



# Adaptation preparedness scoreboard:

## Draft country fiche for the Netherlands

### Disclaimer

This draft country fiche was prepared in the context of the implementation of the EU's Strategy for Adaptation to Climate Change (EUAS). The indicators were developed and agreed with experts from the Member States (MS). This draft version of the fiche is published as background information to the public stakeholder consultation about the evaluation of the EUAS running from early December 2017 to early March 2018. It constitutes work in progress, a particular stage of information collection and dialogue between the Commission and the Member States. It presents a snapshot of the status in the country as of September or October 2017. The fiches are planned to be finalised and published as an annex to the strategy's evaluation report in the fourth quarter of 2018, before which they will be further updated and modified. Should you have any specific comments on the draft fiche, please send it to the mailbox [CLIMA-CLIMATE-CHANGE-ADAPTATION@ec.europa.eu](mailto:CLIMA-CLIMATE-CHANGE-ADAPTATION@ec.europa.eu)

Please note that the assessments (yes/no/in progress) need to be read in conjunction with the narrative that accompanies them. They assess the state of play *within* each country. While all effort has been made to ensure the coherence across fiches in the assessment of the same indicator, it should not be directly compared across the MS. Two countries with a "yes" on the same indicator could have a different national situation leading to that assessment. Not all indicators have the "in progress" status, some can only be "yes" or "no". For a more detailed explanation of what each indicator means and how its value is determined, please refer to the description of the scoreboard, a document published alongside the country fiches.

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## POLICY FRAMEWORK

### Adaptation strategies

#### A1. National adaptation strategy

Dutch adaptation policy comprises two main elements:

- The 2016 National Climate Adaptation Strategy<sup>1</sup> (NAS) "Adapting with Ambition", (preceded by a 2007 NAS "Make Space for Climate"), which sets out a general policy for tackling the effects of climate change.
- The Delta Programme, which was initiated in 2010 and entered into force in January 2012.

The historically evident threat of sea level rise combined with storm surges, coastal flooding and fluvial flooding events which are expected to be amplified by climate change, have led to the integration of climate change adaptation into disaster risk reduction plans and projects in the Netherlands.

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<sup>1</sup> <http://ruimtelijkeadaptatie.nl/english/nas/>

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The Delta Programme<sup>2</sup> re-evaluates water management in light of long-term sustainable development and in the context of a changing climate, It is built on the legal framework 'the Delta Act on flood safety and freshwater supply' (hereafter: the Delta Act). The Delta Act anchors the Delta Programme, the Delta Fund and the role of the Delta Commissioner. The Delta Act entered into force on 1 January 2012.

The 2016 NAS goes beyond the focus on water of the Delta Programme and addresses the entire spectrum of climate impacts and opportunities. The NAS focuses on six climate impacts which are urgent to address: the impact of extreme weather on health stress; the impact of extreme weather events on critical infrastructure, such as energy and ICT; the impact of extreme weather on agriculture and horticulture; the impact of shifting climate zones on nature; health impacts and loss of labour productivity impacts due to a possible increase of allergies and infections; and cumulative effects, whereby failures in one sector or location have an impacts on other sectors or locations. Also the effects of climate change in third countries, both within and outside Europe, which have impacts on Dutch society and economy are covered in the NAS. The NAS shows the effects of climate trends on nine different sectors (water & special planning; nature; agriculture, horticulture and fishery; health; recreation & tourism; infrastructure; energy; ICT and telecom; security).

The 2016 NAS was developed following a call from the Dutch government in the 2013 Netherlands Climate Agenda, to develop by 2017 a NAS as a follow-up to the 2007 NAS. The decision for a revised NAP was taken both in response to a 2012 review of the Netherlands Court of Audit, which argued that climate change policy in the Netherlands displayed little coherence and did not cover all vulnerable areas, as well as to the the European Commission's call to all EU Member States to have an adaptation strategy in place in 2017.

### **A2. Adaptation strategies adopted at subnational levels**

In 2009, the Dutch provinces signed an agreement with the national government to mainstream climate adaptation into spatial planning by 2015. By now, most provinces have developed climate adaptation action programmes<sup>3</sup>. Ten out of twelve provinces have published key vulnerability assessments; nine have published key policy or planning documents aimed at adaptation.

Also many municipalities and regional water authorities have published plans on climate change adaptation.

As part of the Dutch Polder model, many authorities work closely together on climate adaptation. The Delta Programme, including the recently (September 2017) published Delta Plan Spatial Adaptation is a reflection of this close cooperation between the national government, provinces, regional water authorities and municipalities. The Association of Provinces of the Netherlands (IPO), the Association of Netherlands Municipalities (VNG) and the Association of Regional Water Authorities (UvW) published on 10 March 2017 their Investment-Agenda<sup>4</sup>. This agenda contains goals, concrete objectives and actions on climate change adaptation. A common priority identified is the

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<sup>2</sup> <http://english.deltacommissaris.nl/>

<sup>3</sup> See for (an evaluation of 240) examples the 'quick scan climate adaptation', issued by the IPO (interprovincial assembly) on <http://www.ipo.nl/publicaties/ipo-publiceert-quick-scan-klimaatadaptatie>

<sup>4</sup> "Investeringsagenda naar een duurzaam Nederland". <https://vng.nl/onderwerpenindex/milieu-en-mobiliteit/energie-en-klimaat/nieuws/decentrale-overheden-presenteren-duurzame-investeringsagenda>

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mainstreaming climate adaptation into water management, spatial planning, nature policy, agriculture and economic policy.

### **Adaptation action plans**

#### **B1. National adaptation plan**

The implementation of the Strategy has started in 2017 with the installation of a new project group. One of the main tasks of this project group is to deliver an implementation programme for 2018-2019. The project group will work in networks of national, regional and local governments, NGO's and private sector.

The sub programmes<sup>5</sup> of the Delta Programme resulted in a set of five Delta Decisions<sup>6</sup> (adopted in September 2014). In the autumn of 2014, the Cabinet discussed the Delta Decisions further with the House of Representatives and embedded the Decisions in, among other things, the National Water Plan, the Water Act and administrative agreements with other governments. In the years ahead, the emphasis will shift more towards implementation<sup>7</sup>.

The Delta Programme is a national programme implemented by the central government in cooperation with the provinces, municipalities and regional water authorities. The business community, citizens, research institutions and civil society organisations also contribute. The regional water authorities are essential for the implementation of (regional) water management and for the management and maintenance of dikes and coastal dunes. Provincial and local authorities are important for spatial planning, nature conservation and area development. Central government, provinces, regional water authorities and municipalities work together in the sub-programmes of the Delta Programme. Regional steering groups provide advice on decisions, strategies and measures as well as on opportunities for using an integrated approach following the common Multi-Annual Programme for Infrastructure and Transport Projects (MIRT).<sup>8</sup> Each year, the Delta Commissioner sends a Delta Programme to parliament. This includes Delta Plans on protection against flooding and water scarcity/droughts. In September 2017 the first "Delta Plan Spatial Adaptation" has been sent to parliament.

#### **B2. Adaptation plans adopted at sub-national level**

Authorities at the provincial level carry out climate change adaptation activities, according to an agreement with the national level. As aforementioned, ten out of twelve provinces have published key studies/assessments of the climate impacts and vulnerabilities affecting the respective region. Of these ten, eight have collaborated with the Climate Change Spatial Planning research programme to create their 'Climate Impact Sketchbooks'. These sketchbooks include key assessments of climate impacts and vulnerabilities affecting a province and provide a base for developing provincial level planning documents. Some of these documents provide a broad overview of adaptation strategies to undertake, whilst a few focus on specific areas such as agricultural or

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<sup>5</sup> <http://english.deltacommissaris.nl/delta-programme/contents/regions-and-generic-topics>

<sup>6</sup> <http://www.rijksoverheid.nl/onderwerpen/deltaprogramma/vijf-deltabeslissingen>

<sup>7</sup> See also <http://english.deltacommissaris.nl/delta-programme/contents/delta-decisions>

<sup>8</sup> <https://www.mirtoverzicht.nl/mirt-overzicht-2017/het-mirt-en/duurzaamheid>

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biodiversity adaptation needs. Priority sectors covered are water management, health, agriculture and forestry, recreation and infrastructure.<sup>9</sup>

A number of municipalities started to develop adaptation policies and even released local adaptation strategies, for example the cities of Rotterdam (with its Rotterdam Climate Initiative<sup>10</sup>) and Amsterdam (Amsterdam Rainproof<sup>11</sup>). Many more examples exist, as summarized in the climate portal<sup>12</sup>.

### B3. Sectoral adaptation plans

At sectoral level, climate adaptation efforts focus on protecting vital and vulnerable functions to the (future) impacts of climate change. Within the framework of the Delta Programme Spatial Adaptation, the programme "Vital and Vulnerable" was published and was accompanied by a progress report<sup>13</sup>. This report focuses on the protection of vital and vulnerable functions against the consequences of flooding, and noted that issues of heat stress, drought and excessive rainfall had not previously been sufficiently addressed. Therefore, the implementation of the Delta Programme Spatial Adaptation, the "Delta Plan Spatial Adaptation," will particularly address these issues. The NAS aims at incorporating these issues in its implementation programme, taking a broader perspective.

Rijkswaterstaat, the executive part of the Ministry of Infrastructure and Environment and responsible for transport infrastructure and water management, is developing a working programme for climate resilient networks: roads, waterways and water systems. In this programme, the actions that are actually and already taking place in this field will be embedded.

The Delta Plan Agrarian Water Management<sup>14</sup> (DAW) has been initiated by the Dutch Union of Farmers (LTO) on request of the Dutch Government. The DAW is directed at water issues related to an economic strong and sustainable agriculture. DAW provides for cooperation between the agricultural sector and the regional water authorities. Water-related issues addressed are: water quality, salinization, water shortages and abundant water.

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<sup>9</sup>[http://www.ipo.nl/files/6213/5731/2359/ipo\\_uitvoeringsprogramma\\_klimaat\\_energie\\_en\\_ruimte\\_2010\\_definitief.pdf](http://www.ipo.nl/files/6213/5731/2359/ipo_uitvoeringsprogramma_klimaat_energie_en_ruimte_2010_definitief.pdf) As example, climate effect atlas Zuid-Holland:

<https://pzh.maps.arcgis.com/apps/MapSeries/index.html?appid=64c6ea0ab8944935afe44ea93d9739de>

<sup>10</sup> <http://www.rotterdamclimateinitiative.nl/documents/2015-en-ouder/Documenten/RCI-RAS-2013-NL-LR.pdf>

<sup>11</sup> <https://www.rainproof.nl/>

<sup>12</sup> <https://ruimtelijkeadaptatie.nl/>

<sup>13</sup> <https://www.deltacommissaris.nl/deltaprogramma/documenten/publicaties/2017/09/19/dp2018-d-derde-voortgangsrapportage-aanpak-nationale-vitale-en-kwetsbare-functies>

<sup>14</sup> <http://agrarischwaterbeheer.nl/content/deltaplan-agrarisch-waterbeheer>

## SCOREBOARD

### Step A: preparing the ground for adaptation

#### 1. Coordination structure

##### 1a. A central administration body officially in charge of adaptation policy making

Yes / No

The Ministry of Infrastructure and Environment is responsible for climate adaptation; more specifically it is the DG for Spatial Development and Water Affairs, Programme Climate Adaptation<sup>15</sup>.

##### 1b. Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities

Yes / In progress / No

Adaptation is led by the Ministry of Infrastructure and the Environment (IenM). This ministry spans several sectors: water, roads/transport and spatial planning. In the NAS the following ministries were involved: Health, Welfare and Sport; Economic Affairs (which includes networks like ICT and nature and agriculture); Security and Justice; Foreign Affairs. For the implementation of the NAS 2016 an interdepartmental working group has started, to which other additional ministries have joined, like the Ministry of Internal Affairs (responsible for housing). Also the regional and local authorities are part of this group as well as the main research institutions, including the Netherlands Environmental Assessment Agency (PBL) and the Netherlands Institute for Public Health and Environment (RIVM).

National adaptation dialogues are an important element of the NAS. They have started, or are in preparation to take place, on the following issues: Health and heat stress, Nature, Insurance and climate change and Agriculture.

##### 1c. Vertical (i.e. across levels of administration) coordination mechanisms exist within the governance system, enabling lower levels of administration to influence policy making

Yes / In progress / No

The Delta programme has clear vertical coordination mechanisms. For the topics flood resilience, freshwater supply and climate-resilient spatial planning seven regional programmes are involving regional and local governments: Rhine Estuary-Drechtsteden, Southwestern Delta, Lake IJssel region, River Rhine, River Meuse, the Coast, and the Wadden Region.<sup>16</sup>

In order to implement the Delta Plans on Safety against Flooding, Water Shortage/Droughts and Spatial Adaptation, various governance structures within the Delta Programme have been set up.

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<sup>15</sup> <http://climate-adapt.eea.europa.eu/countries-regions/countries/netherlands>

<sup>16</sup> <https://english.deltacommissaris.nl/delta-programme/contents/regions-and-generic-topics>.  
<http://ruimtelijkeadaptatie.nl/english/nas/>

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In addition to this, there is a structure called the Dutch Security Regions, (or Dutch Safety Regions) organizing regional platforms of fire services, police and medical services and organizing governments to respond to disasters and crises.<sup>17</sup>

Furthermore, the National Knowledge for Water and Climate change (NKWK) network facilitates voluntarily meetings between the national government, municipalities, provinces and research institutes to develop local projects.<sup>18</sup>

As a result of the National Climate Adaptation Strategy, some provinces, like the Provinces of Overijssel, Zuid-Holland and Noord-Brabant, have started the development of provincial/regional adaptation plans. Not all these plans are evolving as adaptation plans. Some provinces for example choose to incorporate adaptation in the provincial environmental and spatial plan. Besides, at the level of regional cooperation several adaptation strategies/plans are under construction or already in place (f.i. Rijk van Nijmegen, province of Utrecht).

The Union of Dutch municipalities (VNG) and the Union of Provinces (IPO) have brought the Covenant of Mayors to the attention of its members.

Municipalities also follow additional initiatives to enhance climate adaptation. The Alliance of Climate Active Cities is a cooperation between the most active cities in the field of climate adaptation that has been in place for many years. This alliance shares knowledge and experiences with regard to climate adaptation. Finally, a the cooperation structure of the 50 largest cities of the Netherlands (G32) is active in the field of climate adaptation.<sup>19</sup>

## **2 Stakeholders' involvement in policy development**

### **2a. A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies**

**Yes** / No

During and following the new NAS 2016, stakeholders from the following sectors are involved in elaborating response and implementing actions: public health, urban planning, nature, water, transport, energy, agriculture, food, cultural heritage, construction/housing, and insurance. In 2016 three national workshops were organised. Also, the national climate summit in October 2016 was used to consult different government levels, civil society organisations and the private sector with regard to the new NAS. At the same event actions were identified with regard to climate adaptation.<sup>20</sup>

### **2b. Transboundary cooperation is planned to address common challenges with relevant countries**

**Yes** / No

For the large rivers Rhine, Meuse, Ems and Scheldt international committees exist for several decades (before the NAS or the Delta Programme existed). The Netherlands cooperates with many countries, such as Germany, France, Belgium and Switzerland. The International Commission for the Protection of the Rhine published an adaptation

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<sup>17</sup> <https://www.government.nl/documents/decrees/2010/12/17/dutch-security-regions-act-part-i>.

<sup>18</sup> <http://waterenklimaat.nl/>

<sup>19</sup> <https://www.g32.nl/themagroep/duurzaamheid>

<sup>20</sup> <http://climate-adapt.eea.europa.eu/countries-regions/countries/netherlands>

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strategy in 2015<sup>21</sup>: Adaptation to climate change is one of the topics in the other committees; however this is not explicitly linked to the Dutch adaptation agenda. The International Meuse Commission specifically works on adaptation to low water levels, lower water quality and higher water temperatures<sup>22</sup>. For the river Ems, Germany and the Netherlands cooperate on the goals of the Water Framework Directive and the Floods directive.<sup>23</sup> Regarding cross-border nature issues, less evidence can be found.

The NAS itself includes transboundary components. The Netherlands is part of the following macroregional approaches concerning adaptation to climate change: the Benelux and the Wadden Sea Trilateral Cooperation.

In the period 2015-2016 the General Secretariat of the Benelux, in consultation with the Working Group on Climate Adaptation and other Benelux working groups, organised four exploratory workshops on Climate Adaptation in relation to 'Energy', 'Transport & Mobility', 'Public Health in combination with Urban Policy' and 'Risk management'. The conclusions and recommendations of the Benelux workshops on climate adaptation in 2015-2016 can be summarised as follows: <sup>24</sup>

1. *Cross-border collaboration creates added value.*
2. *Strengthening the shared knowledge base*
3. *Growing awareness of the common challenges*
4. *Clearer insight into cross-border impacts and collaboration is necessary*

In 2017-2018 the Benelux-countries will execute a joint cross-border risk analysis in the field of transport energy supply and/or public health. This analysis will have two objectives:

- acquiring a clearer understanding of the cross-border chain and cascading effects from the impacts of climate change and extreme weather events.
- strengthening the network of actors on cross-border Benelux-level.

In the context of the trilateral Wadden Sea cooperation, Denmark, Germany and the Netherlands cooperate to protect the Wadden Sea as an ecological unity. The guiding principle of the trilateral Wadden Sea cooperation is to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes occur in an undisturbed way. Climate change and enhanced sea level rise may seriously impact the structure, functions and biodiversity of the Wadden Sea ecosystem, as well as the safety of its inhabitants.. A Task Group Climate drafted a trilateral strategy on increasing the resilience of the Wadden Sea to the impacts of climate change. This was adopted by the 12<sup>th</sup> Wadden Sea Conference in 2014.

Climate change will have radical consequences for the Caribbean Netherlands, which justifies a separate adaptation plan. The Caribbean Netherlands will be given the opportunity to decide on the formulation of such a plan or similar. Actually no mitigation or adaptation plan for the Caribbean Netherlands are available.

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<sup>21</sup> [http://www.iksr.org/fileadmin/user\\_upload/Dokumente\\_en/Reports/219\\_en.pdf](http://www.iksr.org/fileadmin/user_upload/Dokumente_en/Reports/219_en.pdf)

<sup>22</sup> annual report 2014, see: <http://www.meuse-maas.be/Liens/Belgique.aspx>

<sup>23</sup> <http://www.ems-eems.nl>

<sup>24</sup> For the full text of the conclusions and recommendations: see the Report 'Climate Adaptation in the Benelux : Integrating cross-border collaboration. 2015-2016 Report.



## Step B: assessing risks and vulnerabilities to climate change

### 3. Current and projected climate change

#### 3a. Observation systems are in place to monitor climate change, extreme climate events and their impacts

**Yes** / In progress / No

The Dutch meteorological office, the KNMI Royal Netherlands Meteorological Institute, is legally obliged to provide observations on atmospheric, oceanic and terrestrial indicators and this includes data on extreme weather. It uses a code red/orange/green system to inform the general public about extreme weather events.<sup>25</sup> The national agency Rijkswaterstaat provides online info on water levels along the coast and in the main rivers<sup>26</sup>. Climate impacts are elaborated in the Dutch Climate Effect Atlas which has been updated and published in September 2017.<sup>27</sup> Municipalities and other actors use the atlas to make a first assessment of possible consequences due to climate change.

Monitoring extreme climate events is a responsibility of the KNMI, who maintain long time series on among others, temperature and precipitation extremes (incl. hail), and the frequency and intensity of storms.

The task of monitoring impacts of extreme climate events is distributed across multiple stakeholders in different sectors. In principle the indicators can be grouped into three main categories: economic damage, damage to the environment (including nature) and to human society (including casualties). This corresponds with the PBL vulnerability assessments used in the NAS<sup>28</sup>. Additionally, Rijkswaterstaat indicates that relevant indicators for their infrastructure networks include availability and safety for the roads and the waterways, and water safety (flood protection), sufficient fresh water and clean and healthy water for the water systems.

#### 3b. Scenarios and projections are used to assess the economic, social and environmental impacts of climate change, taking into account geographical specificities and best available science (e.g. in response to revised IPCC assessments)

**Yes** / In progress / No

The KNMI provided downscaled climate scenarios for the Netherlands in 2006 and updated 2014 scenarios for the NAS of 2016<sup>29</sup>. Scenarios are available for the climatological (30-years) periods centred at 2030, 2050 and 2085. A new set of climate scenarios for the Netherlands and related products will be published in 2021, aligned with the sixth assessment cycle of IPCC in order to deliver state-of-the-art climate information. Attention will be paid to observed trends, projection of sea level rise, extreme precipitation, future weather and urban climate information.

The scenarios contain a broad scale of climate variables, from long-term annual average, to the frequency and intensity of climate/weather extremes.

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<sup>25</sup> <http://www.knmi.nl/home>

<sup>26</sup> <http://waterinfo.rws.nl/#!/kaart/waterhoogte-t-o-v-nap/>

<sup>27</sup> <http://ruimtelijkeadaptatie.nl/english/>

<sup>28</sup> <http://ruimtelijkeadaptatie.nl/english/nas/> and <http://www.pbl.nl/en/publications/adaptation-to-climate-change-in-the-netherlands>

<sup>29</sup> <http://www.climatescenarios.nl/>

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The available climate models are quite elaborate, especially from a geographical point of view<sup>30</sup>. In-depth description of specifications and justification of the construction of the latest scenarios can be found in the KNMI library.<sup>31</sup>

### **3c. Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making**

**Yes** / In progress / No

Vulnerability assessments are generally realised through European research projects and national studies. The most important national efforts include reports from the Delta Programme, the Netherlands Environmental Assessment Agency (PBL) advices and the Knowledge for Climate programme. In 2011 a report was published on the vulnerability of vital infrastructure at the national level.. This resulted in a 'dashboard' table of the Ministry of Infrastructure and Environment to initiate and monitor actions for the identified vulnerable infrastructures namely energy, telecom, drinking water, waste water treatment, health institutes, transport, chemical and nuclear facilities<sup>32</sup>. This dashboard resulted in the programme Vitaal en Kwetsbaar (Vital and Vulnerable)<sup>33</sup>.

The PBL published a broad climate change impact report in 2012 (Dutch)/2013 (English<sup>34</sup>), assessing the observed and projected change in climate and their impacts along about 40 indicators. This includes impacts on flood safety, freshwater availability and quality, nature, agriculture, human health and tourism in the Netherlands. In 2014 PBL with partners published a report 'Small chances, big consequences' on the consequences of flooding in The Netherlands to guide investments in new water infrastructure<sup>35</sup>. This was complemented by a PBL report on impacts of climate change other than flooding in 2015 'Adaptation to climate change in the Netherlands - Studying related risks and opportunities<sup>36</sup>, in which the vulnerability of the Netherlands has been assessed, and effects have been prioritized. The basis for this vulnerability assessment has been sectoral vulnerability studies, prepared by multiple universities and institutes across the Netherlands<sup>37</sup>. The prioritization is done by comparing impacts and opportunities according their probability of occurrence in coming decades and their impact on the economy, society and nature<sup>38</sup>. These priority impacts are then discussed.

The 2014 scenarios are slowly taken up by stakeholders; scientists and national governments being the first to use them.

Decisions in the Delta Programme are underpinned with a cost benefit analysis.

Following a coordinated bottom-up process, some key actors in vulnerable sectors, such as Rijkswaterstaat (on transport infrastructure<sup>39</sup>) and the Ministry of Economic Affairs (agriculture) are initiating action on assessing climate vulnerabilities and risks - in cooperation with project groups involved in drafting and carrying out the NAS..

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<sup>30</sup> <http://climate-adapt.eea.europa.eu/countries-regions/countries/netherlands>

<sup>31</sup> [http://www.klimaatsscenarios.nl/brochures/images/KNMI14\\_Klimaatsscenarios\\_folder\\_EN\\_2015.pdf](http://www.klimaatsscenarios.nl/brochures/images/KNMI14_Klimaatsscenarios_folder_EN_2015.pdf)

<sup>32</sup> <https://ruimtelijkeadaptatie.nl/bibliotheek/@158286/dashboards> (2014, is dated)

<sup>33</sup> <https://www.deltacommissaris.nl/deltaprogramma/documenten/publicaties/2017/09/19/dp2018-d-derde-voortgangsrapportage-aanpak-nationale-vitale-en-kwetsbare-functies>

<sup>34</sup> <http://www.pbl.nl/en/publications/the-effects-of-climate-change-in-the-netherlands-2012>

<sup>35</sup> ([http://www.pbl.nl/sites/default/files/cms/PBL\\_2014\\_Kleine-kansen-grote-gevolgen\\_1031.pdf](http://www.pbl.nl/sites/default/files/cms/PBL_2014_Kleine-kansen-grote-gevolgen_1031.pdf))

<sup>36</sup> <http://www.pbl.nl/en/publications/adaptation-to-climate-change-in-the-netherlands>

<sup>37</sup> <http://kennisvoorklimaat.nl/bouwstenenNAS>

<sup>38</sup> <http://www.pbl.nl/en/publications/adaptation-to-climate-change-in-the-netherlands>

<sup>39</sup> See ROADAPT project

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### **3d. Climate risks/vulnerability assessments take transboundary risks into account, when relevant**

Yes / **In progress** / No

In 2015 the PBL has summarized the worldwide climate effects and their risks and opportunities for the Netherlands<sup>40</sup>.

The National Adaptation Strategy of 2016 does not explicitly address international / transboundary risks. Cross-border effects on nature (moving climate zones) have been investigated but are not integrated in nature policy. These do form part of the urgent effects of the NAS. An adaptation dialogue on this issue is in the phase of preparation.

The Delta programme only takes upstream effects into account for the river Rhine as an expected discharge of 18,000 m<sup>3</sup> per sec at the entrance point to the Netherlands, but it does not look at potential measures at the German or Swiss side.

Transnational cooperation in river floods has clearly been taken up in the implementation of the Floods Directive - setting hydraulic boundary conditions for the Rhine and sharing models in the Meuse and Scheldt.

### **4. Knowledge gaps**

#### **4. Work is being carried out to identify, prioritise and address the knowledge gaps**

**Yes** / In progress / No

Two large knowledge programmes ran between 2006 and 2014: Adaptation Programme 'Ruimte voor Klimaat'<sup>41</sup> and Knowledge for Climate<sup>42</sup>. Practical knowledge that resulted from these programmes has been made available in 2014<sup>43</sup>. The Delta Programme Spatial Adaptation evaluates continuously the existing knowledge gaps. However, an important observation has been made that that users get lost in the amount of information available.

In 2015 NKWK<sup>44</sup> started - a network in which the national government, municipalities, provinces, consultancies and research institutes set up small scale innovative projects. The Delta Programme has funding for technical research on flood prevention (1% of its total contribution of one billion euros per year).<sup>45</sup>

For the NAS 2016, the scientific basis is to be found in many publications of KNMI and PBL (see indicator 3c) and in sectoral studies that lay at the basis of some PBL studies.<sup>46</sup> In 2016 stakeholders from the following sectors were involved in three national workshops (next to many local and regional governments and research organizations): health, security, water quality and quantity, finance, urban planning and construction, nature, insurance, agriculture, transport, and fisheries.

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<sup>40</sup> <http://www.pbl.nl/en/publications/worldwide-climate-effects-risks-and-opportunities-for-the-netherlands>

<sup>41</sup> [http://www.klimaatvoorruimte.nl/dossiers/adaptatieprogramma-ruimte-en-klimaat-\(ARK\)](http://www.klimaatvoorruimte.nl/dossiers/adaptatieprogramma-ruimte-en-klimaat-(ARK))

<sup>42</sup> <http://www.knowledgeforclimate.nl/>

<sup>43</sup> <http://ruimtelijkeadaptatie.nl/english/>

<sup>44</sup> <http://waterenklimaat.nl/>

<sup>45</sup> <http://climate-adapt.eea.europa.eu/countries-regions/countries/netherlands>

<sup>46</sup> Like for example <http://kennisvoorklimaat.nl/bouwstenenNAS>

## 5. Knowledge transfer

### 5a. Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a dedicated website or other comparable means)

**Yes** / In progress / No

The KNMI established a webpage<sup>47</sup> to make climate information available for different users.

The Delta Programme Spatial Adaptation includes a portal for all kind of climate impacts information<sup>48</sup>. Recently, information from the NAS has been included in this portal.

Next to this, the Spatial Adaptation portal<sup>49</sup> provides info from the Climate Effect Atlas for dedicated experts and professionals.

Libraries of the results of the research programmes Adaption Programme 'Ruimte voor Klimaat'<sup>50</sup> and Knowledge for Climate<sup>51</sup> are available on their respective websites. Also, the Climate NL LinkedIn group (Knowledge for Climate initiative) is still active with over 1,000 members.

In 2014, the *overstroomik.nl* website and an application were developed informing citizens which water rise levels to expect in case of flooding. The site aims to prepare citizens for such circumstances.<sup>52</sup>

The RIVM has been providing information on adaptation to climate change on its website for several years.<sup>53</sup>

### 5b. Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated

**Yes** / In progress / No

There is evidence of systematic capacity building activities, some of which are coordinated through the NAS and some of which are announced to be coordinated in the future NAP. The Climate Adaptation Services foundation provides workshops for regional water authorities, provincial and local governments based on the recently updated Climate Effect Atlas<sup>54</sup>.

Others sectors like transport (road, water, air), energy, nature protection, agriculture, cultural heritage are involved.

One example of how capacity building is carried out can be found within the Delta Programme Spatial Adaptation including curriculum development together with universities of applied sciences. In addition, the NAS is part of the capacity building programme of the National Security Strategy.

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<sup>47</sup> <http://www.knmi.nl/kennis-en-datacentrum>

<sup>48</sup> <https://ruimtelijkeadaptatie.nl/>

<sup>49</sup> <http://www.spatialadaptation.com/>

<sup>50</sup> [http://www.klimaatvoorruiimte.nl/dossiers/adaptatieprogramma-ruimte-en-klimaat-\(ARK\)](http://www.klimaatvoorruiimte.nl/dossiers/adaptatieprogramma-ruimte-en-klimaat-(ARK))

<sup>51</sup> <http://www.knowledgeforclimate.nl/>

<sup>52</sup> Since its launch the website and the app have had around one million unique visitors.

<sup>53</sup> <http://www.rivm.nl/Onderwerpen/K/Klimaatverandering>

<sup>54</sup> <http://www.climateadaptationservices.com/en/klimaat-effectatlas>

## Step C: identifying adaptation options

### 6. Adaptation options' identification

#### **6a. Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts**

**Yes** / No

In the Delta programme a clear methodology was followed in four years: problem analysis > range of solutions > preferred solutions > strategic choices.

For other national policies the process is less clear but in general the same networks are involved and reports from the past are consistently used in policy making. The emphasis of the NAS 2016 is to 'build on ten years of adaptation to climate change' in the Netherlands and to progress towards implementation of adaptation measures.

Options have been identified for the main priority hazards and sectors: being mostly water related. Both the NAS and the Delta Programme Spatial Adaptation go into examples of adaptation options in additional priority sectors, but they have been listed as good practice without being strongly embedded in the methodology mentioned before.

A budget for climate investments under the Delta Programme has been published<sup>55</sup>, indicating the estimated costs of investments in adaptation measures in the identified priority fields.

#### **6b. The selection of priority adaptation options is based on robust methods (e.g. multi-criteria analyses, stakeholders' consultation, etc.) and consistent with existing decision-making frameworks**

**Yes** / No

The Dutch NAS explains the decision-making process towards adaptation policies. During stakeholder workshops with many parties including institutes as KNMI, RIVM, TNO, WUR, Alterra, Imares and PBL multiple adaptation options were compared.<sup>56</sup> The NAS is complementary to the Delta programme that has its own extensive body of research to decide on priorities. The new flood resilience norms that entered into force January 1 2017 explicitly include an economic analysis of the assets that need protection<sup>57</sup>.

#### **6c. Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies**

**Yes** / In progress / No

The Dutch Safety Regions have a mandate to address disaster risk management on a regional level. They build their activities around organizing regional platforms of fire services, police, medical services and governments to respond to disasters and crises.

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<sup>55</sup> <https://deltaprogramma2018.deltacommissaris.nl/viewer/paragraph/1/2-deltaprogramma-/chapter/voortgang-op-basis-van-meten-weten-handelen/paragraph/1-financiele-borging-van-het-deltaprogramma>

<sup>56</sup> <https://www.rijksoverheid.nl/documenten/rapporten/2016/12/02/nationale-klimaatadaptatiestrategie-2016-nas>

<sup>57</sup> <http://www.hoogwaterbeschermingsprogramma.nl/Nieuwe+normering/default.aspx>

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Their mandate is laid down in a decree<sup>58</sup>, but this act does not mention adaptation or climate change

Nevertheless, structural cooperation between the Ministry of Infrastructure and the Environment and the Ministry of Security and Justice seems to be in place. The Steering group National Security is the ex officio decision-making level on the policies of the approach of the Dutch central government on vital critical infrastructure. The Ministry of Infrastructure and the Environment participates in the Steering Group National Security as well as in different projects under this steering group.

In 2015 the programme 'Water and Evacuation' has started with the aim to improve the preparedness of the Dutch Safety Regions for consequences of climate change.<sup>59</sup> Between 2015 and 2017 instruments have been developed to assist the safety regions in their preparedness for water related disasters, including floods. The instruments have been made available.<sup>60</sup>

The programme is monitored by the Steering Group Management Water Crises and Floods (SMWO, Stuurgroep Watercrises en Overstromingen). The SMWO is a part of the governance structure under the Steering group National Security in which Dutch Safety Regions, the Ministry of Security and Justice, the Ministry of Infrastructure and the Environment and the Dutch Water Authorities, KNMI and the Ministry of Defense take part. The programme links to programs like 'National Vital and Vulnerable Critical Infrastructure'<sup>61</sup>.

In addition to the cooperation described above, the Ministry of Security and Justice has participated in the formulation and implementation of the National Climate Adaptation Strategy (NAS).

### **7. Funding resources identified and allocated**

#### **7. Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action**

**Yes** / In progress /No

The Delta programme is funded through the Delta Act which has made a reservation of around 1 billion euro per year mainly for investments and maintenance of water infrastructure.<sup>62</sup> Recent publications shed more light on the expected expenditure of the fund, indicating that adaptation in water management related fields will cost an amount in the order of magnitude of €26 billion (with a broad margin).<sup>63</sup> The NAS 2016 states that funding for adaptation has to be found by all partners involved in concrete adaptation projects.

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<sup>58</sup> <https://www.government.nl/documents/decrees/2010/12/17/dutch-security-regions-act-part-i>

<sup>59</sup> <http://www.strategische-agenda.nl/project/water-en-evacuatie/> See for the action plan:

[http://www.strategische-agenda.nl/wp-content/uploads/2016/01/Samenvatting\\_projectplan\\_Water\\_en\\_Evacuatie.pdf](http://www.strategische-agenda.nl/wp-content/uploads/2016/01/Samenvatting_projectplan_Water_en_Evacuatie.pdf)

<sup>60</sup> <http://onswater.ifv/>

<sup>61</sup> See: <https://ruimtelijkeadaptatie.nl/overheden/vitaal-kwetsbaar/pilots-vitaal/> and [https://www.nctv.nl/organisatie/nationale\\_veiligheid/vitale\\_infrastructuur/index.aspx](https://www.nctv.nl/organisatie/nationale_veiligheid/vitale_infrastructuur/index.aspx)

<sup>62</sup> (<https://www.rijksoverheid.nl/onderwerpen/deltaprogramma/inhoud/deltawet-deltacommissaris-en-deltafonds>).

<sup>63</sup> <https://deltaprogramma2018.deltacommissaris.nl/viewer/paragraaf/1/2-deltaprogramma-/chapter/voortgang-op-basis-van-meten-weten-handelen/paragraaf/1-financiele-borging-van-het-deltaprogramma>

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The Ministry of I&M provides funding for the KNMI scenarios, the Climate Adaptation Services foundation<sup>64</sup> and the adaptation website<sup>65</sup> but it is unknown how much and for how long.

### **Step D: Implementing adaptation action**

#### **8. Mainstreaming adaptation in planning processes**

##### **8a. Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments**

**Yes** / No

Netherlands has transposed the revised Environmental Impact Assessment Directive.

The Dutch Commission on Environmental Impact Assessments (Commission MER) indicates that climate is on its way of becoming an integrated part of the EIA. This is due to the 2050 climate change targets and to the growing ambitions of municipalities. The commission increasingly evaluates plans quantitatively on climate targets set by the municipalities themselves and on climate targets set in national policy plans.

##### **8b. Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections**

**Yes** / No

The Dutch safety regions base their plans on climate projections.

The Steering Group Management Water Crises and Floods (Stuurgroep Management Watercrises en Overstromingen (SMWO)) fosters a coordinated approach between safety regions and regional water authorities.

Partners in the Deltaprogramme (central government, provinces, municipalities and regional water authorities) and partners in the structure of the Steering group National Security, such as the Dutch Safety Regions base their plans on climate projections. Climate projections used are regularly updated by the KNMI.

Between 2014 and 2016, a National Information System Water and Floods (LIWO, Landelijk Informatiesysteem Water en Overstromingen)<sup>66</sup> has been developed which is meant to provide the Dutch safety regions and all other stakeholders with up-to-date information on flood risk. Data sources are, amongst others, the database on floods administered by the Joint Dutch Provinces (Interprovinciaal Overleg, IPO), in accordance with the European Regulation on Flood Risk (Richtlijn Oversromingsrisico's, ROR).

In 2018, all municipalities have to conduct a stress test for their resilience against climate risks (flooding, heavy rainfall, drought and heat waves). These tests are part of

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<sup>64</sup> <http://www.climateadaptationservices.com/en/klimaateffectatlas>

<sup>65</sup> <http://www.spatialadaptation.com/>

<sup>66</sup> <https://professional.basisinformatie-overstromingen.nl/liwo/#> and for background information: <https://www.helpdeskwater.nl/onderwerpen/applicaties-modellen/applicaties-per/watermanagement/watermanagement/liwo/>

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the Delta Programme and must result in a local risk profile and a policy (including security and disaster plans) for dealing with the risks and consequences<sup>67</sup>.

### **8c. Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change**

Yes / **No**

The last national vision on spatial planning is the Structure vision on Infrastructure and Land Use of 2012; this vision refers to climate change mainly in relation to water quantity and water quality issues. At the beginning of 2017 the first part of the 'Nationale Omgevingsvisie' has been published, which addresses also the issue of climate change and more specific climate adaptation. A recent law which encompasses all fields in relation to physical activities (Omgevingswet), including economic development, transport, nature, cultural heritage, environmental quality, water, spatial planning etc. (Environmet Act, Omgevingswet) is entering into force in 2019; one of the strategic assignments for the development of so-called Environmental Visions (Omgevingsvisies) is climate adaptation. Although it is clear that climate adaptation is an important assignment, the implementation of the new law, including the new visions by the national, regional and local authorities, will be elaborated over the next years. Part of the existing spatial planning legislation, which is also part of the new legislation, is the Water Assessment (watertoets), in which water authorities assess the impacts of spatial plans on the water system, and have the task to provide the planning authorities with advice about the spatial plans with regard to the expected impact of the new plan on the water system.<sup>68</sup>

In this water assessment (Watertoets) adaptation and a long term view are generally discussed. Both the majority of the Dutch population and the majority of economic assets are situated in vulnerable, low-lying parts of the Netherlands. In Dutch spatial planning the focus often is on flood prevention. For new spatial plans, the emphasis is on finding technical solutions for vulnerable locations. For urban planning there are no rules yet regarding climate resilience (for example, referring to urban heat problems); only pilots in which the present ideas are implemented. However, Dutch municipalities are expected to draft local adaptation plans by 2019, according to the Delta Programme.

### **8d. National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas where adaptation is mainstreamed in EU policies**

Yes / **In progress** / No

Climate change is a solid aspect in water legislation through the Delta Act, but it appears not to be mentioned in any other Dutch legislation or policy. The NAS states that legislative action will be discussed and prepared for 2020. In order to achieve this, dialogues have been initiated with multiple sectors like insurance, health and nature. Some evidence is available on other policies incorporating climate policy, without, however being targeted in the priority sectors mentioned in the NAS.

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<sup>67</sup> De stresstest is aangekondigd in het Deltaplan RA. Zie <https://ruimtelijkeadaptatie.nl/deltaplan-ra/>.

Deltaplan RA is H7 van Deltaprogramma 2018, Doorwerken aan een duurzame en veilige delta

<sup>68</sup> <https://www.rijksoverheid.nl/documenten/rapporten/2009/12/01/handreiking-watertoetsproces-3-samenwerken-aan-water-in-ruimtelijke-plannen>



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### **8e. Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention**

Yes / **No**

In the context of floods and dike failure, insurers studied the effect of climate change in cooperation with KNMI<sup>69</sup>, which led to the conclusion that premiums would become more expensive and insurers should aim at prevention measures among their clients. Although the government is bound by law to compensate large-scale events, not evidence was found that this compensation is accompanied by incentives for adaptation on the local level.<sup>7071</sup>

In February 14, 2017 a first Adaptation Dialogue with the Insurance sector took place and included more than 50 participants. This dialogue was organised by the Union of Insurance Companies, the Dutch National Bank (De Nederlandsche Bank) and the project team NAS. Focusing at intense rainfall, flooding from rivers or the sea, hail and storm. A working group will be formed to make proposals for further steps. The record of this meeting is added.

## **9. Implementing adaptation**

### **9a. Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents**

Yes / **In progress** / No

For the Delta programme / the water sector this is certainly the case; for health, the national heat wave plan is operational. For other sectors it has started with the NAS 2016, and next steps of implementation are expected after 2019.

### **9b. Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)**

**Yes** / No

Mainstreaming adaptation policies into regional administrative processes is facilitated by the regional sub programmes of the Delta Programme. Public consultation follows through legal implementation in the National Water Plan, eventually resulting in the output of the framework legislation called the 'omgevingswet'<sup>72</sup> (Environment Act, currently available as Draft and under review by the Parliament), which will integrate over 20 separate (existing) legal acts dealing with environmental aspects, covering environment, urban development, nature protection, water management, buildings, management of infrastructures, natural resources etc. The stress test for municipalities adds to the implementation of specific actions following a coordinated approach.

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<sup>69</sup>

<https://www.verzekeraars.nl/actueel/nieuwsberichten/Documents/2015/April/Klimaatverandering%20%20en%20schadelast.pdf>

<sup>70</sup> <http://wetten.overheid.nl/BWBR0009637/2016-01-01>.

<sup>71</sup> <http://wetten.overheid.nl/BWBR0009637/2016-01-01>.

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The NKWK network is a programme where national government, municipalities, provinces and knowledge providers can voluntarily meet to develop local projects<sup>73</sup>

### **9c. Procedures or guidelines are available to assess the potential impact of climate change on major projects or programmes, and facilitate the choice of alternative options, e.g. green infrastructure**

**Yes** / No

In June 2017, for Rijkswaterstaat published guidelines regarding energy and climate (mitigation and adaptation) which should be used by project leaders dealing with infrastructure projects and other development plans in the region.<sup>74</sup>

### **9d. There are processes for stakeholders' involvement in the implementation of adaptation policies and measures**

**Yes** / No

The Delta programme has involved stakeholders in the assessment stage and will build on that in the implementation stage. Stakeholders are also involved in the implementation of the NAS 2016 through workshops and regular meetings of all the partners who will directly be involved in carrying out the measures that have been introduced in the NAS.

## **Step E: Monitoring and evaluation of adaptation activities**

### **10. Monitoring and reporting**

#### **10a. NAS/NAP implementation is monitored and the results of the monitoring are disseminated**

**Yes** / No

The NAS 2016 introduces a monitoring system which has been developed in cooperation with PBL and other knowledge institutes. A 'Basic Facility' is mentioned in which such monitoring has to take place with help of national government, provincial and local governments, and water boards.

PBL published a report on monitoring of adaptation to climate change<sup>75</sup> and the NAS will build on this. In addition, the Delta programme has developed a monitoring system<sup>76</sup>. The system has been applied to monitor the process for the Delta Programme Spatial adaptation<sup>77</sup>. A more comprehensive system is currently under development to also

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<sup>73</sup> <http://waterenklimaat.nl/> and <http://climate-adapt.eea.europa.eu/countries-regions/countries/netherlands>

<sup>74</sup> <https://www.rijkswaterstaat.nl/zakelijk/innovatie-en-duurzame-leefomgeving/duurzame-leefomgeving/energie-en-klimaat/index.aspx>

<sup>75</sup> <http://www.pbl.nl/sites/default/files/cms/publicaties/PBL-2015-Ontwerp-voor-een-nationale-adaptatiemonitor-1640.pdf>

<sup>76</sup> <https://deltaprogramma2017.deltacommissaris.nl/viewer/paragraph/1/1-deltaprogramma-/chapter/deltabeslissingen-en-voorkeursstrategieen/paragraph/-eerste-uitwerking-van-de-systematiek-meten-weten-handelen>

<sup>77</sup> <https://www.deltares.nl/app/uploads/2017/02/170131-Eindrapport-Tussentijdse-Evaluatie-DBRA.pdf> zie ook het Deltares rapport uit 2015 "Resultaten van de Monitor Ruimtelijke Adaptatie" op [www.ruimtelijkeadaptatie.nl](http://www.ruimtelijkeadaptatie.nl)

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assess the progress and effectiveness of the programme. Its point of departure was a 2016 PBL report on reflexive monitoring and evaluation<sup>78</sup>

### **10b. The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated**

Yes / **No**

The Delta programme Spatial planning is extending its monitoring and evaluation system. For this a set of indicators will be defined, in close cooperation with sectors.

Although a monitoring system has been announced to be set up, only a limited amount of progress reports addressing sectoral policies is available through the Delta Programme for now.

### **10c. Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated**

Yes / **No**

PBL published a report on monitoring of adaptation to climate change and the NAS plans are intended to build on this.

## **11. Evaluation**

### **11a. A periodic review of the national adaptation strategy and action plans is planned**

**Yes** / No

Progress reports on the implementation of the NAS will be available as of 2019.

A Delta Programme 2018 has been published, and a Delta Programme 2019 is foreseen.

### **11b. Stakeholders are involved in the assessment, evaluation and review of national adaptation policy**

**Yes** / No

Stakeholders seem to be involved in monitoring and evaluation through the 'Adaptation Dialogue' instrument, initiated in the NAS. Stakeholders are also involved in monitoring and reviewing the Delta Programme.

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<sup>78</sup> <http://www.pbl.nl/sites/default/files/cms/publicaties/pbl-2016-keeping-track-of-adaptation-in-the-dutch-delta-2557.pdf>

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### SUMMARY TABLE

<b>Adaptation Preparedness Scoreboard</b>		
No.	Indicator	Met?
<b>Step A: Preparing the ground for adaptation</b>		
<b>1      <i>Coordination structure</i></b>		
1a	A central administration body officially in charge of adaptation policy making	<b><u>Yes</u></b> / No
1b	Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities	<b><u>Yes</u></b> / In Progress / No
1c	Vertical (i.e. across levels of administration) coordination mechanisms exist within the governance system, enabling lower levels of administration to influence policy making.	<b><u>Yes</u></b> / In Progress / No
<b>2      <i>Stakeholders' involvement in policy development</i></b>		
2a	A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies	<b><u>Yes</u></b> / No
2b	Transboundary cooperation is planned to address common challenges with relevant countries	<b><u>Yes</u></b> / No
<b>Step B: Assessing risks and vulnerabilities to climate change</b>		
<b>3      <i>Current and projected climate change</i></b>		
3a	Observation systems are in place to monitor climate change, extreme climate events and their impacts	<b><u>Yes</u></b> / In progress / No
3b	Scenarios and projections are used to assess the economic, social and environmental impacts of climate change, taking into account geographical specificities and best available science (e.g. in response to revised IPCC assessments)	<b><u>Yes</u></b> / In progress / No
3c	Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making.	<b><u>Yes</u></b> / In progress / No
3d	Climate risks/vulnerability assessments take transboundary risks into account, when relevant	Yes / <b><u>In progress</u></b> / No
<b>4      <i>Knowledge gaps</i></b>		
4	Work is being carried out to identify, prioritise and address the knowledge gaps	<b><u>Yes</u></b> / In progress / No
<b>5      <i>Knowledge transfer</i></b>		
5a	Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a dedicated website or other comparable means).	<b><u>Yes</u></b> / In progress / No

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<b>Adaptation Preparedness Scoreboard</b>		
<b>No.</b>	<b>Indicator</b>	<b>Met?</b>
5b	Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated	<b><u>Yes</u></b> / In progress / No
<b>Step C: Identifying adaptation options</b>		
<b>6 Identification of adaptation options</b>		
6a	Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts	<b><u>Yes</u></b> / No
6b	The selection of priority adaptation options is based on robust methods (e.g. multi-criteria analyses, stakeholders' consultation, etc.) and consistent with existing decision-making frameworks	<b><u>Yes</u></b> / No
6c	Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies	<b><u>Yes</u></b> / In Progress / No
<b>7 Funding resources identified and allocated</b>		
7	Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action	<b><u>Yes</u></b> / In Progress / No
<b>Step D: Implementing adaptation action</b>		
<b>8 Mainstreaming adaptation in planning processes</b>		
8a	Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments	<b><u>Yes</u></b> / No
8b	Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections	<b><u>Yes</u></b> / No
8c	Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change	Yes / <b><u>No</u></b>
8d	National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas where adaptation is mainstreamed in EU policies	Yes / <b><u>In Progress</u></b> / No
8e	Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention	Yes / <b><u>No</u></b>
<b>9 Implementing adaptation</b>		
9a	Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents	Yes / <b><u>In Progress</u></b> / No
9b	Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)	<b><u>Yes</u></b> / No
9c	Procedures or guidelines are available to assess the potential	<b><u>Yes</u></b> / No

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<b>Adaptation Preparedness Scoreboard</b>		
<b>No.</b>	<b>Indicator</b>	<b>Met?</b>
	impact of climate change on major projects or programmes, and facilitate the choice of alternative options, e.g. green infrastructure	
9d	There are processes for stakeholders' involvement in the implementation of adaptation policies and measures.	Yes / <b>No</b>
<b>Step E: Monitoring and evaluation of adaptation activities</b>		
<b>10      <i>Monitoring and reporting</i></b>		
10a	NAS/NAP implementation is monitored and the results of the monitoring are disseminated	<b>Yes</b> / No
10b	The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated	Yes / <b>No</b>
10c	Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated	Yes / <b>No</b>
<b>11      <i>Evaluation</i></b>		
11a	A periodic review of the national adaptation strategy and action plans is planned	<b>Yes</b> / No
11b	Stakeholders are involved in the assessment, evaluation and review of national adaptation policy	<b>Yes</b> / No