Implementing with ambition

Implementation Programme 2018 – 2019

National Climate Adaptation Strategy (NAS) of the Netherlands

March 2018

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Nationale klimaatadaptatie strategie

Foreword

Adapting to climate change is of great importance to a 'delta country' like the Netherlands. We must tackle this challenge together: government, the private sector, civil-society organizations, knowledge institutes, the education sector, and individual citizens. The National Climate Adaptation Strategy (Nationale klimaatadaptatiestrategie, NAS) describes the climate adaptation measures taken by the Netherlands at the national, European and international level. NAS 2016 specifies which climate risks are regarded as urgent. Last year, I discussed this strategy document with the standing committee on Infrastructure and Water Management. There was broad support for a vigorous approach to climate adaptation and for putting the relevant administrative arrangements in place. Some climate risks, such as flooding, are all too familiar to Dutch citizens. Others are new, such as health problems and reduced labour productivity as a result of extended heatwaves.

The NAS covers all aspects of climate adaptation policy. This Implementation Programme for the 20182019 period concerns activities that are supplementary to the Delta Programme. The Implementation Programme is mainly focused on raising awareness of the impact of climate change among a wide range of parties, and to encourage them to take climate-adaptive action. The aim is to agree concrete objectives and actions and an allocation of tasks and costs. The parties involved are responsible for the implementation of those objectives and actions.
I have assumed responsibility for coordinating the Programme and communications concerning Dutch climate adaption policy at the international and European level, also on behalf of the Minister of the Interior and Kingdom Relations, the Minister of Agriculture, Nature and Food Quality, and the Minister for Medical Care and Sport. Administrative coordination has also taken place with the Association of Netherlands Municipalities (VNG), Dutch Water Authorities (UvW), and the Association of Provinces of the Netherlands (IPO).

In addition, many other parties were directly involved in the preparation of this Implementation Programme, in particular the Ministries of Economic Affairs and Climate Policy; Justice and Security; Foreign Affairs; and Education, Culture and Science; as well as ProRail, NEN and a number of knowledge institutes (the Netherlands Environmental Assessment Agency (PBL), the National Institute for Public Health and the Environment (RIVM), the Royal Netherlands Meteorological Institute (KNMI), the Netherlands Organization for Applied Scientific Research (TNO), and Wageningen University & Research (WUR)). I would like to thank everyone who contributed during meetings or by offering advice. Only by working together can we achieve our goal of making the Netherlands climate-adaptive.

Cora van Nieuwenhuizen
Minister of Infrastructure and Water Management

Executive summary

The climate is changing. The Netherlands is making efforts to mitigate this process, through measures including reducing CO2 and methane emissions. However, such measures will not immediately bring climate change to a halt. The Netherlands is therefore also focusing on climate adaptation, i.e. adjusting to the impact of climate change. The National Climate Adaptation Strategy was drawn up in 2016 (NAS 2016). The NAS 2016 is mainly aimed at raising awareness and promoting conscious action. This is a long-term process. This Implementation Programme *(Uitvoeringsprogramma Nationale klimaatadaptatiestrategie, UP NAS)* is a key step forward in identifying urgent climate risks and making them manageable. UP NAS describes how the parties involved convert strategy into action. Climate adaptation is a broad topic that has a bearing on many policy themes and therefore on several areas of responsibility. The Ministry of Infrastructure and Water Management wants to agree clear arrangements on these complex matters with the parties involved. Such arrangements will cover roles, tasks, responsibilities, instruments (including those provided for under the Environment and Planning Act) and actions.

In 2017, experiences were gained with the implementation of NAS 2016. This provided input for the formulation of ambitions and the associated priorities for the 2018 – 2019 period. In two years, we will review the situation and decide if the ambitions and actions need to be adjusted. After all, climate change is fraught with uncertainties and relevant new knowledge becomes available every day. A solid knowledge base, strong coordination and permanent collaboration are required to make the Netherlands climate-adaptive.

Many regions have already started taking climate adaptation measures. The NAS supports this and has adopted the nationwide division into regions, as well as the use of heat maps and stress tests as part of the implementation of the Delta Plan for Spatial Adaptation. The activities coordinated as part of the NAS are supplementary to the Delta Programme. The NAS and Delta Programme teams will join forces where topics or networks overlap.

Ambitions and approach

The purpose of the UP NAS is to integrate climate adaptation into policy, policy implementation and relevant activities of governments, civil-society organizations, citizens and businesses. By 2020, it must be clear which parties are responsible (or will assume responsibility) for which urgent climate risks. This will ensure that the effects of climate change remain manageable. Government authorities will agree arrangements with partners about concrete objectives, actions to be taken, and the division of tasks and responsibilities. This will mainly occur in action-oriented climate adaptation dialogues, in which the parties involved will flesh out the NAS 2016 action lines. The so-called 'circle diagrams' – visualizations of the climate impacts of each climate trend – provide a guideline for this process.

Priorities 2018 - 2019

This Implementation Programme identifies six priorities for the 2018–2019 period:

1. Heat stress

The 'Heat and Health' climate adaptation dialogue started in 2017 will be continued. This dialogue is conducted between participants representing the three sectors involved in this topic: healthcare (for vulnerable people); adaptation, management and maintenance of buildings (built environment); and spatial planning. Among other activities, a guidance document will be drawn up on local heat plans and their implementation. In addition, research will be performed into the risks of the combination of heat and smog, particularly during sports events. The first Conference on Heat Stress will be held on 25 June 2018 and

will address 'Ways to Deal with a Warmer Climate in the Netherlands'. This event will also fulfil the commitment given to the Dutch House of Representatives to provide an overview of developments in this field.

2. Infrastructure
Many measures in the 'Infrastructure' sector are based on current weather conditions. In the coming years, further studies will be conducted into additional measures required to cope with extreme weather. The results will partly determine policy developments in this area.

3. Agriculture
The 'Agriculture, Water Management and Insurance' climate adaptation dialogue started in 2017 will be continued, with a particular focus on damage that is currently not insurable.

4. Nature
The 'Nature and Climate Change' climate adaptation dialogue started in 2017 will also be continued, with a particular focus on measures that benefit nature, as well as possible nature-based solutions for climate impacts in other sectors. Also under the 'Nature' priorities, an investigation will be performed in 2018 to determine if a fifth climate trend should be identified: higher CO_2 concentrations, resulting in possible ocean acidification.

5. Built environment
The 'Built Environment' climate adaptation dialogue will start in 2018. The purpose of this dialogue is to raise awareness of the consequences of climate change for the built environment. In addition, a list will be drawn up of possible measures, opportunities and obstacles or matters which are unclear in the applicable laws, regulations, guidelines and frameworks and any other instruments required. Synergy will play a role here: connecting climate adaptation to the energy transition and circular construction. Implementation projects can reinforce each other by focusing on possible synergies. The 'Built Environment' chain will be added to the NAS circle diagrams in 2018. The Central Government Real Estate Agency will take new steps in analysing the climate resilience of government buildings.

6. Collaborating on provincial and regional strategies and visions
The links between the NAS approach and the formulation of provincial and regional strategies and visions will be explored in more depth in 2018. During consultations and meetings, parties working on these strategies will be able to exchange knowledge and experiences concerning the embedding of climate adaptation into policy (strategies, environmental policy documents, plans) and implementation (best practice examples).

Coordination

The Ministry of Infrastructure and Water Management coordinates all communications about climate adaptation, vis-à-vis the United Nations as well as the European Commission. This concerns communications relating to the Sustainable Development Goals (Goal 13), the evaluation of the EU strategy for adapting to climate change, and the Paris Climate Agreement (Article 7).
Efforts are also underway to obtain EU subsidies under the LIFE IP programme. LIFE is the EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU.
The Ministry of Infrastructure and Water Management also coordinates the implementation of the UP NAS (knowledge base research, knowledge exchange, progress and monitoring, support for the six priorities and action-oriented climate adaptation dialogues, and communication strategy).

1. Introduction

This Implementation Programme 2018 – 2019 is an elaboration of the National Climate Adaptation Strategy (NAS). In December 2016, the then-State Secretary for Infrastructure and the Environment presented the NAS to the Dutch House of Representatives. In early 2017, the NAS was declared to be 'controversial'. The House of Representatives concluded that a newly elected House and a new government would have to decide on this strategy document. Almost a year later, on 27 November 2017, the NAS was discussed by the standing committee on Infrastructure and Water Management. During the consideration, support was expressed on multiple occasions for the efforts made in the field of climate adaptation, and questions were asked about the financing of these activities.

This Implementation Programme does not present an overview of actions, budgets and responsible parties. After all, there is a major 'phase difference' with the Delta Programme in the elaboration of the issues. Policy-making is still in the early stages for the sectors and target groups that are central to the UP NAS. The UP NAS is therefore focused much more on raising awareness and on involving parties that are currently not yet (sufficiently) involved. However, the explorations and action-oriented climate adaptation dialogues are intended to result in the implementation of measures by the parties involved. Where possible, implementation will be linked to ongoing programmes.

Structure of this document

Chapter 2 of this Implementation Programme identifies the main insights gained in 2017. Chapter 3 describes the ambitions and the approach in general terms. Chapter 4 describes the priorities for 2018 and 2019. Chapter 5 deals with the coordinating role of the Ministry of Infrastructure and Water Management, while Chapter 6 briefly addresses organization, planning, capacity and budget aspects.

Administrative agreement on climate adaptation

As set out in the coalition agreement, a so-called Inter-Administrative Programme (Interbestuurlijk Programma, IBP) has been put in place: a broad-based agreement between the central government and other government bodies that addresses nine themes. One of those themes is 'Joining forces to take climate action' (comprising the elements of climate mitigation, climate adaptation, and the circular economy). The Inter-Administrative Programme was signed in February 2018. In the IBP, the central government and the umbrella organizations involved have concluded agreements about working together to address key societal challenges such as climate adaptation, as laid down in the Delta Plan on Spatial Adaptation and the NAS. An administrative agreement on climate adaptation will be drawn up as an elaboration of the IBP. By virtue of its coordinating role in the climate adaptation dossier, the Ministry of Infrastructure and Water Management is taking the lead in this process, also on behalf of the other departments and working together with the Association of Netherlands Municipalities (VNG), the Association of Provinces of the Netherlands (IPO), and Dutch Water Authorities (UvW). The preparation of the administrative agreement on climate adaptation is not part of this Implementation Programme.

2. Building blocks of NAS Implementation Programme

In 2017, a start was made on implementing the NAS action lines (see Chapter 4 of NAS 2016):
- Increase awareness of the necessity of climate adaptation
- Encourage the implementation of climate adaptation measures
- Develop and exploit the knowledge base
- Address urgent climate risks
- Embed climate adaptation within policy and legislation
- Monitor the progress and effectiveness of climate adaptation policy

In 2017, implementation was focused mainly on setting up national climate adaptation dialogues and collaborating with provincial and regional authorities in developing their climate adaptation strategies. The experiences gained provided the following building blocks for this Implementation Programme:
- Implementing the action lines in a comprehensive, integrated manner
- Adding focus to the wide range of climate risks and parties involved
- Promoting exchange between provincial and regional authors of climate adaptation strategies
- Focusing the Knowledge Action Plan on the NAS core activities
- Focusing monitoring activities on the sector-based approach to climate adaptation

These building blocks are explained in further detail below.

Implementing the action lines in a cohesive manner

NAS core activities

In 2017, it became clear that more cohesion between the NAS 2016 action lines was required. This will ensure that efforts of the parties involved do not fragment into isolated activities.

De actiegerichte nationale klimaatadaptatiedialogen vormen de kernactiviteit van de NAS. Dit is besloten in het najaar van 2017. De hierboven genoemde actielijnen spelen – waar opportuun – een rol binnen iedere klimaatadaptatiedialoog (zie hoofdstuk 5). Het bijvoeglijk naamwoord 'actiegericht' is in de loop van 2017 toegevoegd. De dialogen zijn namelijk gericht op het maken van actieplannen en op het maken van afspraken over de uitvoering ervan.

NAS 2016 describes six urgent climate risks

As a result of extreme weather:
- More people affected by heat stress
- More frequent failure of vital and vulnerable functions
- More frequent damage to crops or production resources in the agriculture and horticulture sector

As a result of gradual climate change:
- Loss of biodiversity due to shifting climate zones
- Increased health burden, lost productivity and higher costs due to potential increase in allergies and infectious diseases

Other risks:
- Cumulative effects

Adding focus to the wide range of climate risks and parties involved

NAS 2016 (section 4.4) describes six urgent climate risks (see text box). Action-oriented climate adaptation dialogues have been set up to address a number of these risks. During these dialogues, it became clear that the problems are wide-ranging and involve a large number of parties. The importance of jointly developing a properly substantiated problem definition, based on sound information, also became apparent. Such a problem definition would enable the various parties to develop climate adaptation measures that complement and reinforce each other, and will also make it possible to assess the progress and effectiveness of those measures.
One point for attention is that newly involved parties may not be aware of the seriousness of the climate risks, and of their role in managing them

Implementation

Insight 1: An action-oriented climate adaptation dialogue will lead to greater awareness of the possible climate risks and their urgency, to identifying actions and action holders, and to the implementation of concrete actions (see Appendix 1 for the results of the climate adaptation dialogue on insurability in 2017).
Insight 2: Implementing an action plan requires joint responsibility and financing.
Insight 3: The following matters are also required: an up-to-date insight into climate impacts, up-to-date risk analyses (reflected in the circle diagrams), and up-to-date urgency analyses (to serve as a basis for the climate risks to be urgently addressed).

Promoting exchange between authors of provincial and regional climate adaptation strategies

Provinces and regions are working on regional climate adaptation strategies and embedding climate adaptation in their work programmes and environmental policy documents. As part of the action line 'Embedding climate adaptation within policy and legislation', meetings have been organised with parties that are preparing regional climate adaptation strategies. The strategies themselves were only addressed to a limited extent at these meetings. The discussion was broader in scope and also covered the other NAS action lines. It proved essential to establish links between the authors of provincial and regional climate adaptation strategies and to exchange experiences. Conducting these discussions can therefore be regarded as a second NAS core activity.

Unique approach

Insight: Each region follows its own approach. This increases societal engagement and makes customized solutions possible. The new statutory requirement to draw up environmental policy documents ('omgevingsvisies') promotes the implementation of climate adaptation measures. In a policy document entitled 'De opgaven van de Nationale Omgevingsvisie' (The Challenges posed by the National Environmental Planning Strategy), climate adaptation has been recognized as a suitable and relevant topic for putting into practice the collaboration required for the development of such a strategy. The broader climate adaptation issue is increasingly taken into consideration when formulating regional climate adaptation strategies. Other policy domains besides environmental policy are relevant.

Focusing the Knowledge Action Plan on core activities in implementing the NAS

Three main questions

In 2017, the parties involved in the Knowledge Action Plan considered how this plan is to be elaborated in the NAS process. In addition, the possibilities for obtaining (European) subsidies were investigated. Opting for action-oriented climate adaptation dialogues as the core activity is a significant step forward in the realisation of the Knowledge Action Plan. Three main questions are at stake:

1. How will climate change affect our society?
In the past few years, we have gained basic knowledge about the short- and long-term effects and consequences of climate change. This knowledge basis includes the previously mentioned listings of the effects of climate change, risk analyses and urgency analyses. The knowledge obtained provides the foundation for the NAS and has been used to identify urgent effects of climate change. Because climate adaptation is a relatively new field that is still very much in development, it is important to ensure that the listings and analyses remain upto-date. The knowledge institutions play an important role in this respect.
The NAS 2016 circle diagrams visualize the effects and consequences of climate change and the degree of urgency. New research resulting in an updated knowledge base will also lead to an update of the circle diagrams. More knowledge leads to an increase in the number of possible consequences identified. These consequences require scientific validation (i.e. research). This increase will also make it necessary to separate essentials from side-issues (i.e. through research).
New research results are made transparent through visualization (in the form of circle diagrams) and the publication of transparent texts and guidance documents. Providing digital access to the circle diagrams is scheduled for the first quarter of 2018.

2. Which climate adaptation measures should be taken?
It is important to develop and update knowledge about climate change adaptation. Currently unanswered questions from adaptation practice must be investigated quickly if they are urgent. Because it is impossible to gain an overview of all relevant developments, it has been decided to focus on questions arising from the implementation of the NAS, and particularly from the action-oriented climate adaption dialogues.
This concerns a wide range of knowledge questions (substantive, technical, scientific or practical; or concerning processes, procedures, the local situation, the environment, or organizational matters). The scope still needs to be further defined.

3. How do we organize knowledge exchange?
For this purpose, the knowledge exchange in action-oriented climate adaptation dialogues must be supported. The dialogues create a learning environment in which researchers, policy-makers and parties responsible for implementation can discover and define the joint challenge and the tasks of all parties involved in the implementation of measures. These dialogues can lead to community building or even the creation of coalitions. This will be encouraged where appropriate, among other things by (jointly) creating sector pages under the NAS page on the Knowledge Portal for Spatial Adaptation (https://ruimtelijkeadaptatie.nl/nas/). This main question also includes the analysis of characteristics of best practices. Do best practices share certain features, and if so, what are they?

Insight 1: The Knowledge Action Plan will remain clear and manageable if it is limited to the core activities undertaken during the implementation of the NAS.
Insight 2: The circle diagrams serve as the starting point for all climate adaptation dialogues and can structure the content of those dialogues. Use of these diagrams results in active knowledge exchange and the identification of knowledge gaps.

Focusing monitoring activities on the sector-based approach to climate adaptation

Together with the knowledge institutions, an Action Plan for NAS Monitoring was drawn up in 2017. In this plan, the monitoring ambitions are elaborated into four specific objectives:

1. Monitoring the progress of the implementation programme.
2. Monitoring the extent to which climate adaptation measures are effective in terms of risk reduction. This is a complex challenge. A number of key indicators must be defined to enable measurement of progress. Work is underway in the Delta Programme on indicators for monitoring spatial adaptation. Parties involved in the NAS programme provided input and investigated possible additional indicators for the sectors within the scope of the NAS. This matter is being coordinated with the Delta Plan for Spatial Adaptation.
3. Monitoring the development of climate change risks to all sectors. The Risk Assessment Group of the Delta Programme evaluates whether existing risks may manifest more quickly or whether new risks are emerging. For the time being, the UP NAS will adopt the resulting assessments. The updating of risk analyses (refer to the section on the Knowledge Action Plan) will also lead to more insight into climate impacts.
4. Setting up a 'digital workspace' on the website of the Knowledge Portal for Spatial Adaptation. The central government, provincial, municipal and water authorities and other parties involved can use this workspace to monitor their progress in the field of climate adaptation. An initial outline for a page on the agriculture sector was prepared in 2017. In the medium to long term, this may provide guidance for monitoring..

Insight: It is important to coordinate monitoring activities with knowledge institutions and the Delta Programme. This requires a proactive role on the part of the NAS programme team.

3. Ambitions and approach 2018-2019

The approach for the 2018 – 2019 period builds upon the collaboration between government authorities, knowledge institutes, the private sector and civil-society organizations that was established when NAS 2016 was formulated. In 2017, this collaboration made it possible to take the first steps in implementing NAS 2016. In 2017, results were achieved, new insights were gained, and new parties became involved in the climate adaptation effort, laying a solid foundation for this Implementation Programme.

Ambities

Ambitions

Managing effects

The purpose of the NAS is to integrate climate adaptation into all policies and their implementation and into all relevant activities of civil-society organizations, citizens and the private sector. By 2020, clarity must be established concerning the responsibilities held or assumed by all parties, to ensure that the effects of climate change remain manageable. It must be noted in this connection that this aim is based on current insights into the effects of climate change.

Six priorities

NAS 2016 is focused on themes, sectors, issues, specific climate impacts, target groups and supply chains that have not yet been taken into (full) consideration or that require extra attention or urgent action. The circle diagrams show that there are many such themes, sectors, etc. It has therefore been decided to start by considering six priorities (see page 12). These priorities have been determined based on the following considerations:

1. The priorities concern the urgent climate risks identified in NAS 2016 (see box on page 6).
2. It concerns climate-related activities and/or developments that are sufficiently supported by the parties involved, or for which support can quickly emerge (i.e. developments with 'momentum').
3. It concerns the synergistic effects of climate adaptation measures in programmes or sectors that will be the subject of major investments in the foreseeable future.

In this Implementation Programme, the most urgent climate risks identified in NAS 2016 return under the heading of one or more of the six priorities. The UP NAS is an adaptive programme: there is always room for the inclusion of additional priorities, e.g. as a result of updating of the knowledge base, the outcomes of the climate adaptation dialogues, or the findings of the Risk Assessment Group of the Delta Programme.

Approach

Many parties involved

Climate adaptation requires engagement and action from various parties. Many of these stakeholders are represented in the NAS Sounding Board Group and NAS, Directors' Forum, including various ministries, three umbrella organizations, and a number of knowledge institutes. See Chapter 6 for an overview of the composition of both bodies. Many other parties are involved in the UP NAS, including individual municipal, provincial and water authorities, municipal health services, safety regions, citizens, and a large number of civil-society organizations and consultancy firms.

Action-oriented dialogues

The action-oriented climate adaptation dialogues play a central role in the Implementation Programme. Working with these dialogues was further developed in 2017 (see Appendix 4). An action-oriented climate adaptation dialogue is a long-term process. It starts with a conversation between the parties involved in which they explore and prioritize the consequences and risks for the relevant themes, sectors, issues, climate impacts, target groups and supply chains. They prepare an action plan and ensure that appropriate actions are taken. The NAS programme team invites a broad range of parties to participate in these dialogues. Each party has different tasks and powers and can fulfil various roles (see Appendix 3). Monitoring activities and knowledge development are mainly carried out for the purpose of these dialogues and action plans.

Circle diagrams

The NAS programme team wants to use the circle diagrams to gain and maintain an overview of the problems to be resolved as well as the tasks and responsibilities assumed by the parties. It remains to be seen whether this approach will work in practice. The updated versions of the circle diagrams have been included in Appendix2. After a particular party has assumed a task or responsibility, a coordinating role remains for the Ministry of Infrastructure and Water Management (providing support where necessary and upon request, monitoring and reporting on progress).

NAS programme team

The NAS programme team facilitates the dialogue and takes on the challenge of translating complex matters into clear arrangements on roles, tasks, responsibilities and actions, together with the parties involved.

4. Priorities 2018-2019

The six priorities for the 2018 – 2019 period are:
1. Heat stress
2. Infrastructure
3. Agriculture
4. Nature
5. Built environment
6. Collaborating on provincial and regional strategies and visions

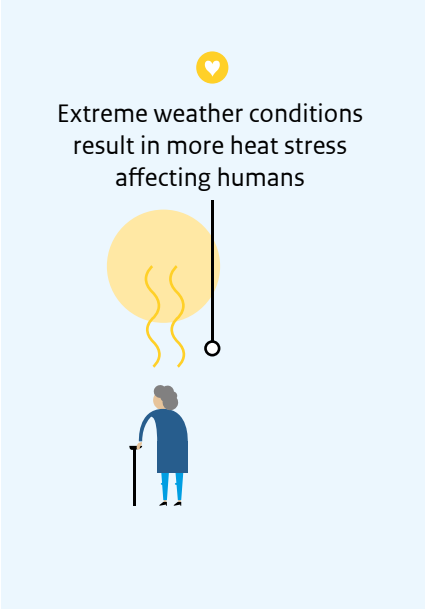
These priorities were selected based on urgency and the level of support and energy of the parties involved, as well as the synergistic effects in sectors subject to major investment. New priorities can always be added in the interim. Furthermore, other activities, which were initiated in 2017 and on which progress reports were drawn up in 2017 entitled 'Overview of progress achieved in implementation of actions listed in Chapter 4 of the NAS', will continue to be addressed. See Appendix 1 for a summary.

Explanation of the priorities:

1. Heat stress

Three pillars

The first meeting in the context of the 'Heat and Health' climate adaptation dialogue concluded in 2017 that the negative health effects of heat stress – particularly in urban areas – must be tackled based on three 'pillars': healthcare (for vulnerable people and situations); adaptation, management and maintenance of buildings; and spatial planning. The healthcare aspect is primarily addressed as part of the 'Heat stress' priorities. The building management and maintenance aspect is primarily addressed as part of the 'Built environment' priorities. The spatial planning aspect is primarily addressed by the Delta Programme for Spatial Adaptation.



Actions in 2018

The following actions will be undertaken in 2018 together with the parties involved in healthcare and spatial planning:
1. Development of a guidance document for local heat plans and their implementation.
2. Conducting research into the risks of combined heat and smog – particularly during sports events – resulting in an advisory report on measures to be taken under such circumstances.
3. Substantive contribution to the development of heat vulnerability maps by the Delta Programme for Spatial Adaptation. These maps are developed based on the results of a project entitled *'Ontwikkeling instrument hittestress voor steden en dorpen in het landelijk gebied'* ('Developing a Heat Stress Instrument for Towns and Villages in Rural Areas'), for which Wageningen University & Research (WUR) is currently performing research in Zeeland province. Other sources include a 'Big Data' analysis being performed by KNMI and WUR in order to minimize the negative effects of the construction of one million new housing units in the coming decades, the recently updated heat maps in the Climate Impact Atlas (Climate Adaptation Services and WUR), and the development of heat stress parameters by the Netherlands Organization for Applied Scientific Research (TNO).

Conference on Heat Stress

The first Conference on Heat Stress will be held on 25 June 2018 and will address 'Ways to Deal with a Warmer Climate in the Netherlands'. The overall aim is to promote awareness of heat-related climate risks. The conference will focus on the progress of the various climate adaptation dialogues and other climate change initiatives, including projects aimed at risk reduction and embedding risk management in climate adaptation strategies and plans.

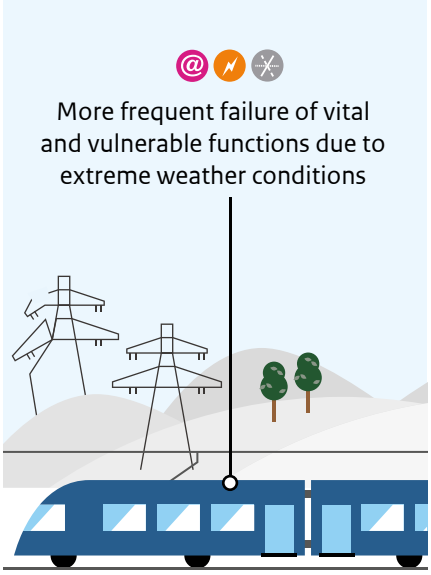
Provide overview

This event will also fulfil the commitment given to the Dutch House of Representatives to provide an overview of developments in this field. The agenda of the conference will be partly determined by parties involved in the 'Heat and Health' climate adaptation dialogue and other interested parties.

Coordination: Ministry of Infrastructure and Water Management, in collaboration with the Ministry of Health, Welfare and Sport.

2. Infrastructure

The transport infrastructure of the Netherlands consists of intensively used networks of roads, railways, waterways, airports, seaports and pipelines that are essential to the national economy and to the well-being of Dutch citizens. This infrastructure is closely interwoven with and dependent on other vital infrastructure, such as energy, telecommunications and IT networks.



Risks to functioning of transport infrastructure

Climate change poses risks to the proper functioning of the transport system and the underlying infrastructure. One obvious example is the severe traffic congestion that already occurs as a result of rain and snow. Climate change leads to more extreme weather conditions. If no measures are taken, the negative impact on transport and mobility may increase. Tunnels may be flooded, train traffic may be disrupted due to lightning strikes, and drought can lead to long-term restricted navigability on inland waterways. The impact of climate change will differ depending on the transport modality, and the nature and scope of any measures required will therefore also vary.

In many situations, extreme climate and weather conditions are already taken into account, either implicitly or explicitly. However, measures are often tailored to the existing climate and its associated extreme weather conditions.

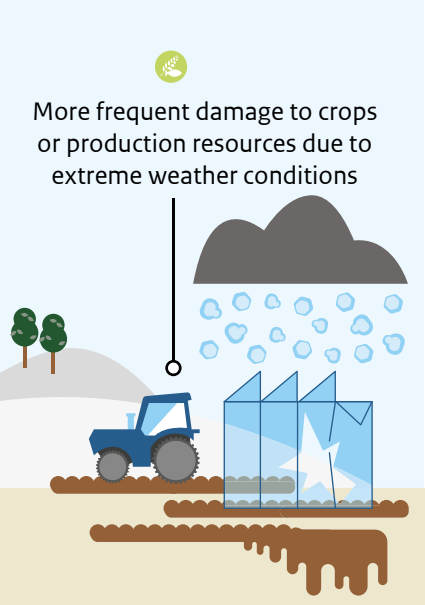
Research

Additional measures may be desirable with a view to climate change. This depends in part on costbenefit assessments yet to be performed and policy ambitions to be defined. The ambitions for infrastructure and mobility have not yet been officially formulated, but must be linked to the required network functionality and performance. It is currently impossible to answer the question whether, and to what extent, willingness exists to accept loss of performance due to climate change, and at what cost. In the coming years, research is expected to be performed into the necessary measures and the required investments. The results will partly determine policy developments in this area.

Define policy ambitions

Coordination: Ministry of Infrastructure and Water Management – Directorate-General for Mobility and Transport and Directorate-General for Civil Aviation and Maritime Affairs, in collaboration with the Directorate-General for Public Works and Water Management (Rijkswaterstaat).

3. Agriculture



The agriculture and horticulture sector is highly dependent on the weather and is experiencing the direct consequences of climate change. This is also apparent in the many climate impacts included in the circle diagrams for the agriculture and horticulture sector. As in 2017, the emphasis in 2018 will be on flooding and the elaboration of the 'Agriculture, Water Management and Insurance' climate adaptation dialogue. The measures to be taken to address the other climate impacts will also be reviewed in 2018.

'Agriculture, Water Management and Insurance' climate adaptation dialogue
In 2017, the Ministry of Agriculture, Nature and Food Quality started the 'Agriculture, Water Management and Insurance' climate adaptation dialogue. The first dialogue session took place on 6 October 2017. Over 60 participants (farmers, insurers, researchers, the central government, provincial authorities, water authorities) investigated how the climate impacts in the agriculture sector can managed. There are many ways to achieve this. One noteworthy outcome of the dialogue session was the shared need for area-based dialogues about water management, nature, agriculture and the urban environment. Insurance was generally regarded as the final element. There was much interest in a follow-up to agree further arrangements.

Farmers are also making efforts to adapt to the effects of climate change in their own operations. Some farmers have made more progress in this area than others. It is essential for these pioneers to share their knowledge and experiences. Some farmers are already taking measures under the Delta Plan for Agricultural Water Management, e.g. soil-related measures. There are also regions where qualitative and quantitative water management measures are being taken in association with the water authorities. In 2018 climate adaptation will be further embedded in ongoing processes, and new processes will be started. Such activities may meet the demand for comprehensive area-based dialogues as expressed during the climate adaptation dialogues.

Closely alligned programmes

Work is being carried out at the national level to promote climate adaptation in rural areas, within the framework of the Delta Plan for Spatial Adaptation and the Delta Programme for Fresh Water. Both programmes are of essential importance for the regions. In the coming year, these national programmes will be more closely aligned with activities at the regional level and on farms. For this purpose, preparations will be made for process arrangements.

Residual risks
One important outcome of the climate adaptation dialogue was that insurers and water authorities agree that farmers and market gardeners incur substantial residual risks that are not covered. This is due to the definition of the responsibilities of the water authorities (under the applicable provisions of the Water Act) and the responsibilities of the insurers (only damage that cannot be prevented is covered). Expanding coverage to include all residual risks would result in prohibitively expensive insurance policies. In practice, this would also mean that farmers and market gardeners are expected to foot the bill. Insurers and water authorities are currently holding talks about this matter, with the encouragement of the Ministry of Agriculture, Nature and Food Quality.

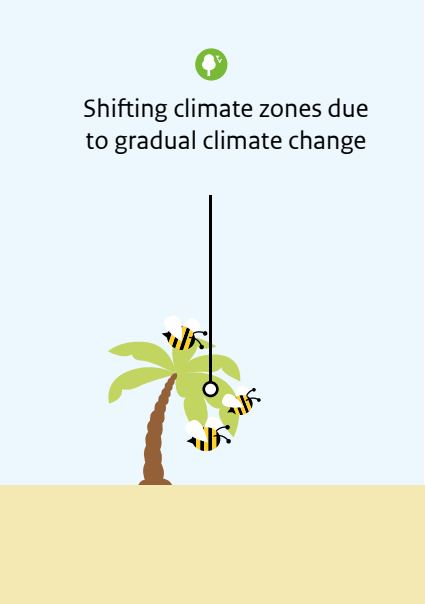
Coordination: Ministry of Agriculture, Nature and Food Quality in collaboration with the Ministry of Infrastructure and Water Management.

4. Nature

The shift in climate zones due to gradual climate change demands a robust, resilient natural environment. Climate change will lead to shifts in the composition of flora and fauna and will harm biodiversity and plant and animal health. It will also result in 'mismatches' in the food chain and have a negative impact on the coast and tidal mudflats. This is an unwelcome development, as a strong natural environment contributes to a climate-adaptive society. It is well-known that species will migrate northwards due to the general climate trend of rising average temperatures. The distribution of pollinating insect populations will change, which may affect open-field agriculture.

Three measures

In the past few years, the Netherlands has invested in three measures: strengthening the network of nature areas to improve biodiversity, connecting biotopes, and using nature as a 'climate buffer'. This policy can be further reinforced through the proposed expansion of the Netherlands Nature Network, whereby surrounding (often agricultural) areas can be set up in such a way that they make an optimal contribution to nature. There is also an opportunity to involve urban ecosystems in this network. Such ecosystems can contribute to a more robust natural environment, while simultaneously providing a valuable resource to city residents (e.g. the natural cooling effect of green areas).



Room for nature

'Nature and Climate Change' climate adaptation dialogue

The first 'Nature and Climate Change' climate adaptation dialogue took place on 7 December 2017. The South Holland provincial authority took the lead and is proactively working on this priority. The participants included municipal and provincial authorities, various civil-society organizations, drinking water companies, nature conservation organizations, knowledge institutes and ministries. The purpose of the climate adaptation dialogue is to gain insight into the impact of climate change on nature and to assess possible measures. The dialogue also focuses on using nature to promote climate resilience via 'nature-based solutions' (i.e. nature-inclusive climate adaptation.

Robust nature

The discussions mainly showed that the resilience or robustness of nature must be improved to cope with the effects of climate change. It is therefore important to provide more room for nature – not just to realize the conservation targets, but also to secure the added value provided by nature for various societal aims (recreation, care, well-being, quality of rural areas).

Effort needed for effective water policies

Participants also indicated that more effort must be devoted to effective water policies – including strengthening the water-retaining capacity of nature areas – and raising water levels in nature areas (to improve the availability of fresh water). Water quality must also be assured, with due attention for salinization. The Programme-Based Approach to Nitrogen *(Programmatische Aanpak Stikstof, PAS)* could be utilized more widely to strengthen the adaptability of nature by reducing the nitrogen burden on nature.

Further collaboration

These issues require further elaboration and collaboration between provincial authorities and other government bodies, sectors, civil-society organizations, and society at large.

Implementation programme for 'Nature' priorities

The results of the climate adaptation dialogue have been incorporated in an implementation programme for the 'Nature' priorities. The following issues may be addressed in this implementation programme:

- More room for natural dynamics: towards a sustainable, climate-proof natural system capable of adapting to climate change. It is important to establish suitable conditions that enable plant and animal populations to adapt sufficiently, e.g. networks for migration of species. This requires a finely-meshed network of 'green' and 'blue' infrastructure in both rural and urban areas that also extends to the coast and tidal mudflats.
- The Environment and Planning Act offers possibilities for improved integration of all interests that play a role in the human environment. The connecting character of nature

can play a role here. This demands a vision on how nature can be incorporated in environmental policy documents as an integrative element.
- The possible contribution that nature can make to climate resilience: working on climate adaptation is effective and efficient when it is 'nature-inclusive'.
- The interaction between agriculture and nature is a key factor in improving the resilience of nature, enabling nature to provide optimal services to society. An example is how in peat meadow areas the relationship between nature conservation and soil subsidence on the one hand and water level management on the other hand needs to be carefully managed. These areas offer opportunities for climate-adaptive agriculture.
- Smart, climate-adaptive forestry; forests in the Netherlands will have to be managed differently to remain robust in the future. Genetic diversity will have to be improved. A toolkit is being developed to support the smart, climate-adaptive management of forests, landscape planting and urban green areas.
- Also under the 'Nature' priorities, an investigation will be performed to determine if a fifth climate trend should be identified: higher CO_2 concentrations, resulting in possible ocean acidification. This may affect fish and shellfish populations.

Coordination: Association of Provinces of the Netherlands, provincial authorities, Ministry of Agriculture, Nature and Food Quality in collaboration with the Ministry of Infrastructure and Water Management

5. Built environment

All four climate trends identified by the NAS manifest in the built environment. It has therefore been decided to define the built environment as a priority in this Implementation Programme for the National Climate Adaptation Strategy (UP NAS). This priority covers not only existing and newly constructed buildings in their environment, but also the supply chain of parties operating in the construction sector. The 'Built Environment' supply chain will be added to the circle diagrams in 2018.

NEW

Built environment

Climate-proof construction

The Ministry of the Interior and Kingdom Relations will implement a number of measures to promote climate-proof construction, focusing in particular on climate impacts and activities that are complementary to or provide added value for ongoing activities applicable (in whole or in part) to the built environment, as stated in the Delta Plan for Spatial Adaptation, for instance. The Ministry of the Interior and Kingdom Relations is undertaking these activities in close collaboration with the Ministry of Infrastructure and Water Management, the Ministry of Health, Welfare and Sport (where necessary), and the Ministry of Education, Culture and Science (in connection with municipal and provincial monuments and national heritage sites, protected landscapes and world heritage sites)

Private citizens and companies

Most of the physical human environment is owned by private citizens and companies. The NAS therefore not only focuses on owners and managers of public spaces, but also on owners (and managers) of homes and other privately owned buildings. In the (near) future, all these stakeholders will have to take the consequences of climate change into account. A first step is to promote awareness of the consequences of climate change.

Increase awareness

'Built Environment' climate adaptation dialogue

In early 2018, the Ministry of the Interior and Kingdom Relations started preparations for the 'Built Environment' climate adaptation dialogue in collaboration with the Ministry of Infrastructure and Water Management. This dialogue is aimed at raising awareness of the impact of climate change on the built environment, and identifying any opportunities and obstacles, such as matters that are unclear in the applicable laws, regulations, guidelines

and/or frameworks. In considering possible measures and instruments, synergy plays a role: connecting climate adaptation to the energy transition and circular construction. Projects can reinforce each other by focusing on possible synergies.

Climate resilience of government buildings

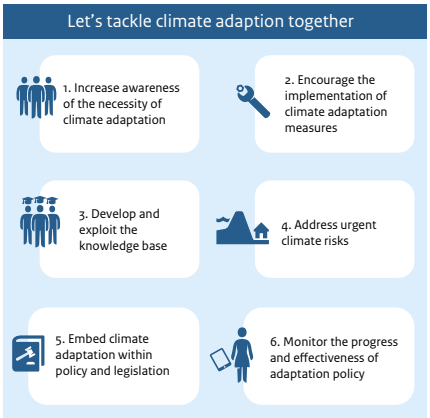
The Central Government Real Estate Agency is investigating the climate resilience of government buildings. The Dutch central government owns many buildings and sites. It is also responsible for much of the country's transport infrastructure. The Central Government Real Estate Agency takes care of the management and maintenance of the government's property portfolio, which includes prisons, courthouses, army barracks, airports, Ministry of Defence sites, ministries, ports, tax offices, monuments, museums and palaces. The Agency is responsible for the management and maintenance, purchasing and disposal, new construction, alteration and renovation, development and redevelopment of these buildings and sites. Among other things, the investigation will focus on the ways in which the Agency's building managers can 'make the buildings and sites climate proof. The findings may also be relevant for other building owners and managers, and can provide input for new standards or the amendment of existing standards.

Pilot projects

The central government is participating in a number of interrelated pilot projects undertaken by 'forerunner cities' to take stock of obstacles and ambiguities that may affect climate adaptation measures in the built environment (e.g. in the applicable laws and regulations). Solutions to these ambiguities and obstacles may result in new arrangements between property owners, such as housing corporations, owners' associations, municipalities, water authorities, residents and other stakeholders.

Coordination: Ministry of the Interior and Kingdom Relations, in collaboration with the Ministry of infrastructure and Water Management and the Ministry of Education, Culture and Science

6. Collaborating on provincial and regional strategies and visions



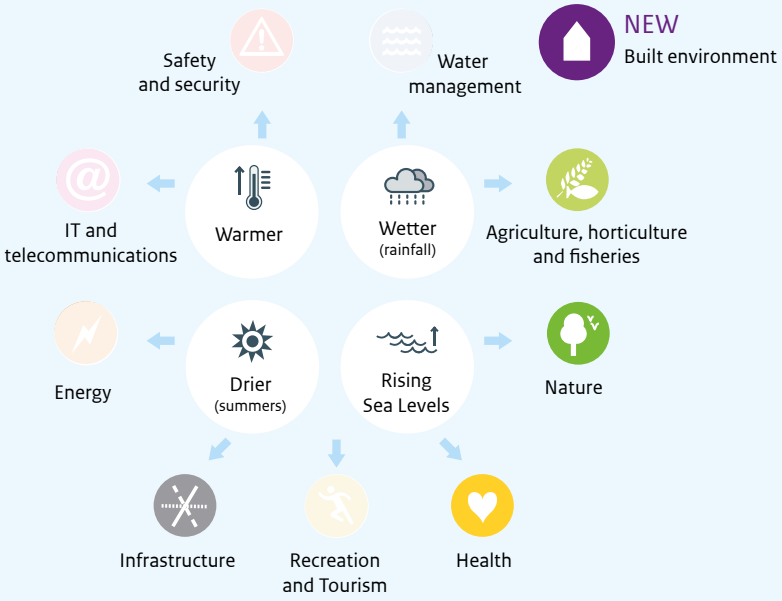
As part of the action line 'Embedding climate adaptation within policy and legislation', meetings have been organised with the authors of provincial and regional climate adaptation strattegies. The participants appreciated these meetings, particularly because of the opportunities to exchange knowledge and experiences concerning the embedding of climate adaptation into policy (strategies, visions, plans) and implementation (bestpractice examples). The Overijssel provincial authority, for instance, has started taking climate adaptation measures. The province has made connections between the NAS, the Delta Programme, environmental policy documents, and initiatives undertaken by regional partnerships and individual municipalities. The NAS programme team supported the provincial authority in this process, particularly in broadening the discussion to include all relevant economic sectors. Several other provincial authorities have undertaken similar initiatives (see Appendix 5). In the coming years, more of these sessions will be held on request. The topics discusses will include, in any case, ways of analysing vulnerability to urgent climate risks, in addition to the stress tests for water problems, heat, drought and flooding that all parties must perform by the end of 2019 in accordance with the Delta Plan for Spatial Adaptation. In this context, IPO, VNG and UvW are working on a nationwide division into regions, which the NAS will adopt. If required, the NAS programme team will hold talks with these regions about the links between the regional activities undertaken within the framework of the Delta Plan for Spatial Adaptation (DPRA) and the NAS. These discussions should preferably be held at the provincial level (also refer to NAS 2016, in which provincial authorities are asked to take the lead in this area). If regional partnerships wish to address the full scope of climate adaptation, they can call on the knowledge and experience of the NAS programme team.

Coordination: Ministry of Infrastructure and Water Management, in close collaboration with the Association of Provinces of the Netherlands and provincial authorities

National Climate Adaptation Strategy (NAS)
Adapting with ambition

The National Climate Adaptation Strategy (NAS) identifies the effects of climate change for the Netherlands and surveys the associated risks, which may have significant consequences for society and therefore require extra attention.
The NAS aims to support and accelerate new initiatives and practices. Let's join forces and invest in policy, research and the practical measures needed to prepare the Netherlands to counter the negative effects of climate change.

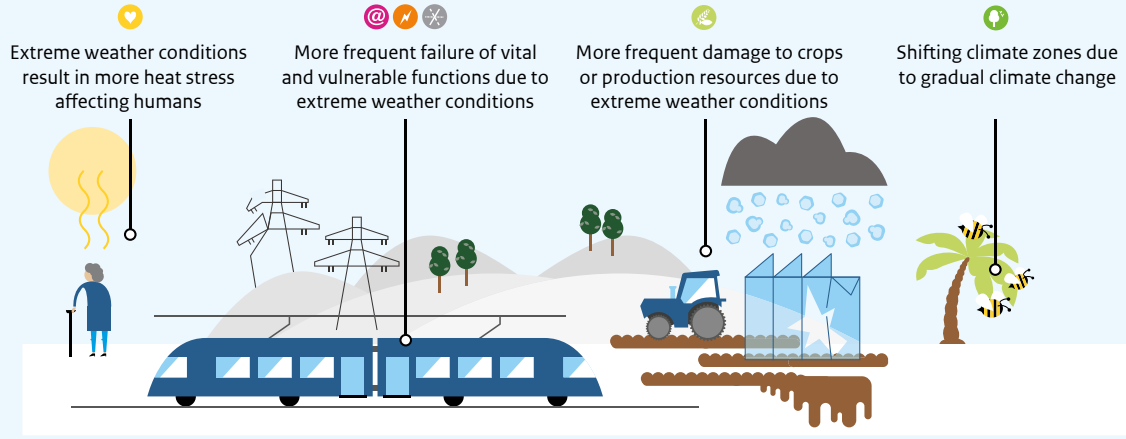
Four climate trends and their impact on nine sectors C2



6. Monitor the progress and effectiveness of adaptation policy

5. Embed climate adaptation within policy and legislation

Climate effects demanding urgent action C3



Priorities 2018 – 2019

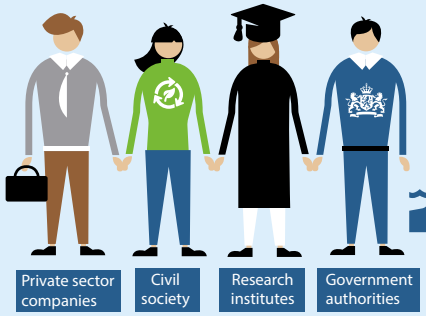
Let's tackle climate adaption together C4

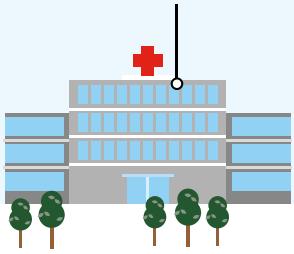
1. Increase awareness of the necessity of climate adaptation

2. Encourage the implementation of climate adaptation measures

3. Develop and exploit the knowledge base

4. Address urgent climate risks





Increased health burden, lost productivity and higher costs due to potential increase in allergies and infectious diseases

Cumulative effects

C1

Climate (change) mitigation is aimed at reducing and, where possible, reversing global warming. Climate (change) adaptation refers to making adjustments (adaptations) to cope with the effects of climate change. Preventing global warming and taking measures to counter its effects are both necessary. The fewer mitigation measures are taken, the more adaptation measures will be required, and vice versa.

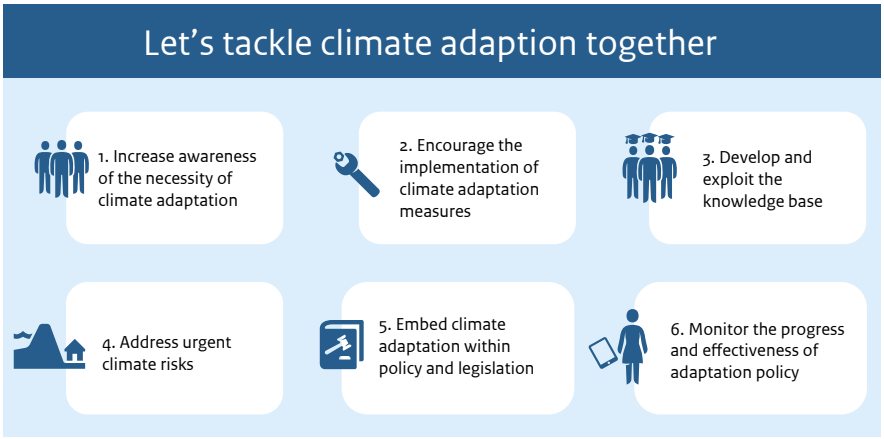
A decade of climate adaptation policy in the Netherlands

	Conference on Heat Stress
'18	Publication of Implementation Programme of National Climate Adaptation Strategy (UP NAS)
'17	Publication of Delta Plan for Spatial Adaptation Start of the Implementation of NAS actions
'16	Publication of the National Climate Adaptation Strategy
'15	PBL and 'Knowledge for Climate' programme establish basis for National Climate Adaptation Strategy
'14	Ratification of 5 Delta Decisions
'13	Government draws up Climate Agenda
'12	Netherlands Court of Audit advises broad approach to climate adaptation
'11	
'10	Start of Delta Programme
'09	
'08	
'07	First Climate Adaptation Strategy for the Netherlands

Climate adaptation Implementation Programme: C5

"Let's join forces and invest in policy, research and the practical measures needed for climate change adaptation"

5. Coordinating role



The coordinating role of the Ministry of Infrastructure and Water Management covers international activities as well as activities in the Netherlands.

International

The NAS is the starting point for communication with the European Commission and international (non-European) bodies (such as the United Nations) about climate adaptation activities undertaken in the Netherlands. Among other things, this concerns an assessment of the 2013 EU strategy for adapting to climate change, and the section on climate adaptation in the reports that must be submitted every four years to the United Nations under the UN Framework Convention on Climate Change.

The UN's Sustainable Development Goals (SDGs) for 2025 were adopted in 2015. Sustainable Development Goal 13 calls for 'urgent action, not only to combat climate change and its impacts, but also to build resilience and limit climate-related hazards and natural disasters', and this SDG therefore also calls for climate adaptation. The NAS programme team coordinated the input on adaptation for the aforementioned report submitted to the UN. In 2015, the Paris Climate Agreement focused on climate adaptation for the first time (in Article 7). In the future, the NAS programme team will coordinate compliance with the resulting reporting obligations.

This Implementation Programme is linked to the EU's Common Agricultural Policy (CAP), the Habitats Directive and the Water Framework Directive (WFD). In the context of evaluating the Water Framework Directive, the Netherlands has stated, among other things, that climate change was not taken into account when drawing up the Directive. In evaluating the EU strategy for climate change adaptation, the Netherlands has requested attention for greater cohesion in climate, agriculture, nature and water quality policies for rural areas.

The NAS programme team coordinates the following matters:

- The LIFE IP subsidy application, which will be elaborated and submitted to the EU in collaboration with partners including the National Institute for Public Health and the Environment (RIVM) and Deltares
- Contribution to EU climate adaptation strategy and its evaluation
- Contribution to the collaboration between Germany and Denmark regarding conservation of the Wadden Sea
- Contribution to collaboration at the Benelux level
- Climate reporting to the UN, insofar as it concerns climate adaptation

Cross-border collaboration

In addition, the programme team encourages the parties involved to focus on cross-border climate adaptation efforts involving provinces and regions in neighbouring countries (Germany and Belgium). Such activities are carried out, for instance, as part of the Multi-Year Programme for Infrastructure, Spatial Planning and Transport (MIRT), with the Dutch provinces of North Brabant, Limburg and Zeeland collaborating with the Belgian region of Flanders on an agenda for climate adaptation. Finally, the programme team promotes the exchange of knowledge concerning climate adaption between national, European and global standardization networks and policy-makers in the field of climate adaptation (together with NEN and the Delta Plan for Spatial Adaptation). The purpose is both to utilize and exert influence on these networks.

Netherlands

As described in Chapter 2, the six action lines defined in NAS 2016 will be retained. These mainly concern general activities in the field of climate adaptation that are directly related to the coordinating role of the Ministry of Infrastructure and Water Management. An overview is provided below of the main ongoing activities in the 2018 – 2019 period for each action line:

1. *Increase awareness of the necessity of climate adaptation.*

Actions:

Organizing meetings as part of action-oriented climate adaption dialogues, and carrying out the actions arising from those dialogues (or instructing other parties to do so), particularly awareness-raising measures.

2. *Encourage the implementation of climate adaptation measures.*

Actions:

Communication

Ensuring effective communication about climate change and climate adaptation in practice on the Knowledge Portal for Spatial Adaptation. The NAS page on the Knowledge Portal will be expanded and sector pages will be added. The previously mentioned climate adaptation dialogues and the promotion of regional climate adaptation strategies and plans also provide input for these sector pages. UP NAS activities in this area are additional to the DPRA Incentive Programme.

3. *Develop and exploit the knowledge base.*

Actions:

- Drafting a programme for conducting knowledge base research (risk analyses, urgency analyses, taking stock of climate impacts)
- Taking stock of and maintaining an overview of knowledge questions that arise from NAS activities and that have been or will be included in the programme
- Supporting knowledge exchange in the climate adaptation dialogues by creating sector pages or other types of pages on the Knowledge Portal for Spatial Adaptation, depending on the subject of the dialogue
- Carrying out the above actions in consultation with the Delta Plan for Spatial Adaptation and the National Water and Climate Knowledge and Innovation Programme (NKWK)

Embedding climate adaptation

4. Address urgent climate risks.
Actions:
Starting new climate adaptation dialogues where necessary.

5. Embed climate adaptation within policy and legislation.
Actions:

- Promoting that standardization organizations (in addition to ensuring compliance with policy and legislation) utilize the self-regulating capabilities of the market, and ensuring that standardization organizations embed climate adaptation in implementation guidelines, protocols, standards, etc. (together with NEN and the Delta Programme)
- Investigate whether any regulations require amendment (and if so, which regulations) for the main NAS focus areas; an initial exploration focusing on building regulations will start in 2018
- Supporting the regional climate adaptation strategies and implementation plans (see Appendix 5)
- Integrating climate adaptation into the National Environmental Vision and providing input for the development of instruments to be used by the central government and regional authorities

Collaboration between NAS and the Delta Programme for Spatial Adaptation

In 2017, the relationship between the National Climate Adaptation Strategy (NAS) and the Delta Plan for Spatial Adaptation was clarified in terms of themes, objectives, strategies and division of tasks.

The Delta Programme is focused on adapting to climate change, with a particular focus on water safety, availability of fresh water, and spatial adaptation. The Delta Plan for Spatial Adaptation is aimed at agreeing spatial planning measures to mitigate the impact of water problems, heat stress, drought and flooding.

Within the Netherlands, the NAS is focused on sectors, supply chains, themes and climate risks that are not addressed in the Delta Programme or the Delta Plan for Spatial Adaptation, while additionally covering a number of themes that are addressed in the Delta Programme. The NAS 2016 circle diagrams demonstrate that there is a major challenge that is specific to the NAS. Consequently, the Implementation Programme for the National Climate Adaptation Strategy (UP NAS) is complementary to the Delta Programme and the Delta Plan for Spatial Adaptation. For example, there are many aspects to combating heat stress. Spatial planning measures will be included in the implementation of the Delta Plan for Spatial Adaptation. However, heat effects can also be mitigated by other types of measures that are not related to spatial planning. For example, home care services and municipalities play a key role in supporting and monitoring vulnerable elderly people living at home, with measures like behavioural changes during heat waves.

The urgent climate risk 'More frequent failure of vital and vulnerable functions' as described in NAS 2016 is addressed in the Delta Programme for Spatial Adaptation.

The action-oriented national climate adaptation dialogues within the framework of the NAS – which are focused on climate issues with a scope that transcends regional and provincial boundaries and sometimes even national borders – have proven to be a powerful tool for selecting priorities based on a broad and inclusive dialogue, followed by the development of actions by parties who have assumed their responsibility. During these discussions, aspects may arise that concern both the NAS and the Delta Programme. If this situation occurs or may occur, the Delta Programme and NAS programme teams will jointly formulate the actions to be performed, either under the UP NAS or in the Delta Plan for Spatial Adaptation. The risk dialogue of the Delta Plan for Spatial Adaptation is a specific area-focused dialogue following the stress test ('light' version).

The Delta Plan for Spatial Adaptation has defined seven ambitions: 1. Identifying vulnerabilities; 2. Conducting a risk dialogue and preparing a strategy; 3. Drawing up an implementation agenda; 4. Utilizing opportunities for synergy; 5. Encouraging and facilitating; 6. Regulating and assuring; 7. Taking action in the event of calamities. The ClimateProof Together Platform *(Platform Samen Klimaatbestendig)* will be set up under the Delta Plan for Spatial Adaptation for the purpose of sharing experiential knowledge. Where appropriate, a member of the NAS programme team will participate in this platform.

Where necessary and relevant, collaboration will be sought with the DPRA and NAS programme teams, for instance in the area of communication, knowledge development and monitoring.

6. Monitor the progress and effectiveness of climate adaptation policy.
Actions:

- Implementing the Action Plan for NAS Monitoring
- Investigating the possibilities for utilizing the damage figures compiled by insurers to identify challenges and trends
- Making sector pages to be added to the Knowledge Portal for Spatial Adaptation suitable for monitoring purposes
- In 2018, the Action Plan for NAS Monitoring will be elaborated into a multi-year work programme. One important starting point is that no new system will be developed, but that coordination and collaboration will be pursued with other programmes.
- Monitoring the progress of the Implementation Programme and reporting on progress in annual internal reports
- Making arrangements with the Netherlands Environmental Assessment Agency (PBL) about updating the risk analyses underpinning NAS 2016 (also see item 3)
- Coordinating the development of indicators for sectors and climate impacts that are not addressed in the 'Measure, Know, Act' approach applied by the Delta Programme or in its Risk Assessment Group, while becoming acquainted with and possibly adopting ISO indicators for climate adaptation
- Exploring, together with the knowledge institutes, whether a digital workspace can be set up within the Knowledge Portal that can be used by the central government, provincial, municipal and water authorities and other parties involved to monitor their progress in the field of climate adaptation, using the sector pages on the Knowledge Portal and a web page specifically intended for regional adaptation strategies
- Reporting on the progress and effectiveness of Dutch adaptation policy to the NAS Directors' Forum, the Dutch House of Representatives and the EU

6. Organization, planning, capacity and budget

Organization

The Ministry of Infrastructure and Water Management will serve as the coordinating ministry and as such will monitor the general progress and efficiency of the implementation process, without encroaching upon the responsibilities of the other departments involved. The Ministry of Infrastructure and Water Management will also ensure efficient coordination between the NAS and other programmes, including the Delta Programme. The progress of the UP NAS is coordinated in the NAS Directors' Forum (DO-NAS), which meets at least three times a year. The Directors' Forum is chaired by the Ministry of Infrastructure and Water Management. The following parties are represented on the forum: the Ministry of Foreign Affairs, the Ministry of Justice and Security, the Ministry of the Interior and Kingdom Relations, the Ministry of Economic Affairs and Climate Policy, the Ministry of Agriculture, Nature and Food Quality, the Ministry of Health, Welfare and Sport, the Delta Programme Commissioner, the Association of Provinces of the Netherlands (IPO), the Association of Netherlands Municipalities (VNG), Dutch Water Authorities (UvW), the Royal Netherlands Meteorological Institute (KNMI), the Netherlands Environmental Assessment Agency (PBL), and the National Institute for Public Health and the Environment (RIVM). The Ministry of Education, Culture and Science is an 'agenda member' of the Forum.

The Ministry of Infrastructure and Water Management coordinates the implementation and the programme team. Practical coordination takes place within the NAS Review Group, which includes all the parties that are also represented in the Directors' Forum, as well as the Ministry of Education, Culture and Science, the Directorate-General for Public Works and Water Management *(Rijkswaterstaat)*, the Overijssel and South Holland provincial authorities, Wageningen University & Research (WUR), the Netherlands Organization for Applied Scientific Research (TNO), ProRail and NEN. In addition, the NAS and DPRA programme teams will mutually coordinate their activities.

Planning

The implementation of the NAS will be evaluated towards the end of 2019. A review will then be conducted to determine if the ambitions and actions require adjustment, and a decision will be taken on a possible follow-up Implementation Programme. In 2021 KNMI will publish new climate scenarios, which will probably be more fleshed out and emphasize new aspects of climate adaptation. This may result in an update of NAS 2016.

Capacity and budget

The NAS programme team is responsible for coordinating the implementation of the UP NAS. The Ministry of Infrastructure and Water Management provides capacity for this team. The Ministry has set aside a budget for process support. The parties directly involved in the UP NAS provide sufficient capacity and resources for the required coordination, and for the implementation of specific priorities or other actions.

Appendix 1 Developments in the field of climate adaptation in 2017

This appendix briefly addresses the following subjects:

- Political and administrative developments
- Ongoing action-oriented climate adaptation dialogues
- Actions and products of the NAS team (including progress reports in accordance with Chapter 4 of NAS 2016)
- Other actions and products stated in progress reports in accordance with Chapter 4 of NAS 2016
- Other actions and products of NAS partners
- Actions and interim results of the dialogue on the insurability of (non-critical) risks
- Relationship between the NAS and the Delta Plans for Water Safety, Fresh Water and Spatial Adaptation

Political and administrative developments

- The first section of the National Environmental Vision (January 2017) identifies climate resilience as one of the four key challenges facing the Netherlands.
- In March 2017, municipalities and provincial and water authorities presented a joint investment agenda entitled 'Towards a Sustainable Netherlands' to accelerate the transition to an energyneutral, circular and climate-resilient economy and society in the Netherlands.
- Immediately after the 2017 summer recess, State Secretary Dijksma of Infrastructure and Water Management described the government's approach to heat stress in a letter to the Dutch House of Representatives. A debate on 5 September 2017 showed that there was broad support for taking measures to combat heat stress in cities and making government buildings climate proof.
- On Prince's Day 2017 (the opening of the parliamentary year), the Delta Plan for Spatial Adaptation was presented to the Dutch House of Representatives. This joint plan of municipalities, provincial and water authorities and the central government is aimed at accelerating and intensifying the handling of water problems, heat stress, drought and the effects of flooding.
- The coalition agreement of the Rutte III Cabinet presented on 10 October 2017 included provisions on the drafting of a Climate Act setting 'hard' environmental targets. The coalition agreement states: "An administrative agreement on climate adaptation is to be concluded between the central government and the other levels of government" and "The implementation of the Delta Programme will be continued. More than ever before, emphasis will be placed on making the Netherlands climate-proof and water-robust."
- At the COP23 Sustainable Innovation Forum held in Bonn, Germany, on 14 November 2017, the Netherlands launched the Global Centre of Excellence on Climate Adaptation. The Centre is an initiative of UN Environment, the Dutch government, and the Japanese National Institute for Environmental Studies (NIES).
- On 27 November 2017, the NAS was discussed by the standing committee on Infrastructure and Water Management. No critical comments were made about the NAS, and its controversial status was subsequently repealed.

The climate adaptation dossier is part of the responsibility of the Minister of Infrastructure and Water Management, who has both the NAS and the Delta Programme in her portfolio.

Overview of ongoing action-oriented climate adaptation dialogues

In 2017 four climate adaptation dialogues were set up, with the eventual aim of producing action plans.

National climate adaptation dialogues and action plans 2017	Lead role	Terms of reference	Interim products/actions
Heat and Health	Ministry of Infrastructure and Water Management, Ministry of Health, Welfare and Sport, Red Cross, municipal health services	How can measures in three domains (healthcare, built environment, physical environment), reduce the impact of heat stress on vulnerable people?	• Conference in June 2018 • Local heat plans • Heat vulnerability maps • Guidance document on heat stress and public events
Insurability of (non-critical) risks	Ministry of Infrastructure and Water Management, Ministry of Agriculture, Nature and Food Quality, Ministry of Justice and Security, Dutch Association of Insurers, De Nederlandsche Bank (Central Bank of the Netherlands)	Which risks are insurable and not insurable, and which risks have been insured or reinsured? Are climate-related damages sufficiently insurable? Do (re)insurers have sufficient resources to make insurance payments in the event of major climate-related damages?	• Analysis of potential future climate-related damages and insurability • Infographics on insurability • Information sheet on Disasters and Serious Accidents (Compensation) Act
Agriculture, Water Management and Insurance	Ministry of Agriculture, Nature and Food Quality, Delta Plan for Spatial Adaptation	How does climate change affect agriculture and water management? How can future damages be mitigated, and how can damages that do occur be compensated?	Clarity concerning responsible parties and their areas of responsibility. UvW and the insurers discuss insurability of climate risks in agriculture.
Nature and Climate Change	Association of Provinces of the Netherlands / (South Holland provincial authority)	Shifting climate zones will place strain on the resilience of nature and will lead to changes in the composition of flora and fauna. What impact will these changes have in terms of species protection and biodiversity, productivity and ecosystem services, and perception / recreation? Which policy adjustments are required, and what practical actions can be taken based on the roles involved?	Advice and recommendations from the sector concerning policy, research and possible actions.

Actions and products of NAS team (including progress reports in accordance with Chapter 4 of NAS 2016)

- The NAS network is steadily being developed; the Ministry of the Interior and Kingdom Relations and the Ministry of Education, Culture and Science have joined as members (or 'agenda members') of the NAS Directors' Forum. The Sounding Board Group has also been expanded.
- A 'digital workspace' is available on the website of the Knowledge Portal for Spatial Adaptation (http://www.ruimtelijkeadaptatie.nl).
- A start has been made on adding sector pages to this portal. Circle diagrams for each sector are now available in the sector-specific sections of the website, and a draft version of the page for the agriculture sector has been completed.
- A joint communication strategy for both programmes (NAS and the Delta Plan for Spatial Adaptation) is being developed together with the programme team of the Delta Plan for Spatial Adaptation. A basic presentation is available and has been used on various occasions throughout the year.
- Arrangements have been made with the Ministry of the Interior and Kingdom Relations to make a start on the 'Built Environment' action-oriented climate adaptation dialogue, which will be organized by the Ministry of the Interior and Kingdom Relations and coordinated jointly with the Ministry of Infrastructure and Water Management.
- An initiative has been launched with other European countries to exchange knowledge between authors of climate adaptation strategies. Concrete elaboration is lagging behind due to a lack of capacity.
- Action-oriented climate adaptation dialogues have started (refer to main text of this document).
- A draft version of a Knowledge Action Plan has been completed, emphasizing (among other things) the importance of keeping the risk analyses up-to-date.
- Members of the NAS programme team were requested to actively contribute to the creation of the Overijssel Regional Adaptation Plan. Workshops have been organized for the province of South Holland and the Voorne-Putten region. Support has been provided for the RIVUS network in Overijssel.
- Members of the NAS programme team have supported a pilot project called 'The State of Your Street'.
- Consultations have been held with the Delta Plan for Spatial Adaptation and the NKWK subprogramme on Climate-Proof Cities (KBS) with a view to knowledge coordination. Follow-up activities will be undertaken in 2018.
- The Extreme Weather Response Group has developed a method at the request of affected municipalities. The purpose is to apply lessons learned from responses to extreme weather conditions, in order to optimize future measures. This only concerns situations that have not been escalated to Level 1 of the Coordinated Regional Incident Management Procedure (GRIP).
- Updating of NAS circle diagrams; updated versions have been included in this Implementation Programme.
- A start has been made on creating interactive circle diagrams.
- Action-oriented climate adaptation dialogues have been set up to address a number of urgent climate risks. Urgent climate risks also affect vital and vulnerable functions, which are covered in the Delta Plan for Spatial Adaptation. A climate adaptation dialogue on infrastructure will be set up to manage increasingly frequent extreme weather situations. Little attention has so far been paid to reducing the risk of cumulative and chain effects as a result of climate change.
- The NAS team was the lead author of a letter on heat stress sent to the Dutch House of Representatives on 25 August 2017. This letter provides an overview of current activities in this area.
- A third progress report on the approach to national vital and vulnerable functions has been drawn up and discussed in the Directors' Forum of the 'Vital and Vulnerable' project. These activities are part of the Delta Programme for Spatial Adaptation.

- Climate adaptation has been embedded in Section 1 of the National Environmental Planning Strategy (NOVI).
- Efforts to integrate climate adaptation into provincial and regional strategies have now been included in the core NAS activities (see main text).
- The Action Plan for NAS Monitoring has been completed (see main text).
- Reports have been drawn up for the EU (notes to 'country fiche' of the Netherlands) and the UN (chapter on climate adaptation in National Communication 7 under the UNFCCC).
- Initial preparations have been made for the Conference on Heat Stress.

Other actions and products stated in progress reports in accordance with Chapter 4 of NAS 2016

- Research has revealed a large number of vulnerable sites in the vicinity of railways. Because of the very limited risk that problems will occur in a specific site and the high investment costs per site, no proactive investments will be made in making these locations 'water-robust'. A proposal has been submitted to explicitly incorporate water risks in construction projects (Directorate-General for Accessibility and ProRail).
- Research is continually being conducted into gaps in knowledge about the effects of climate change on the transport system, including research into chain effects. The Directorate-General for Public Works and Water Management has started a project on Climate-Proof Networks (in collaboration with the Directorate-General for Accessibility).
- Under the Delta Plan for Agricultural Water Management, the agriculture sector and the water authorities have concluded agreements about climate-proofing regional water management.
- The Ministry of Agriculture, Nature and Food Quality has commissioned WUR to investigate possible physical and financial measures to be taken by farmers to mitigate the effects of climate change, and particularly extreme weather conditions, on open-field cultivation.
- In November 2017, the effects of climate change were included in the 2018 edition of RIVM's four-yearly Public Health Status and Foresight study *(Volksgezondheid Toekomstverkenningen*, VTV).
- On 30 August 2017, a guidance document was published on incorporating climate change and energy issues into the MIRT programme, with the aim of ensuring that climate adaptation is considered in government investment programmes (Directorate-General for Public Works and Water Management).
- A climate plan for the islands of Bonaire, Sint Eustatius and Saba has been included in the Action Plan for the Caribbean Netherlands.

Other actions and products of NAS partners

- 15 September 2017: 'Head Above Water: Non-Life Insurance in a Time of Climate Change', a publication of the Dutch Association of Insurers about the expected future costs of claims due to climate change. In this report, the Association expresses concern about this trend, and makes twelve recommendations.
- 5 October 2017: 'The Dutch Financial Sector: Safe Behind the Dikes?', an exploration of climaterelated financial risks published by the Central Bank of the Netherlands (DNB). DNB will integrate and embed climate risks into its supervisory and monitoring activities, and is currently conducting a climate-related stress test among non-life insurers.
- 18 September and 12 October 2017: A preparatory meeting and an information meeting entitled 'Climate adaptation: from best practices to standards' were organized on 18 September and 12 October, respectively, together with partners NEN and DPRA and in collaboration with CROW and SBRCURnet. The purpose was to inform market parties, gauge demand, and strengthen collaboration between public and private parties in the development of climate adaptation standards.
- 16 November: The Central Government Real Estate Agency and the NAS team start studying ways to climate-proof government buildings.

Actions and interim results of dialogue on insurability of (non-critical) risks

The Dutch Association of Insurers has started a climate adaptation dialogue with the central government (NAS), ministries, DNB, Adfiz, KNMI, IPO, VNG and UvW.

- Two consumer surveys were conducted for the purpose of this dialogue.
- The Association set up a Climate Issues Committee, which produced a report entitled 'Head Above Water: Non-Life Insurance in a Time of Climate Change'.
  - KNMI has recalculated its scenarios, which show that the costs of claims will increase by an additional 250 million euros per year if no measures are taken.
  - An overview has been prepared of the general coverage of weather-related damage to buildings, vehicles and glasshouses containing crops (for private and business customers).
  - The report identifies a number of issues, and offers twelve recommendations on dealing with the effects of climate change. A number of these recommendations are currently being implemented.
  - One recommendation advised communicating about flood risks (currently virtually uninsured), and this has since been done.
- The remit of the Salvage Foundation has been expanded to ensure that the Foundation can take action on behalf of insurers in the event of water and storm damage. http://www.stichtingsalvage.nl/het-werk-van-salvage/
- In the past year, insurers have developed various (sometimes competing) initiatives aimed at handling damages as quickly as possible in the event of a disaster, for instance by centrally coordinating the performance of repairs by garages and by directly hiring foreign experts. Similar solutions are being devised for buildings.
- In consultation with KNMI, the sector (i.e. the Climate Issues Committee) is currently concluding agreements to provide support for the validation of hail observations by supplying claims data.
- A project group has been established to investigate the insurability of minor flood damage caused by precipitation.
- The Dutch Association of Insurers has created a dedicated website about climate risks at www.verzekeraars.nl/klimaat.
- The Association has given presentations for members and stakeholders to raise awareness of this important topic.
- The Association will organize a webinar for insurers as well as advisers and intermediaries, who play an important role in helping entrepreneurs to manage risks effectively.
- The Association has posted additional information for consumers on the website vanatotzekerheid.nl, including references to tips https://www.vanatotzekerheid.nl/begrippen/noodweer/
- Talks have been held with the Dutch Federation of Agriculture and Horticulture and the Ministry of Agriculture, Nature and Food Quality about the handling of damage claims resulting from extreme weather in May and June 2016 in the south-east of the Netherlands.
- The Association is contributing to a WUR study about climate impacts on open-field cultivation and the financial resilience of agricultural entrepreneurs. This study provides insight into the demand for extreme-weather insurance in the agricultural sector.
- The board of the Non-Life Insurance Sector has identified the issue of climate change as a top priority, and the Association will implement the relevant recommendations in the coming years.

Relationship between the NAS and the Delta Plans for Water Safety, Fresh Water and Spatial Adaptation (part of the National Delta Programme)

The NAS does not address the challenge of ensuring water safety or the availability of sufficient fresh water, and as such displays no overlap with these Delta Plans. However, there are interfaces between the fresh water supply, agriculture and nature conservation. A sufficient supply of fresh water of good quality is essential for nature as well as the agricultural sector. Conversely, measures affecting agriculture and nature can contribute to solutions for the fresh water supply. For instance, the demand for water may be reduced by encouraging the cultivation of (relatively) drought-resistant crops. The relationship with the Delta Plan for Spatial Adaptation is described in the text box at the end of Chapter 5.

Appendix 2 Circle diagrams, version of February 2018

The 'Built Environment' supply chain will be added to the circle diagrams in 2018 (see page 16).

English_Bollenschema_warmer_V18C_UP, februari 2018

National Climate AdaptationStrategy (NAS)

Climate trends, climate impacts and consequences for sectors

Climate trend

Climate impact

Implications for sectors

Sectors

- Water and spatial management
- Nature
- Agriculture, horticulture and fisheries
- Health
- Recreation and tourism
- Infrastructure (air, road, rail, water)
- Energy
- IT and telecommunications
- Safety and security

Impact

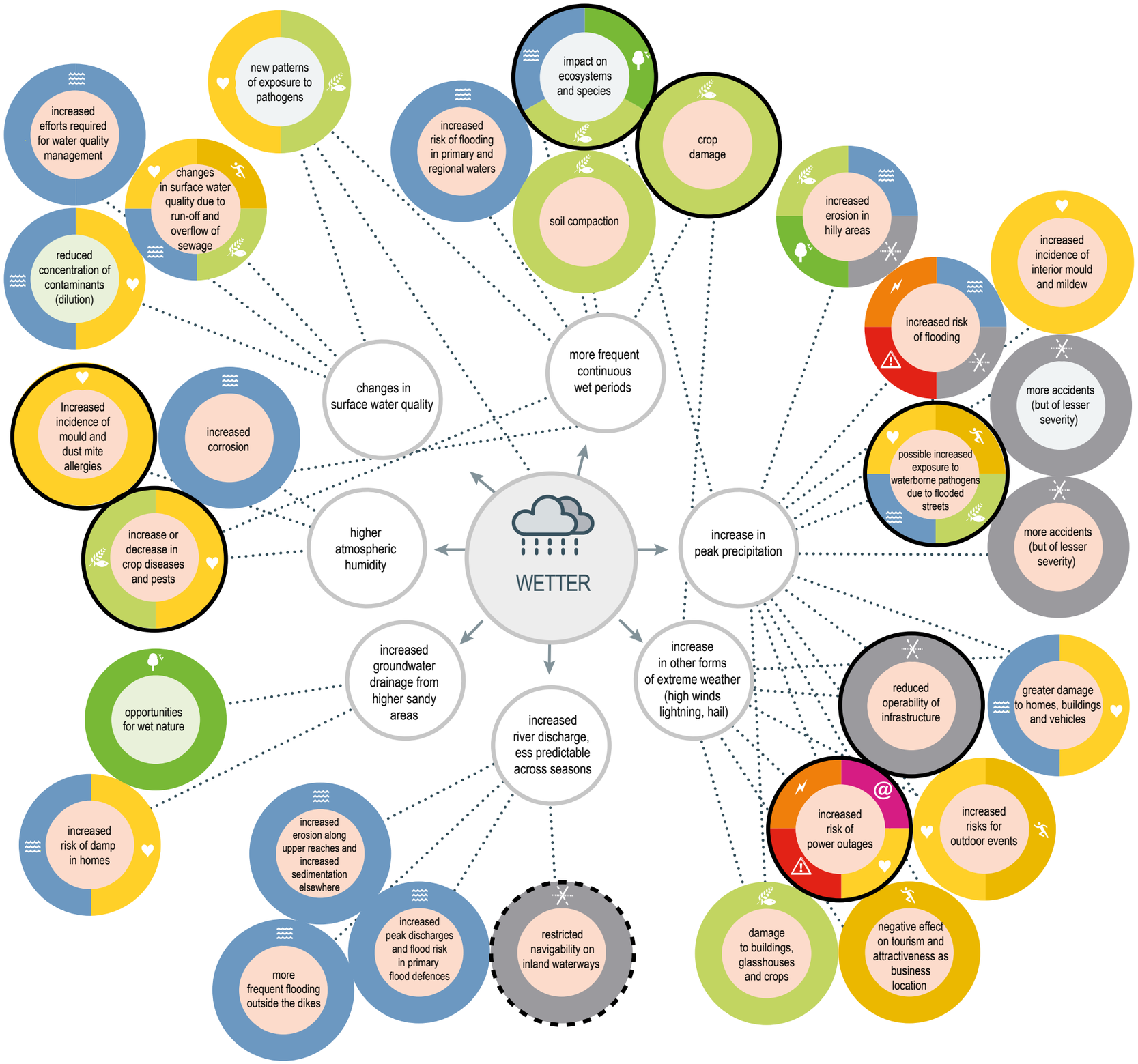
- Medium to marked effect: this decade
- Marked effect: this century

Nature of effect

- Effect is an opportunity
- Effect is a threat
- Unclear whether effect is an opportunity or a threat

source:
- PBL, Aanpassen met beleid klimaatverandering klimaatverandering ('Adapting to climate change'), 2013
- PBL, Aanpassen aan klimaatveranderingklimaat-verandering ('Adapting to climate change'), 2015
- NAS workshop sessions, 7 June, 1 September and 12 October 2016

Disclaimer: These diagrams offer a simplified and incomplete representation of the actual situation. In the interests of clarity, not all components of the known causal relationships are shown.
P.M. Scientific check on this version



English_Bollenschema_wetter_V18C_UP, februari 2018

National Climate AdaptationStrategy (NAS)

Climate trends, climate impacts and consequences for sectors

WETTER — Climate trend

increase in other forms of extreme weather (high winds, lightning, hail) — Climate impact

increased risk of power outages — Implications for sectors

Sectors

- Water and spatial management
- Nature
- Agriculture, horticulture and fisheries
- Health
- Recreation and tourism
- Infrastructure (air, road, rail, water)
- Energy
- IT and telecommunications
- Safety and security

Impact

- Medium to marked effect: this decade
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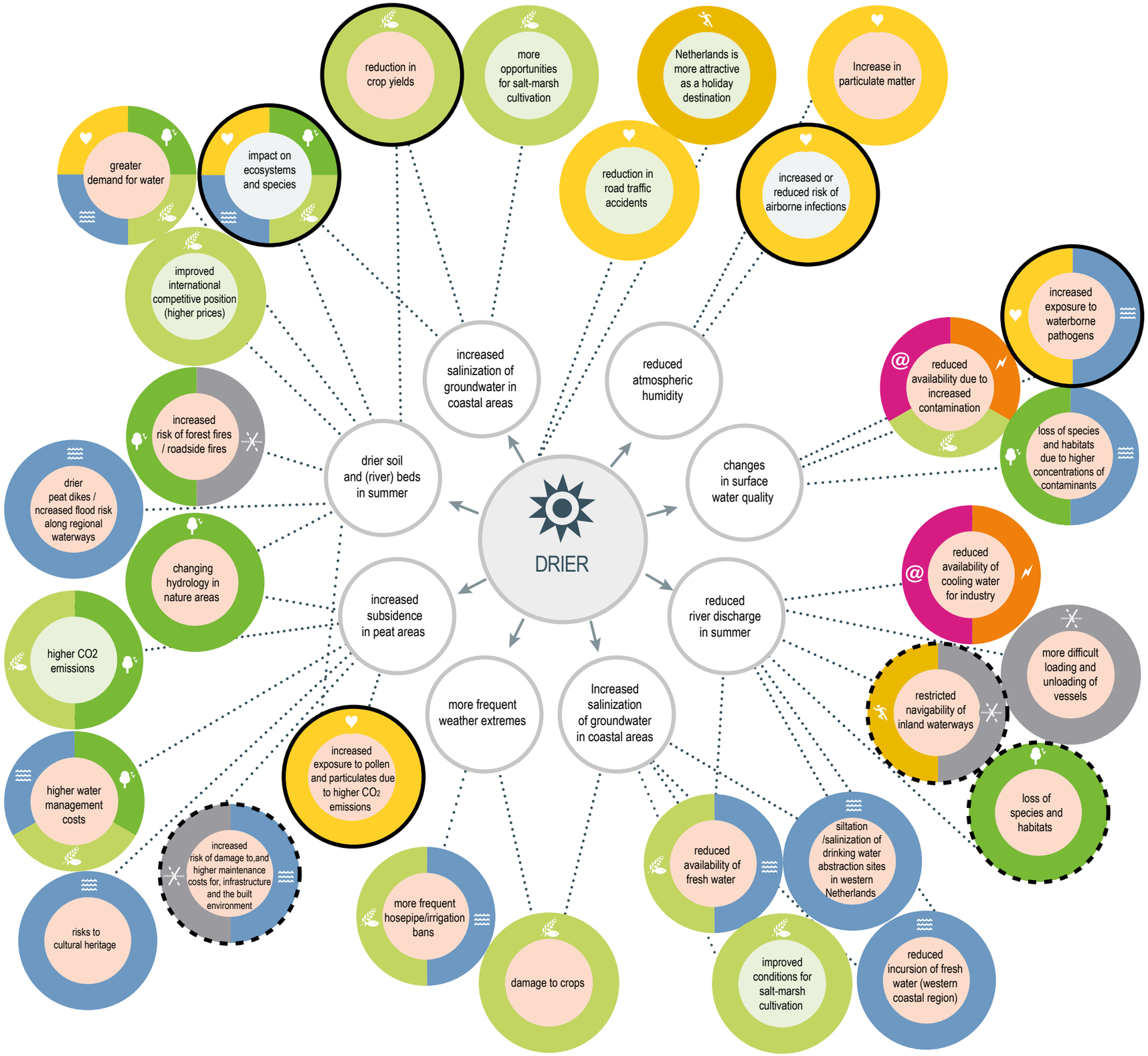

English_Bollenschema_droger_V18C_UP, februari 2018

National Climate AdaptationStrategy (NAS)

Climate trends, climate impacts and consequences for sectors

DRIER — Climate trend

changes in surface water quality — Climate impact

reduced availability due to increased contamination — Implications for sectors

Sectors

- Water and spatial management
- Nature
- Agriculture, horticulture and fisheries
- Health
- Recreation and tourism
- Infrastructure (air, road, rail, water)
- Energy
- IT and telecommunications
- Safety and security

Impact

- Medium to marked effect: this decade
- Marked effect: this century

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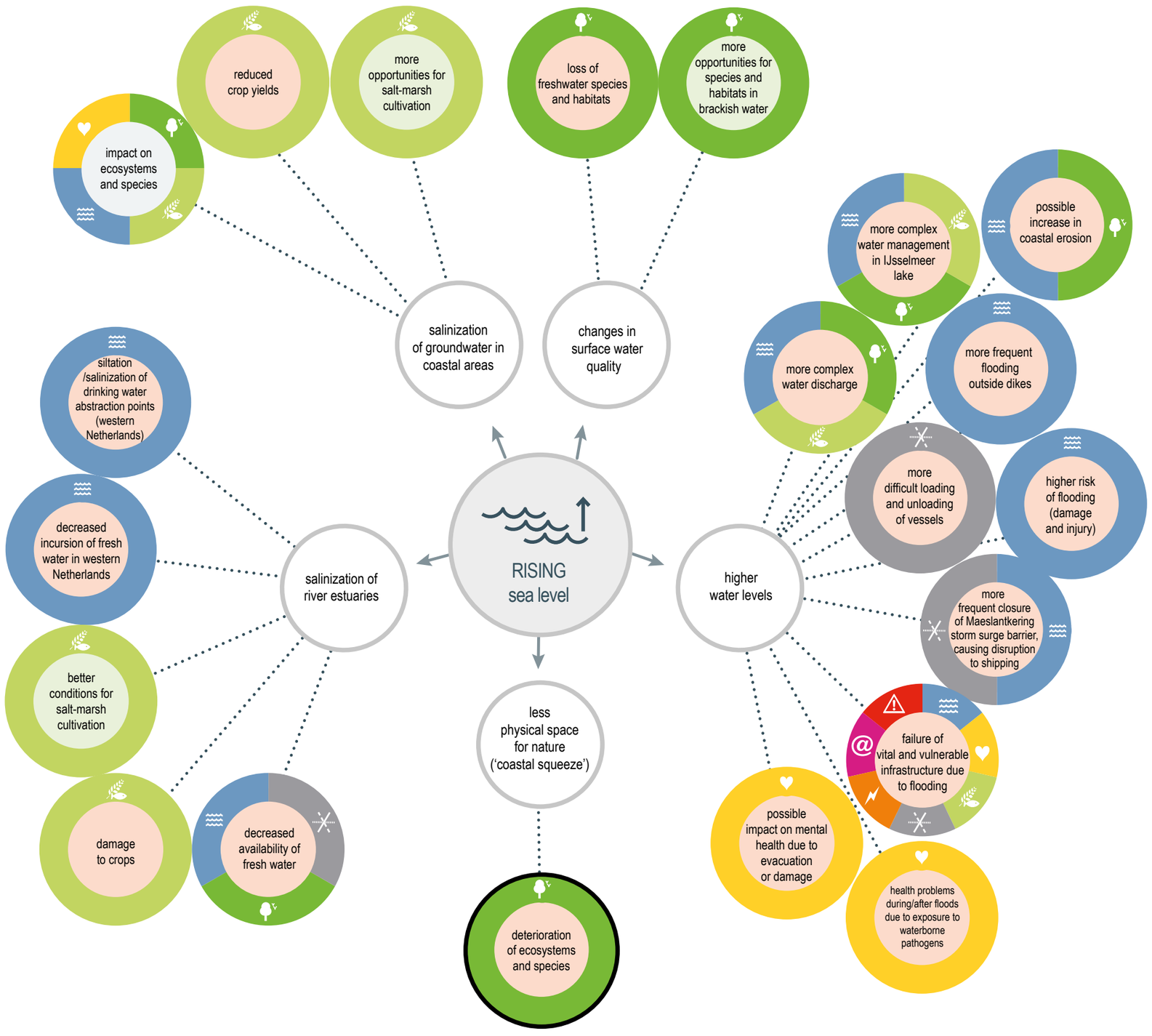

English_Bollenschema_zeespiegel_V18C_UP, februari 2018

National Climate AdaptationStrategy (NAS)

Climate trends, climate impacts and consequences for sectors

RISING seal evel — Climate trend

higher water levels — Climate impact

failure of vital and vulnerable infrastructure due to flooding — Implications for sectors

Sectors

- Water and spatial management
- Nature
- Agriculture, horticulture and fisheries
- Health
- Recreation and tourism
- Infrastructure (air, road, rail, water)
- Energy
- IT and telecommunications
- Safety and security

Impact

- Medium to marked effect: this decade
- Marked effect: this century

Nature of effect

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- NAS workshop sessions, 7 June, 1 September and 12 October 2016

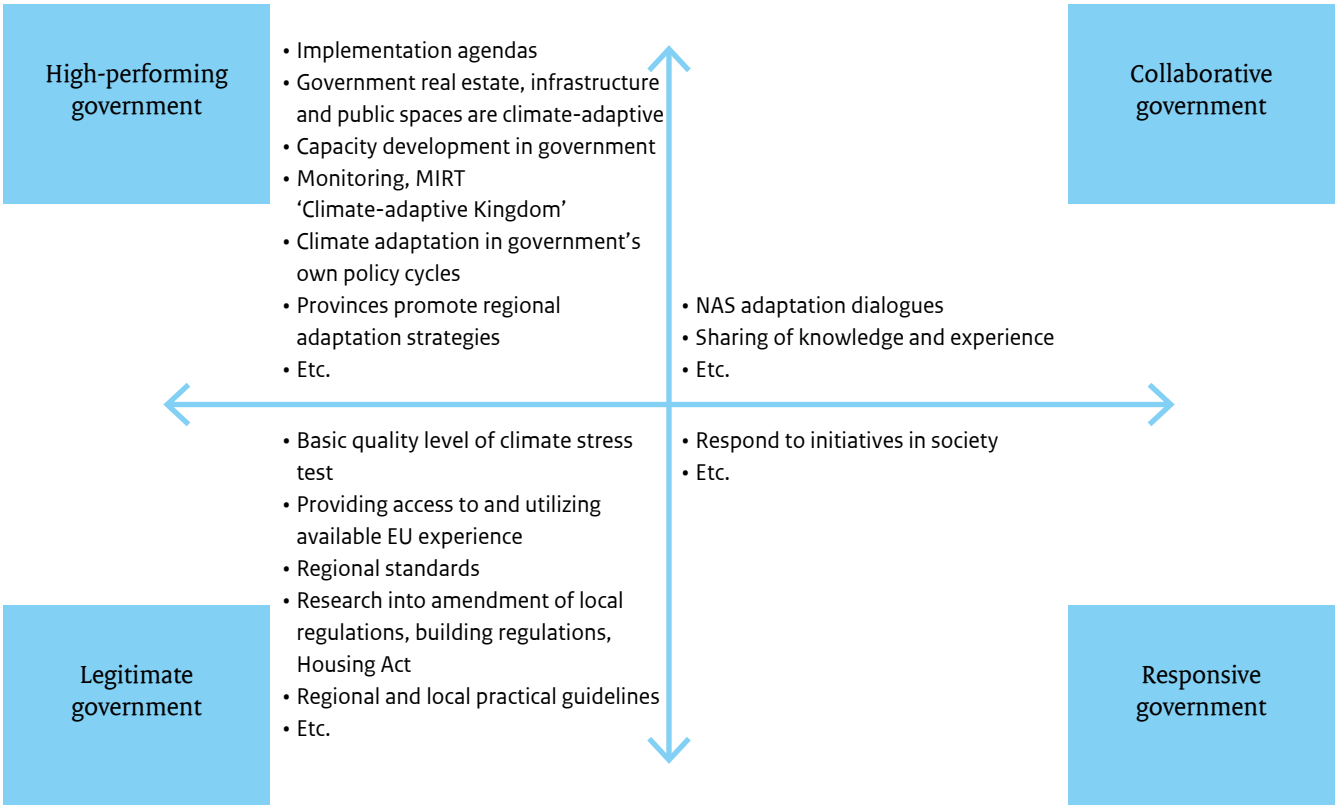
Disclaimer: These diagrams offer a simplified and incomplete representation of the actual situation. In the interests of clarity, not all components of the known causal relationships are shown.
P.M. Scientific check on this version

Appendix 3 Roles of government in climate adaptation

Climate change is generally regarded as one of the most challenging issues facing the world, both today and in the future. Climate adaptation is a complex undertaking, not least because it requires a special commitment from the government. Tackling this challenge not only requires collaboration between the different tiers of government – from international to local – but also involves nearly all policy domains. The government is expected to issue laws and regulations, implement them and collaborate with the parties involved, and to encourage and facilitate processes within society. This requires a range of governance methods. All these government roles are covered in the Implementation Programme of the National Climate Adaptation Strategy (UP NAS).

By way of illustration, the figure below provides a non-exhaustive overview of possible actions, categorized according to the various roles that can be played by the government. No distinction has been made between the different tiers of government. The subsidiarity principle must be applied to each activity, i.e. decisions must be taken at the lowest possible level

Source: *'Koers IenM 2016-2020'* (Strategy of the Ministry of Infrastructure and Water Management for 2016-2020) (p.14). The types of government roles are derived from 'Learning by doing: Government participation in an energetic society', a publication of the Netherlands School of Public Administration (NSOB) and the Netherlands Environmental Assessment Agency (PBL).



Appendix 4 Description of action-oriented climate adaptation dialogue

This description dates from early 2017. This Implementation Programme explains that action-oriented climate adaptation dialogues are now regarded as a core NAS activity, and that all action lines identified in NAS 2016 will be included in these dialogues, where possible and appropriate. The description below will therefore be updated in 2018.

The action-oriented national climate adaptation dialogue has been developed as a working method by the NAS project team. Climate adaptation requires the involvement and engagement of both public and private parties, with each party making a contribution based on its own responsibilities and remit. In a climate adaptation dialogue, the parties involved engage in discussion about one or more climate impacts.

During such a dialogue, the participants prioritize one or more climate risks, jointly investigate how the effects can be managed, and draw up an outline plan and action programme that may also include amendments to laws and regulations if required.

A climate adaptation dialogue can be set up if a (potential) urgent climate risk exists for which mitigating measures have not yet been identified and/or implemented. The dialogue may focus on a specific sector, theme or supply chain. Engaging in such a dialogue raises awareness of the relevant adaptation problem(s) among the parties involved.

The participants assume the responsibilities and implement the actions that are appropriate to their core activities. During the dialogue, the parties involved provide access to and utilize the available knowledge. They may also encounter knowledge gaps and make arrangements on how these gaps can be addressed. In addition, the parties involved make arrangements on how best practices can be shared and applied, and how the progress of the action programme is to be monitored and managed.

A climate adaptation dialogue is an ongoing process that may take several years. A well-prepared kick-off meeting or theme-based meeting is held to mark the start of the process. During this process, the dialogue participants will address the six action NAS 2016 lines:

- Increase awareness of the necessity of climate adaptation
- Encourage the implementation of climate adaptation measures
- Develop and exploit the knowledge base
- Address urgent climate risks
- Embed climate adaptation within policy and legislation
- Monitor the progress and effectiveness of climate adaptation policy

The following general step-by-step plan is recommended:

Step 1 (orientation, building trust and commitment)
In principle, the core team of the relevant climate adaptation dialogue and a small number of other parties directly involved will take the initiative:
- Define and elaborate the sector or risk concerned
- Set up a small project group consisting of key actors to organize the first climate adaptation dialogue
- Identify effects of flooding and possible impacts, and/or survey the issue or question at hand, and describe the outlines of a possible adaptation strategy (initial version of outline plan for the relevant climate adaptation dialogue)
- Consider objectives. Identify parties involved or to be involved in the climate adaptation dialogue by means of the outline plan, obtain initial reactions to outline plan
- Conduct a force field analysis to identify positions and conflicts

Step 2 (exploration)
- Organize first climate adaptation dialogue meeting attended by interested parties (intended size: 30 to 50 participants)
- The report of this meeting is the elaboration and further specification (i.e. version 2) of the outline plan
- First outline of work packages

Step 3 (convergence)
- Based on version 2 of the outline plan, commitment is obtained from key players in the form of investment in the climate adaptation dialogue (money and/or capacity)
- In collaboration with owners, an action plan is drawn up to accompany version 2 of the outline plan, including a budget and work packages with objectives and partial action plan(s)

Financing: by parties involved.

Step 4 (decision-making)
- Execute action plan at work package level
- Hold a meeting once or twice a year, where the progress and results of the various work packages are presented and discussed, and the overall progress of the climate adaptation dialogue is monitored Relevant points for attention: sharing knowledge, research questions, governance issues and financing

Financing: by parties involved

Each step results in a report with arrangements on substance, procedure and follow-up.
Ongoing:
- Communication about progress, preferably via the sector page on the NAS website at www.ruimtelijkeadaptatie.nl

Primary responsibility: NAS team

The above description should be regarded as a guideline, and not as a mandatory, 'set-in-stone' procedure. Of course, parties are free to elaborate and tailor the procedure to their own requirements and to add elements and/or deviate from it when developing a new climate adaptation dialogue, and in this way contribute to the ongoing development of the instrument.

Appendix 5 Support for regional climate adaptation strategies

In NAS 2016, the central government asked provincial authorities to take the lead in drawing up regional climate adaptation strategies. NAS 2016 calls on municipalities and provincial authorities to include climate adaptation in their environmental policy documents. In the Delta Plan for Spatial Adaptation, the government bodies involved subsequently agreed that they would embed spatial adaptation in their environmental policy documents and plans by 2022 at the latest.
Where required, this Implementation Programme (UP NAS) supports the regional climate adaptation strategies and implementation plans, with due attention to the role of provincial authorities and partnerships in ensuring the manageability of climate risks. The NAS does not cover governance structures.

Overijssel provincial authority

The Overijssel provincial authority published the Overijssel Regional Adaptation Plan (RAP) in late 2017. In line with the NAS, the RAP is aimed at raising awareness of matters that require attention, encouraging the parties involved to develop an effective approach, and providing additional support where needed. The RAP was developed in consultation with municipalities, water authorities, municipal health services, site managers, social partners, and companies like Vitens, TenneT and various project developers.
In the course of 2018 an implementation agenda will be elaborated in consultation with the RIVUS water chain network, the City of Zwolle and the Overijssel provincial authority, in order to ensure that the various strategies complement each other at the provincial, regional and local level.

Climate adaptation strategy of RIVUS network
The following parties are members of the RIVUS water chain network: Drenthe-Overijssel Delta Water Authority, Vitens, and the municipalities of Zwolle, Deventer, Kampen, Raalte, Dalfsen, OlstWijhe, Staphorst and Zwartewaterland.
Together, these parties are drawing up a climate adaptation strategy which addresses the full scope of climate change and its implications in terms of spatial planning. The strategy is currently in the preparation phase.

Gelderland provincial authority

The Gelderland Provincial Executive acknowledges that adapting to climate change is an urgent and vital challenge for society as a whole. Gelderland will work on an implementation agenda to ensure that climate adaptation is thoroughly integrated into the provincial authority's policies and actions by 2020. The further development of the environmental policy document (which started in 2017) provides guidance for this process. In addition, Regional Climate Adaptation Strategies (RAS) are being elaborated together with municipalities and water authorities in Gelderland. In this process, the provincial authority creates connections, facilitates, and provides inspiration.

Climate adaptation strategy of Rijk van Nijmegen / Land van Maas en Waal region
The Rivierenland Water Authority, the Gelderland provincial authority and the municipalities of Nijmegen, Beuningen, Druten, Heumen, West Maas en Waal, Wijchen and Berg en Dal are working on a joint Regional Climate Adaptation Strategy (RAS) which addresses the full scope of climate trends. The collaborating government bodies will then draw up an implementation programme, execute it, and report on progress.

Provincial authorities approach the issue of climate adaptation in various ways. The approaches of the provincial authorities of North Brabant, Gelderland, South Holland and Overijssel are good examples: they vary widely (see text boxes), but are all inspiring in their own way. Provincial authorities are central to addressing the challenge of climate adaptation and fulfil various roles and functions. They have a statutory role (fulfilling their responsibility for policy-making in such domains as infrastructure and nature conservation), they take the lead in various processes (encouraging a broad-based approach focusing on all sectors and parties involved), and they also fulfil a supervisory role. Provincial authorities can also act as a catalyst for municipalities that are not yet working on climate adaptation (i.e. setting an example).

Brabant province

The southern provinces of Brabant and Limburg have submitted a joint proposal to the Minister in which they state that they wish to accelerate the implementation of the Delta Plan for Spatial Adaptation and take the lead in the field of climate adaptation (for the entire scope of the NAS).
The Brabant provincial authority is working on an implementation programme, and believes that it can play a role in sharing knowledge (via a provincial climate portal), performing monitoring, implementing measures, analysing effects, encouraging the performance of stress tests, cofinancing (including making wider use of sectorbased sources of financing), and of course in climateproofing its own water, nature and environmental policies for urban as well as rural areas. A link is also made with the policy domains of health and liveability.

Climate strategy for North-East Brabant
De Dommel Water Authority, Aa & Maas Water Authority, 17 municipalities and the Southern Agriculture and Horticulture Organization (ZLTO) are preparing a climate strategy which covers water problems, water quality, combating drought, climate-proof regional business estates, developing stress test expertise, raising general societal awareness, and setting up climate pilot projects. The Brabant provincial authority regards these projects as a regional agreement to accelerate the transition, and wishes to help tackle the societal challenge of creating a climate-proof region. The projects will start in January 2018.

South Holland provincial authority

The province of South Holland is working with municipalities and water authorities on a programme to realize a climate-proof province. This programme will describe how the provincial authority intends to utilize its own portfolio (policies, powers, implementation), and also encompasses the regional implementation agendas agreed with the municipalities and water authorities. The programme is scheduled to be completed by late 2018. Among other things, the province will focus on 'green-blue' connections (between green areas, waterways and bodies of water), and on the long-term availability of fresh water, multi-layer safety, and soil subsidence in relation to area development and urbanization. The South Holland provincial authority considers its task as mainly consisting of developing knowledge, creating administrative commitment, providing process support, and concluding regional implementation agreements.

Voorne-Putten climate adaptation strategy
The municipalities of Hellevoetsluis, Nissewaard, Westvoorne and Brielle and Holland Delta Water Authority are charged with the task of preparing a climate adaptation strategy which addresses water problems, heat stress, the availability of fresh water, vulnerability to flooding, nature, and health. The municipality of Hellevoetsluis is taking the lead in this project. The resulting climate adaptation strategy is expected to be adopted in the spring of 2018.

Colophon
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