberaad (2018). *Ontwerp van het klimaatakkoord*. Den Haag: Sociaal-economische raad.



- Koelemeijer, R, Daniëls, B., Koutstaal, P., Geilenkirchen, G., Ros, J., Boot, P., Born, G.J. van den & Schijndel, M. van (2018). *Kosten energie- en klimaattransitie in 2030: update 2018*. Den Haag: Planbureau voor de Leefomgeving.
- Leeuw, J. de, Goeij, H. de & Schuit, H. (2015). *Campus Zeeland! Advies van de Onderwijs Autoriteit Zeeland (OAZ) voor de versterking van het Hoger en Wetenschappelijk Onderwijs en onderzoek in Zeeland*. Middelburg: Provincie Zeeland.
- Ligtvoet, W., & Bregman, B., (eds) Dorland, R. van, Brinke, W. ten, Vos, R. de, Petersen, A., Visser, H. (2018). *Klimaatverandering: samenvatting van het vijfde IPCC-assessment en een vertaling naar Nederland*. De Bilt/Den Haag: Koninklijk Nederlands Meteorologisch Instituut/Planbureau voor de Leefomgeving.
- Lindblom, C. (1959). *The science of 'muddling through'*. Public Administration Review, Vol. 19, No. 2, p. 79-88.
- Lodder, M., Roorda, C, Loorbach, D. & Spork, C. (2017). *Staat van transitie: patronen van opbouw en afbraak in vijf domeinen*. In opdracht van het Ministerie van Infrastructuur en Milieu. Rotterdam: Erasmus Universiteit, Dutch Research Institute for Sustainability Transitions (DRIFT).
- Luman, R. (2018). *Utrecht de schoonste economie, Zeeland de meest vervuilende: grote verschillen in provinciale klimaatscore*. ING Economisch Bureau.
- Maas, T., Broek, J. van den, & Deuten, J. (2017). *Living labs in Nederland: van open testfaciliteit tot levend lab*. Den Haag: Rathenau Instituut.
- Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (2018). *Programmastart Interbestuurlijk Programma (IBP): samen meer bereiken als één overheid*. Overhedenoverleg, 14 februari 2018.
- Ministerie van Infrastructuur en Milieu & Ministerie van Economische Zaken (2014). *Deltabeslissing Ruimtelijke adaptatie*. Den Haag.
- Ministerie van Infrastructuur en Milieu & Ministerie van Economische Zaken (2017). *Deltaprogramma 2018: doorwerken aan een duurzame en veilige delta*. Den Haag.
- Ministerie van Infrastructuur en Milieu (2016). *Aanpassen met ambitie: nationale klimaatadaptatiestrategie 2016 (NAS)*. Den Haag.
- Ministerie van Infrastructuur en Milieu & Ministerie van Economische Zaken, mede namens het ministerie van Buitenlandse Zaken en het ministerie van Binnenlandse Zaken en Koninkrijksrelaties (2016). *Nederland circulair in 2050: Rijksbreed programma circulaire economie*. Den Haag.
- Ministerie van Landbouw, Natuur en Voedselkwaliteit (2018). *Visie 'Landbouw, Natuur en Voedsel: Waardevol en Verbonden'. Nederland als koploper in kringlooplandbouw*. Den Haag.
- Muskee, M. (2018). *Gezonde regionale economie vraagt om samenhang: PBL-directeur Hans Mommaas wijst overheden de weg*. SDU Instant Magazine. Geraadpleegd 1 november 2018 op <http://sdu.instantmagazine.com/overheid/focus-2019/dossiers/overlay/metafoor/overlay/dossier-regio/>.



Omroep Zeeland (2018). *Het is een megaklus: 40.000 huurwoningen verduurzamen, hoe doe je dat?* Geraadpleegd 26 november 2018 op <https://www.omroepzeeland.nl/nieuws/108762/Het-is-een-megaklus-40-000-huurwoningen-verduurzamen-hoe-doe-je-dat>.

Oort, F. van, Raan, T. van, Tordoir P. (2018). *Economisch potentieel Zuid-Holland niet ten volste benut*. Provincie Zuid-Holland.

Pfeiffer, E., Varwijk, J., Kasteren, H. van, (2017). *Energieprogramma Moerdijk 2021: meters maken in energietransitie*. In opdracht van Havenbedrijf Moerdijk N.V. Nijmegen: Royal Haskoning DHV.

Planbureau en Bibliotheek van Zeeland (2018). *Staat van Zeeland 2017: een beschrijving van de sociaaleconomische ontwikkelingen in de provincie Zeeland*. Middelburg: ZB | Planbureau en Bibliotheek van Zeeland.

Planbureau voor de Leefomgeving (2018). *Briefadvies over regionaal beleid*. Den Haag.

Posad Spatial Strategies, FABRICations, H+N+S landschapsarchitecten, Studio Marco Vermeulen, NRGLab / Wageningen Universiteit, Ruimtevolk (2018). *Klimaat, Energie, Ruimte. Ruimtelijke verkenning energie en klimaat*. In opdracht van Ministerie van Infrastructuur en Milieu, Ministerie van Economische Zaken & Ministerie van Binnenlandse Zaken en Koninkrijksrelaties.

Provincie Zeeland (2015). *Bevolkings- en huishoudensprognose Zeeland 2015*. Middelburg.

Provincie Zeeland (2018a). *Green Deal provincie Zeeland*. Geraadpleegd 30 oktober 2018 op <https://www.greendeals.nl/sites/default/files/downloads/GD054-samenvatting-Provincie-Zeeland.pdf>.

Provincie Zeeland (2018b). *Proeftuin Maak Verschil Zeeland. Eindnotitie*.

Provincie Zeeland (2018c). *Rapport commissie Externe Spiegeling Zeeland: samenwerkingskracht in Zeeland #Hoedan?*

Provincie Zuid-Holland (2011). *Dynamische Delta 2020-2040; Visie en afsprakenkader MIRT-VAR*. Den Haag.

Raad voor de leefomgeving en infrastructuur (2015). *Circulaire economie: van wens naar uitvoering*. Den Haag.

Raad voor de leefomgeving en infrastructuur (2018a). *Nationale omgevingsvisie: lakmoesproef voor het omgevingsbeleid*. Den Haag.

Raad voor de leefomgeving en infrastructuur (2018b). *Duurzaam en gezond: samen naar een houdbaar voedselsysteem*. Den Haag.

Raspe, O., Berge, M. van den, & Graaff, T. de (2017). *Stedelijke regio's als motoren van economische groei: wat kan beleid doen?* Den Haag: Planbureau voor de Leefomgeving.

Raworth, K. (2017). *Doughnut Economics; Seven ways to Think Like a 21st-Century Economist*. Random House Business Books.

Rijksinstituut voor Volksgezondheid en Milieu (2017). *Wat ligt er op ons bord? Veilig, gezond en duurzaam eten in Nederland*. Bilthoven: RIVM.

Royal HaskoningDHV (2017). *MIRT-Corridorstudie Rotterdam Antwerpen*. Geraadpleegd 15 oktober 2018 op <http://rhk.maps.arcgis.com/apps/MapSeries/index.html?appid=15b6c016adeb4f359fdeaf378dc5b6cb>.

Scalda (2017). *Scalda en Hogeschool Zeeland zetten landelijk stappen voor opleidingen groene energie*. Geraadpleegd 5 november 2018 op <https://www.scalda.nl/nieuws/scalda-en-hogeschool-zeeland-zetten-landelijk-stappen-voor-opleidingen-groene-energie>.



- Scherpenisse, J. & Steen, M. van der (2018). *Gepast geregeld: tijdig financieren in netwerken*. Den Haag: Nederlandse School voor Openbaar Bestuur.
- Smart Delta Resources (2018). *Roadmap towards a climate neutral industry in the Delta region*. Geraadpleegd op 2 november 2018 via <https://www.smartdeltaresources.com/nl/roadmap-sdr>.
- Sociaal-Economische Raad (2013). *Energieakkoord voor duurzame groei*. Den Haag.
- Sociaal-Economische Raad (2015). *De SER-agenda voor de stad*. Den Haag.
- Sociaal-Economische Raad (2018a). *Uitvoeringsagenda Energieakkoord voor duurzame groei 2018*. Haag.
- Sociaal-Economische Raad (2018b). *Energietransitie en werkgelegenheid: kansen voor een duurzame toekomst*. Den Haag.
- Sociaal-Economische Raad (2018c). *Financiële instrumenten voor een circulaire economie*. Den Haag.
- Staatscourant (2017) *Besluit van de Minister van Economische Zaken en Klimaat van 13 november 2017, houdende regels inzake de verlening van mandaat, volmacht en machtiging voor het Ministerie van Economische Zaken en Klimaat 2017*. Staatscourant 2017, 65920.
- Stichting Natuur en Milieu & Stichting De Noordzee (2018). *De Rijke Noordzee*. Geraadpleegd 22 oktober 2018 op <https://www.derijkenoordzee.nl/>
- Teisman, G., Steen, M. van der, Frankowski, A., Vulpen, B. van (2018). *Effectief Sturen met Multi-level Governance: snel en slim schakelen tussen schalen*. Den Haag: Nederlandse School voor Openbaar Bestuur.
- Theissen, F., Noordink, M., Westerbeek, J. (2017). *Inventarisatie samenwerkingsverbanden decentrale overheden*. Proof-adviseurs en Kwink-groep
- Toren, J.P. van den (2018). *Over regionaal DNA, governance en Internationaal Onderwijs*. Leiderdorp: Stichting Internationaal Onderwijs.
- Tweede Kamer (2017a). *Regeerakkoord Vertrouwen in de toekomst 2017-2021. Bijlage bij Brief van de informateur aan de Tweede Kamer van 10 oktober 2017*. Vergaderjaar 2017-2018, 34 700 nr. 34.
- Tweede Kamer (2017b). *Investeringsprogramma Zeeland in Stroomversnelling. Brief van minister van Economische Zaken en Klimaat aan de Tweede Kamer van 20 juni 2017*. Vergaderjaar 2016-2017, 29 697, nr. 35.
- Tweede Kamer (2018a). *Totstandkoming van de transitieagenda's uit het Grondstoffenakkoord. Brief van de Staatssecretaris van Infrastructuur en Waterstaat en de Minister van Economische Zaken en Klimaat aan de Tweede Kamer van 15 januari 2018*. Vergaderjaar 2017-2018, 32 852, nr. 53.
- Tweede Kamer (2018b). *Gaswinning Groningen. Brief van de minister van Economische Zaken en Klimaat aan de Tweede Kamer van 29 maart 2018*. Vergaderjaar 2017-2018, 33 529, nr. 457.
- Tweede Kamer (2018c). *Stand van zaken Regio Envelop. Brief van de minister van Landbouw, Natuur en Voedsel aan de Tweede Kamer van 19 februari 2018*. Vergaderjaar 2017-2018, 29 697, nr. 37.



Tweede Kamer (2018d). *Naar Missiegedreven Innovatiebeleid met Impact. Brief van de minister en de staatssecretaris van Economische Zaken en Klimaat aan de Tweede Kamer van 13 juli 2018*. Vergaderjaar 2017-2018, 33 009, 32 637, nr. 63.

Tweede Kamer (2018e). *Tweede voortgangsrapportage Actieplan Bevolkingsdaling. Brief van de Minister van Binnenlandse Zaken en Koninkrijksrelaties aan de Tweede Kamer van 14 november 2018*. Vergaderjaar 2018-2019, 31757, nr. 97.

Tweede Kamer (2018f). *Regionaal Ontwikkelprogramma. Brief van de Staatssecretaris van Binnenlandse Zaken en Koninkrijksrelaties aan de Tweede Kamer van 29 juni 2018*. Vergaderjaar 2018-2019, 31490, nr. 240.

United Nations (2015). *Paris Agreement*. Parijs.

Vereniging Nederlandse Gemeenten (2018). *Regionale Energiestrategie (RES)*. Geraadpleegd 19 november 2018 op <https://vng.nl/onderwerpenindex/milieu-en-mobiliteit/energie-en-klimaat/regionale-energiestrategie-res>.

Vogelezang, J., Wals, A., Van Mierlo, B., & Wijnands, F. (2009). *Learning in networks in Dutch agriculture: stimulating sustainable development through innovation and change*. In: Poppe, K.J., Termeer, C. & Slingerland, M. (reds.). *Transitions towards sustainable agriculture and food chains in peri-urban areas* (p. 93–111). Wageningen: Wageningen Academic Publishers.

Vuuren, D.P. van, Boot, P., Ros, J., Hof, A. & Elzen, M. (2016). *Wat betekent het Parijsakkoord voor het Nederlandse lange-termijn-klimaatbeleid?* Den Haag: Planbureau voor de Leefomgeving.

Wetenschappelijke Raad voor het Regeringsbeleid (2013). *Naar een lerende economie: investeren in het verdienvermogen van Nederland*. Amsterdam: Amsterdam University Press.

Winsemius, P. (1986). *Gast in eigen huis: beschouwingen over milieumanagement*. Alphen aan den Rijn: Samsom.

Wouw, D. van der (2017). *Economische Atlas Zeeland 2017*. Middelburg: ZB | Planbureau en Bibliotheek van Zeeland.

Tafel van vijftien (2015). *Plan van Aanpak: Zeeland ZO*.



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Round table meeting (2) on 16 April 2018 in Middelburg

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Round table meeting on 1 October 2018 in Bergen op Zoom

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Willem den Ouden, director, Delta Academy van HZ University of Applied
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Round table meeting on 1 October 2018 in Utrecht

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OVERVIEW OF PUBLICATIONS

2018

Warmly recommended: towards a low-CO₂ heat supply in the built environment. ['Warm aanbevolen: CO₂-arme warmte in de gebouwde omgeving']. December 2018 (Rli 2019/07).

National Environment and Planning Strategy. ['Nationale omgevingsvisie: lakmoesproef voor de Omgevingswet']. November 2018 (Rli 2018/06).

Accelerating housing production, while maintaining quality. ['Versnelen woningbouwproductie, met behoud van kwaliteit']. Juni 2018 (Rli 2018/05).

Better and different mobility. ['Van B naar Anders: investeren in mobiliteit voor de toekomst']. Mei 2018 (Rli 2018/04).

The healthy city: delivering health through environmental and planning policy. ['De stad als gezonde habitat: gezondheidswinst door omgevingsbeleid']. April 2018 (Rli 2018/03).

Sustainable and Healthy: working together towards a sustainable food system. ['Duurzaam en gezond: samen naar een houdbaar voedselsysteem']. March 2018 (Rli 2018/02).

Electricity provision in the face of ongoing digitalization. ['Stroomvoorziening onder digitale spanning']. February 2018 (Rli 2018/01).

2017

A broad view of heritage. The interactions between heritage and transitions in the physical environment. ['Brede blik op erfgoed, over de wisselwerking tussen erfgoed en transitie in de leefomgeving']. December 2017 (Rli 2017/03).

Energietransitie en Leefomgeving: kennisnotitie. [only available in Dutch]

Land for development. Land policy instruments for an enterprising society. ['Grond voor gebiedsontwikkeling. Instrumenten voor grondbeleid in een energieke samenleving']. June 2017 (Rli 2017/02).

Assessing the value of technology. Guidance Document. ['Technologie op waarde schatten. Een handreiking']. January 2017 (Rli 2017/01).

2016

Faster and closer: Opportunities for improving accessibility in urban regions ['Dichterbij en sneller: kansen voor betere bereikbaarheid in stedelijke regio's']. December 2016 (Rli 2016/05).

International Scan 2016. Emerging issues in an international context. November 2016 (Rli/EEAC).



The connecting Landscape [‘Verbindend landschap’]. November 2016 (Rli 2016/04).

Challenges for Sustainable Development: Main Focus Areas Identified in Advisory Reports Published in the Past Four Years by the Council for the Environment and Infrastructure. [‘Opgaven voor duurzame ontwikkeling – Hoofdlijnen uit vier jaar advisering door de Raad voor de leefomgeving en infrastructuur’]. July 2016 (Rli 2016/03).

Beyond Mainports [‘Mainports voorbij’]. July 2016 (Rli 2016/02).

System Responsibility in the Physical Living Environment. [‘Notitie Systeemverantwoordelijkheid in de fysieke Leefomgeving’ – only available in Dutch]. May 2016 (Rli 2016/01).

2015

Reform of Environmental Law: Realise your Ambitions [‘Vernieuwing omgevingsrecht: maak de ambities waar’]. December 2015 (Rli 2015/07).

A Prosperous Nation Without CO₂: Towards a Sustainable Energy Supply by 2050 [‘Rijk zonder CO₂: naar een duurzame energievoorziening in 2050’]. September 2015 (Rli 2015/06).

Room for the Regions in European Policy [‘Ruimte voor de regio in Europees beleid’]. September 2015 (Rli 2015/05).

Changing Trends in Housing: Flexibility and Regionalisation within Housing Policy [‘Wonen in verandering, over flexibilisering en regionalisering in het woonbeleid’]. June 2015 (Rli 2015/04).

Circular Economy: From wish to Practice [‘Circulaire economie: van wens naar uitvoering’]. June 2015 (Rli 2015/03).

Fundamental Revision of Environmental and Planning Legislation [‘Stelselherziening omgevingsrecht’ - only available in Dutch]. May 2015 (Rli 2015/02).

Survey of Technological Innovations in the Living Environment [‘Verkenning Technologische Innovaties in de leefomgeving’]. January 2015 (Rli 2015/01).

2014

Managing Surplus Government Real Estate: Balancing Public Interest and Financial Gain. [‘Vrijkomend rijksvastgoed, over maatschappelijke doelen en geld’]. December 2014 (Rli 2014/07).

Risks Assessed. Towards a Transparent and Adaptive Risk Policy [‘Risico’s gewaardeerd, naar een transparant en adaptief risicobeleid’]. June 2014 (Rli 2014/06).



Recovering the Costs of Environmental Damage: Financial Indemnity to be Provided by High-Risk Companies [‘Milieuschade verhalen, advies financiële zekerheidsstelling milieuschade Brzo- en IPPC4-bedrijven’]. June 2014 (Rli 2014/05).

International Scan 2014: Signals: Emerging Issues in an International Context [Internationale verkenning 2014. Signalen: opkomende vraagstukken uit het internationale veld]. May 2014 (Rli 2014).

The Future of the City. The Power of New Connections [‘De toekomst van de stad, de kracht van nieuwe verbindingen’]. March 2014 (Rli 2014/04)

Quality Without Growth: On the Future of the Built Environment [‘Kwaliteit zonder groei, over de toekomst van de leefomgeving’]. March 2014 (Rli 2014/03)

Influencing Behavior, More Effective Environmental Policy Through Insight into Human Behaviour [‘Doen en laten, effectiever milieubeleid door mensenkennis’]. March 2014 (Rli 2014/02).

Living Independently for Longer – A Shared Responsibility of the Housing, Health and Welfare Policy Domains [‘Langer zelfstandig, een gedeelde opgave van wonen, zorg en welzijn’]. January 2014 (Rli 2014/01).

2013

Sustainable Choices in the Implementation of the Common Agricultural Policy in the Netherlands [‘Duurzame keuzes bij de toepassing van het Europees landbouwbeleid in Nederland’]. October 2013 (Rli 2013/06).

Pulling Together. Governance in the Schiphol/Amsterdam Metropolitan Region [‘Sturen op samenhang, governance in de metropolitane region Schiphol/Amsterdam’]. September 2013 (Rli 2013/05).

Safety at Companies Subject to the Major Accidents Risks Decree: Responsibility and Effective Action [‘Veiligheid bij Brzo-bedrijven, verantwoordelijkheid en daadkracht’]. June 2013 (Rli 2013/04).

Dutch Logistics 2040: Designed to Last [‘Nederlandse logistiek 2040, designed to last’]. June 2013 (Rli 2013/03).

Nature’s Imperative: Towards a Robust Nature Policy [‘Onbeperkt houdbaar, naar een robuust natuurbeleid’]. May 2013 (Rli 2013/02).

Room for Sustainable Agriculture. [‘Ruimte voor duurzame landbouw’] March 2013 (Rli 2013/01).

2012

Keep Moving, Towards Sustainable Mobility. Edited by Bert van Wee. October 2012 (Rli/EEAC).



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