Nature Balance 2008
Summary

Netherlands Environmental Assessment Agency

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in cooperation with:
Wageningen University and Research Centre
Directorate-General for Public Works and Water Management

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Foreword

The Nature Balance is an annual report of the Netherlands Environmental Assessment Agency (PBL) on developments in the quality of nature and landscape in the Netherlands in the light of the corresponding policy.

The Nature Balance is published every year in September during the presentation of the national budget by the Minister of Finance. This is when the Dutch Cabinet applies the ambitions in the coalition agreement to policy priorities. It is also when the Second Chamber of Parliament responds to the budget and policy priorities. The theme of the Nature Balance 2008 is 'water'. The Environmental Balance 2008 is published simultaneously with the Nature Balance. With these two reports, the PBL aims to provide the Cabinet and the Second Chamber of Parliament with relevant information that can be used in the budget negotiations.

Important contributions for this Nature Balance have been provided by Alterra, IMARES and the Agricultural Economics Research Institute; these institutes are part of Wageningen University and Research Centre (WUR). In addition, the Directorate for Public Works and Water Management and Deltares also contributed to this Nature Balance. Moreover, the analyses in this report are based partly on data provided by other organisations. This primarily concerns Statistics Netherlands (CBS) and statistical data management organisations in the private sector.

The basis information that was used for the Nature Balance can be found in the Milieu- en Natuurcompendium, (Environment and Nature Compendium), which is the result of a framework of cooperation between PBL, CBS and WUR. The Milieu- en Natuurcompendium is published online at www.milieuennatuurcompendium.nl.

Interim Director,

Drs. E.J. Mulock Houwer

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- The current policy on nature and the environment has beneficial consequences for nature in the Netherlands. Nature reserves and protected areas are increasing in size, and the environmental and spatial conditions are improving. However, these developments are not yet sufficient to realise the proposed nature improvement goals within the allotted time period.
- Nature policy can gain strength if it focuses more on realising goals for the lowest possible social costs. One way to achieve this is to strengthen the coherence with other policy areas, such as water policy and land-use planning policy.
- The effectiveness of nature policy can also be improved by assigning priority to the internationally unique natural features that arise from the unusual geographical location of our country in a river delta. Examples of such features are heaths, dunes, the Wadden Sea, brooks, and freshwater and salt water marshes.
- The current quality of freshwater habitats is poor. The measures that the Netherlands is now proposing as part of the Water Framework Directive will improve the quality of surface water. However, this does not guarantee that the water conditions required for the Natura 2000 sites will be achieved. As a result, the Netherlands will be in non-compliance with its European obligations.
- In recent decades, the quality of nature in the Wadden Sea has improved. In the North Sea, no improvement is yet visible. World-wide, the biodiversity of oceans and seas is under pressure especially due to overfishing. The current fishery in the Netherlands is not yet sustainable.
- The current implementation of the National Ecological Network has not made nature reserves sufficiently resilient to absorb the consequences of climate change. To this end, greater efforts are required to realise a corridor of wetland nature reserves.

The corridor of wetland nature reserves, which includes the area dominated by the major rivers, will still have a number of missing links even following the completion of the National Ecological Network.

Policy for nature and landscape in a nutshell

Realisation of the goals for nature and landscape is not yet within reach
For many years, nature in the Netherlands has declined severely in terms of both size and quality. The current size of the populations of all native plant and animal species in the Dutch countryside has declined to only 10-15% of the populations that would have existed in an undisturbed, optimal situation. However, the habitats that remain in the Netherlands are valuable from an international perspective due to their unique character. The goal of Dutch nature policy is to stop the decline of the remaining nature reserves and protected areas in the Netherlands and to reverse the trend by improving environmental conditions, acquiring land, developing nature reserves and implementing management measures.

Between 1990 and 2006 the total area of nature reserves has increased and the environmental conditions and spatial coherence of these reserves have improved (see Table S1 'Biodiversity' and 'Environmental and spatial conditions'). However, during the past five years this beneficial development has either slowed or has stopped entirely. This means that without supplementary measures, most of the established goals concerning nature will not be achieved in a timely fashion. It is unlikely that the National Ecological Network will be completed in the year 2018 as planned. It is possible to increase the rate at which new parts of the National Ecological Network are realised, but this requires, among other things, that a higher priority be given to the development of newly acquired land (see Table S1 'Area of nature reserves').

Moreover, improving the conditions for nature does not necessarily mean that all individual species will begin to thrive. Those species that declined most severely in the Netherlands in the past will continue to decline, or may even disappear entirely (see Table S1 'Number of plant and animal species').

Table S1 Trends in the development of nature reserves and landscape in the Netherlands. This table also shows the probability of timely realisation of several goals in nature and landscape policy.

	Trend 1990 – 2006	Trend 2002 – 2006	Probability of timely realisation of the goal
Biodiversity			
Area of nature reserves			
Quality of terrestrial ecosystems			
Number of plant and animal species			
Environmental and spatial conditions			
Spatial coherence			
Environmental conditions			
National Landscapes and recreation			
Core qualities of the National Landscapes			
Realisation of recreation near urban areas			

Legend

Trend	*Probability of realising goal*
Improvement	Goal will probably be realised. Probability is more than 66%.
No substantial change	Probability of realising goal is between 33% and 66%.
Worsening	Goal will probably not be realised. Probability is less than 3%.
	However, the goal can be realised with more time or additional policy.
	Goal will probably not be realised. Probability is less than 33%.

Species that do not place high demands on their habitats are recovering to some extent in the nature reserves (see Table S1 'Quality of terrestrial ecosystems'). Generally speaking, the decline of biodiversity in the Netherlands has continued in recent years. It also appears to be unfeasible to achieve this goal [of halting the decline in biodiversity] before 2010, which is the reference year for the Convention on Biological Diversity (CBD).

The core qualities of the National Landscapes are under increasing pressure due to urbanisation and the developments in agriculture. As a result, the goal of conserving these core qualities is not being realised (see Table S1 'Core qualities of National Landscapes'). However, realising this goal is possible if the policy efforts are intensified.

The development of recreation areas near cities is also behind schedule (see Table S1 'Realisation of recreation near cities'). With additional policy, it will be possible to achieve the goal for acquiring and developing these areas in 2013. The shortage of possibilities for walking and bicycling recreation appears to be most severe in the Randstad (the urban agglomerations of the western part of the country). This shortage can be alleviated with additional policy.

A small percentage of the spending on water management concerns benefits for aquatic nature

Every year, the Netherlands spends more than €1 billion on nature and landscape. This is equivalent to approximately 0.2% of the gross domestic product. This money is primarily intended for the acquisition, development and management of nature reserves. In addition, part of the environmental and water policy is aimed at improving the quality of aquatic nature. The spending on water management amounts to €5 billion per year. This primarily serves to provide protection against flooding, but also to improve water quality. Aquatic habitats and water also represent an economic value and in this way contribute to the welfare of society. In addition, aquatic habitats and water contribute to a positive experience of the landscape. It is difficult to express this experience in financial terms.

Towards a more effective and coherent nature policy

The data in Table S1 show that the goals for nature and landscape will not be realised in a timely fashion. The situation could be improved by basing the system of goals more strongly on the principle of social cost effectiveness. In other words, realising the goals for the lowest possible social costs. Focussing on more synergy between nature and landscape goals and those in other policy areas, such water and land-use planning, can contribute to a more effective and coherent nature and landscape policy.

For example, the implementation of the National Ecological Network could be more effective. The current practice results in the continued fragmentation of nature reserves, which in turn leads to higher costs because this increases the pressure from the surroundings due to poor environmental and water conditions. The formation of larger, more coherent units of nature reserves and protected areas will improve the effectiveness of nature policy. During this process, if priority is given to the internationally unique natural features in the Netherlands, then this would primarily concern dunes, saltwater marshes, clay and peat bogs, wet

heaths and nutrient-poor wet grasslands. In addition, the saltwater systems and the related fresh water/saltwater transition zones are also important from an international perspective.

The Netherlands in the world: the effect on nature in other countries
Land and water are required to produce food for our consumption. At the same time, space is required for conserving and developing biodiversity. In a globalising market, production is increasingly taking place outside Europe. Our consumption is therefore related to the continuing loss of nature elsewhere in the world. The quantity of land that is currently needed for the consumption of everyone in the Netherlands comprises three times the total land area of the country. For each Dutch citizen, this is approximately equal to the average quantity of productive land that is used per global inhabitant. Compared to other Western countries, the Netherlands is relatively efficient in terms of land use. However, global consumption will continue to rise. This is primarily due to the increasing world population combined with increasing prosperity. The expectation is that the growth in global productivity will not be sufficient to compensate for this increased demand. The pressure on the remaining natural habitats will therefore increase steadily. Therefore, the pressure on biodiversity will certainly not decline world-wide. By improving agricultural practices and the sustainability of trading chains, the Netherlands can contribute in an international context to limiting the consequences of the consumption of its residents on biodiversity abroad. In addition, it remains important to work on an international network of protected areas.

Freshwater lakes and streams

The chemical quality has improved, but the ecological quality is still poor
Regarding the improvement of the water conditions for nature, the European directives provide strong governance. In addition to the specific nature policy in accordance with the Council Directive on the conservation of wild birds and the Council Directive on the protection of natural and semi-natural habitats and wild fauna and flora, which apply to vulnerable or internationally threatened nature, the Water Framework Directive is important regarding the quality of surface water.

In the 1960s and 1970s, the quality of fresh water lakes and streams in the Netherlands fell to a low point. Since then, a great deal has improved regarding the chemical quality of the freshwater. The unnaturally high levels of nutrients in the water have decreased due to the improved efficiency of water purification systems and the removal of phosphate from washing powders. In addition, the pesticide load in freshwater has decreased. In recent decades, freshwater ecosystems have shown beneficial developments regarding populations of fish and water animals in streams (see Figure S1). Nevertheless, the current ecological quality is generally poor on average. The ecological quality rating of bodies of water that fall under the Water Framework Directive is now only 40-45% when compared to the quality in the natural situation. It is especially the over-fertilisation due to the leaching of manure from agriculture and the unnatural development of bodies of water in the Netherlands, for example due to the presence of hardened banks, which restrict the further improvement of ecological quality.

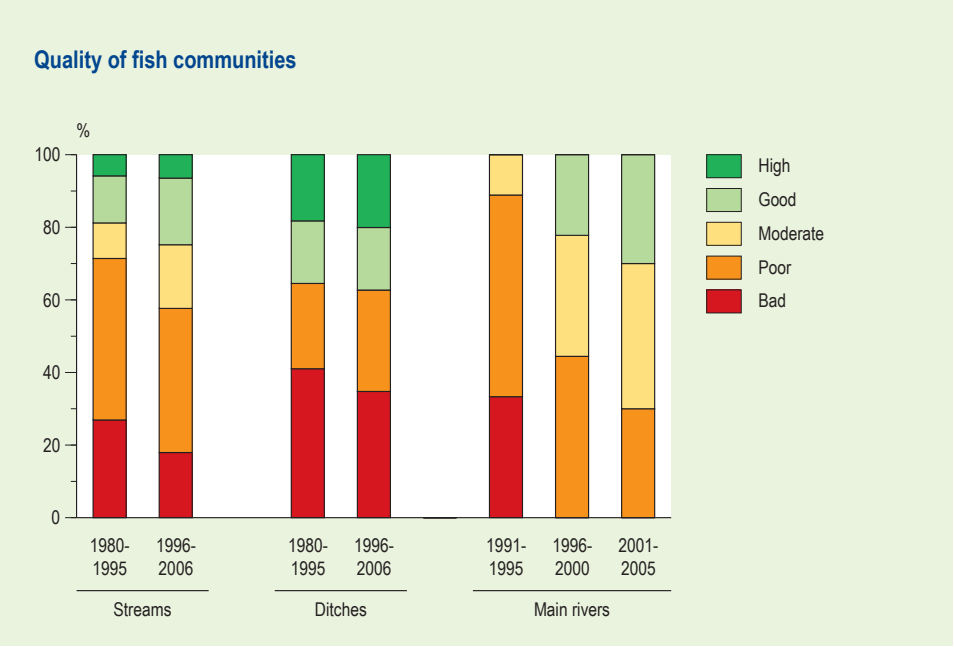

Figure S1 In recent decades, the quality of fish habitats has improved in streams.

Beneficial developments due to the Water Framework Directive

Until 2027, the implementation of the proposed policy to comply with the Water Framework Directive will probably lead to an average ecological quality rating of 50-70% for regional freshwater lakes and streams. However, these beneficial developments will not be sufficient to realise all the proposed goals from the Water Framework Directive.

During the implementation of the Water Framework Directive, the Netherlands anticipates the possibility of postponing the time limit for achieving the target with two periods of six years, from 2015 to 2027. It is still uncertain whether the European Commission will rule that the proposed efforts of the Netherlands are sufficient to legitimise the postponement until 2027.

Natura 2000 sites benefit marginally from measures related to the Water Framework Directive

The Water Framework Directive calls for special attention to sites that enjoy European protection in other ways. This primarily concerns the Natura 2000 sites. The Water Framework Directive states that by 2015, the water conditions in these areas must theoretically be sufficient to sustainably maintain the species for which the Natura 2000 sites were designated. However, realising the water conditions that are required for the Natura 2000 sites is not guaranteed by the measures that the Netherlands is now proposing in relation to the Water Framework Directive, nor will this be the case by 2027. As a result, the Netherlands will be in non-compliance with its European obligations. It is questionable whether the European Commission will accept a postponement of the deadline for realising the goals or if it will accept a relaxation of the goals. Moreover, in half of the

so-called Sense of Urgency sites, the water conditions are not expected to be adequate by the deadline. Examples of such sites include the Oostelijke Vechtplassen and the Geuldal. The national government specifically selected the Sense of Urgency sites because without taking adequate measures within 10 years – figured from 2006 – irreversible damage will take place to the nature in these areas.

The limited contribution of the proposed Water Framework Directive measures to the quality of Natura 2000 sites is especially the result of the emphasis on development measures within the package of proposed measures. However, the biggest bottlenecks for the Natura 2000 sites involve overfertilisation and the excessively low water table. The overfertilisation primarily concerns phosphate that enters the water due to runoff or leeching of manure from agriculture. For the Natura 2000 sites, solutions must be sought outside these sites. These solutions can have important consequences for the agricultural practices in the vicinity. However, even with far-reaching measures to control manure use, it will be decades before the runoff and leeching of phosphate from agricultural land to surface water actually decreases. This is due to the high levels of phosphate already in the soil from many years of manure application.

Salt water habitats

Quality of water and nature in the Wadden Sea have improved
In recent decades, the water quality of the North sea has improved, but it is still not sufficient to sustainably maintain biodiversity. The quality rating of nature in the Wadden Sea and the North Sea is now approximately 50% in comparison to the natural situation (see Figure S2). Despite increased recreation, the quality of nature in the Wadden Sea has improved since 1990, partly due to policy initiatives. The water quality has especially improved, and this has benefited the recovery of the seal population in the Wadden Sea. No improvement is yet visible in the quality of nature in the North Sea. The quality of the salt water ecosystems can be improved by making the fishery more sustainable, reducing the nitrogen load and restoring the original dynamic of the coastal waters. Strengthening the spatial protection on the North Sea will therefore contribute to conserving marine biodiversity.

North Sea fishery is not yet sustainable for most fish species
World-wide, the biodiversity of oceans and seas is declining. Important causes of this decline are overfishing, pollution and climate change. One-fourth of all fish stocks in the world are overfished or have already been exhausted. The Dutch government is striving for the sustainable conservation and use of marine resources. It aims to achieve this by making agreements with the fishery sector and by contributing to the establishment of a network of protected marine sites. However, the policy is not yet sufficiently developed evaluate its effects.

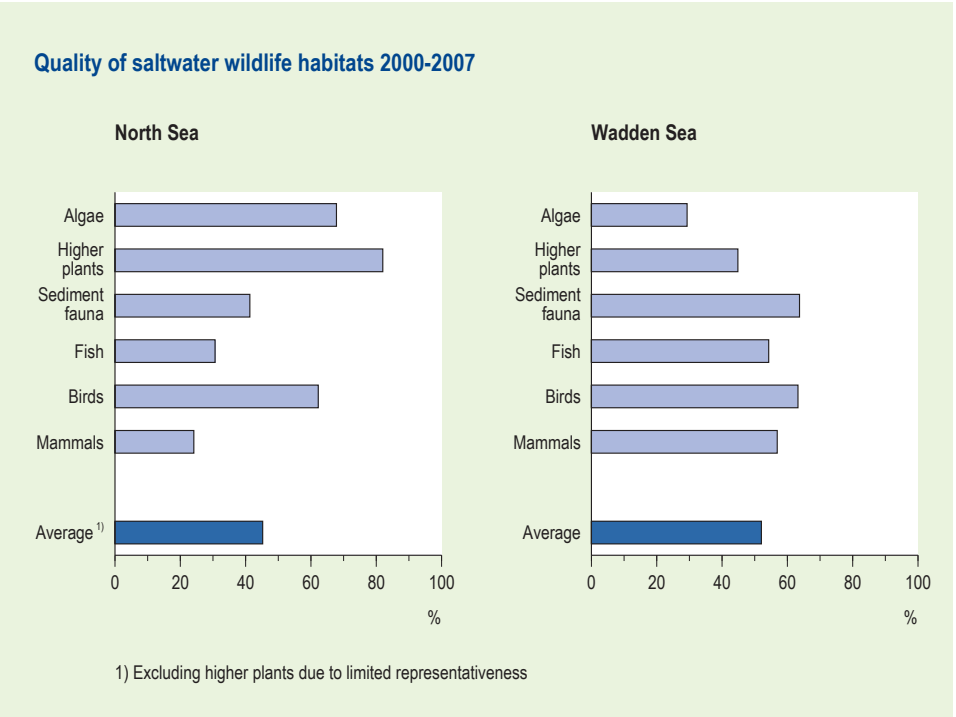

Figure S2 The current quality of habitats in the North Sea and the Wadden Sea is approximately half of habitats still untainted by human influence.

In the North Sea as well, the pressure of the fishery on the quality of nature is high. This has resulted in a decline of fish stocks. Moreover, the age structure of fish populations has become very lopsided; young fish have increased in numbers at the cost of older members of their species. Although the fishery policy has contributed to reducing overfishing, it has been unable to prevent most fish species from becoming threatened.

Experiments with sustainable fishing technologies are taking place. However, a sector-wide transition to an ecologically sustainable fishery does not appear to be imminent. In this context, sustainable aquaculture, product certification and establishing designated ecological zones at sea are important.

Efficient use of space on the North Sea requires spatial planning

Nature in the Wadden Sea are protected by law. Recently, two areas in the North Sea coastal zone have also been designated as part of the Natura 2000 network. The Dutch government has resolved to submit more sites for ecological protection to the European Commission. Nevertheless, several areas in the North Sea with unusual seabed fauna will remain unprotected for the time being because such fauna are not part of the selection criteria for the Council Directive on the protection of natural and semi-natural habitats and of wild fauna and flora. At the same time, the North Sea is being used more and more intensively for many functions, such as sand extraction and shipping.

Making a trade-off between the conservation of marine habitats and other functions will be benefited by improved spatial zoning. With respect to marine habitats, this concerns designating protected nature reserves where sea animals can grow without disturbance and realising spatial coherence between these reserves.

Opportunities for aquatic nature as part of adaptation to climate change

The dynamic delta: water management, water use and water dynamics
With its wetland habitats, the Netherlands is a delta region which forms an important bulwark in Europe. Despite the Delta Works and the taming of the rivers to protect the hinterland from flooding, the Netherlands still has various types of wetland habitats with many qualities that are unusual from an international perspective. These natural features are based on the concepts of 'gradient' and 'dynamic'.

The concept of 'gradient' is characterised by gradual transitions from freshwater to salt-water, from nutrient-poor to nutrient-rich conditions and from wet to dry conditions. The concept of 'dynamic' means that these conditions change over time.

Climate change is leading not only to the expectation of excessive water at some times of year, but also to the expectation of drought in the summer. As a result, there will be new allocation issues involving water and the opportunities for aquatic organisms (see Figure S3). One issue will concern the allocation of scarce quantities of water during droughts between the various functions, such as drinking water, agriculture, industry and nature. But it will also concern the storage of excessive water during extreme rainfall and the discharge of river water. There can be conflicting claims regarding the economic use of water, the need for quality of nature and protection against flooding, but there can also be synergy. One example of the latter is that the increased water dynamic caused by climate change can actually benefit the wetland habitats. At the same time, there are sufficient possibilities to forge links between nature policy, coastal management, water storage policy and landscape policy. The coordination and coherence between spatial clgoals and between various tiers of government are a precondition for this. As part of the implementation of the "Water Management for the 21st Century" programme, the water boards have until now created space for nature, but the qualities of the landscape have been given less attention. More emphasis on the linkage between these policy tracks could, among other things, benefit the conservation and restoration of the core qualities of the National Landscapes. The 'Room for the River' programme, which is intended to improve safety along the major rivers, could also give an important impulse to the quality of nature along the rivers. However, not all goals with respect to nature can be realised by taking account of the goals for protection against flooding. More coherence between nature policy and safety policy against flooding will create opportunities. This is because the costs will be lower on balance than when the goals are approached separately.

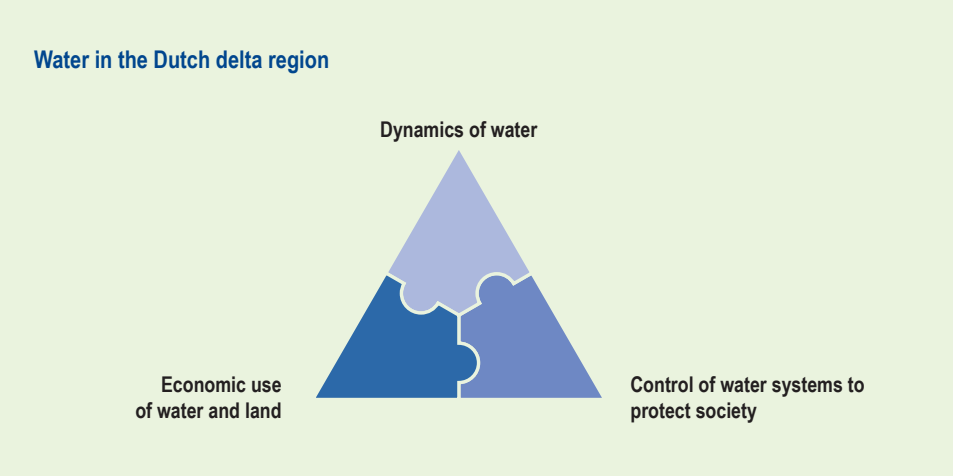

Figure S3 The tensions surrounding water issues in the dynamic delta.

Adaptation to climate change: the National Ecological Network provides direction
Due to climate change, extreme weather situations will probably occur more often. To give species the opportunity to adapt to changing conditions and to shift to more suitable habitats, large areas of climate-resilient nature reserves are required. Moreover, this requires broad connecting zones between the nature reserves. The current design of the National Ecological Network has not yet made nature reserves and protected areas sufficiently resilient to absorb the consequences of future climate change. To this end, a modification of the National Ecological Network is necessary. This modification can be made without having to expand the total planned area.

The creation of a corridor of wetland nature reserves is one of the options to strengthen the spatial coherence of nature reserves and protected areas in the Netherlands. In addition, this would strengthen the linkage with nature reserves abroad (see Figure S4). This corridor of wetland nature reserves will increase the area of wetland habitats, such as marshland. Moreover, it will connect the wetland nature reserves across greater distances. Extra attention is required for the weakest links, where wetland nature reserves are virtually absent.

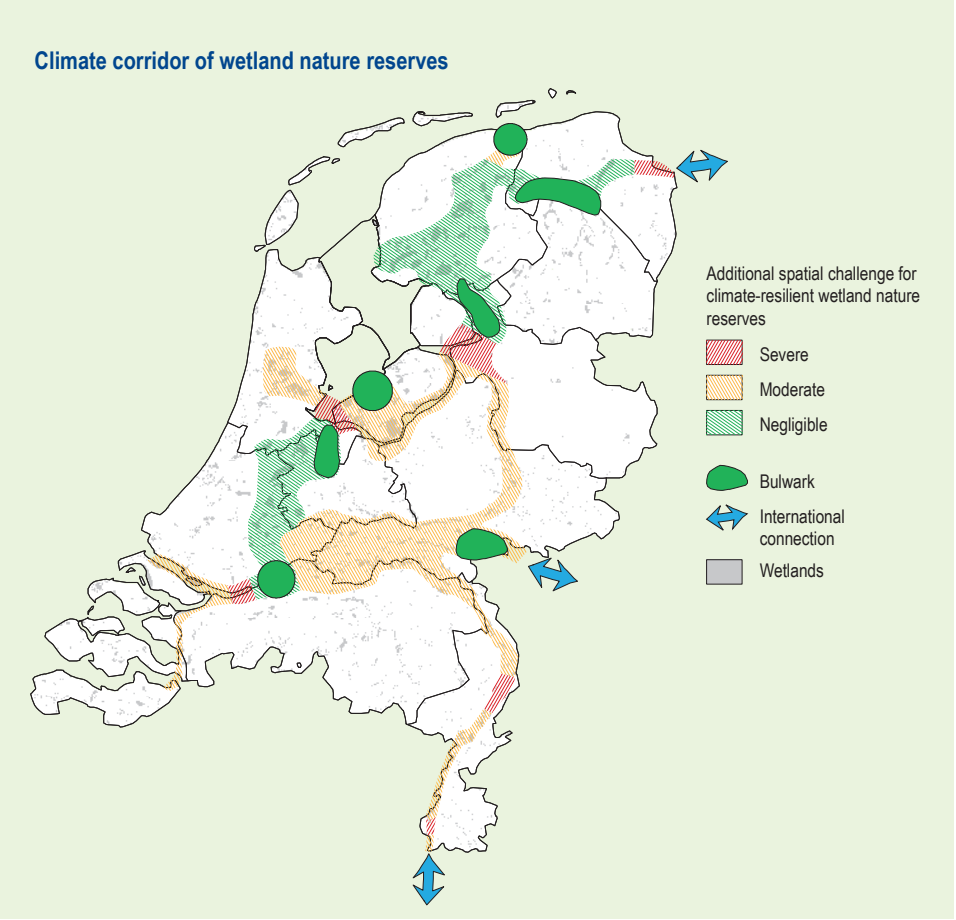

Figure S4 The realisation of the National Ecological Network in its current form does not contribute sufficiently to the corridor of wetland nature reserves. The bulwarks are the backbone of the corridor. Along some routes, the wetland nature reserves must still be enlarged (orange shading), while on other routes they are almost entirely absent (red shading).

The Netherlands Environmental Assessment Agency analyses spatial and social developments in (inter)national context, which are important to the human, plant and animal environment. It conducts scientific assessments and policy evaluations, relevant to strategic government policy. These assessments and evaluations are produced both on request and at the agency's own initiative.

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