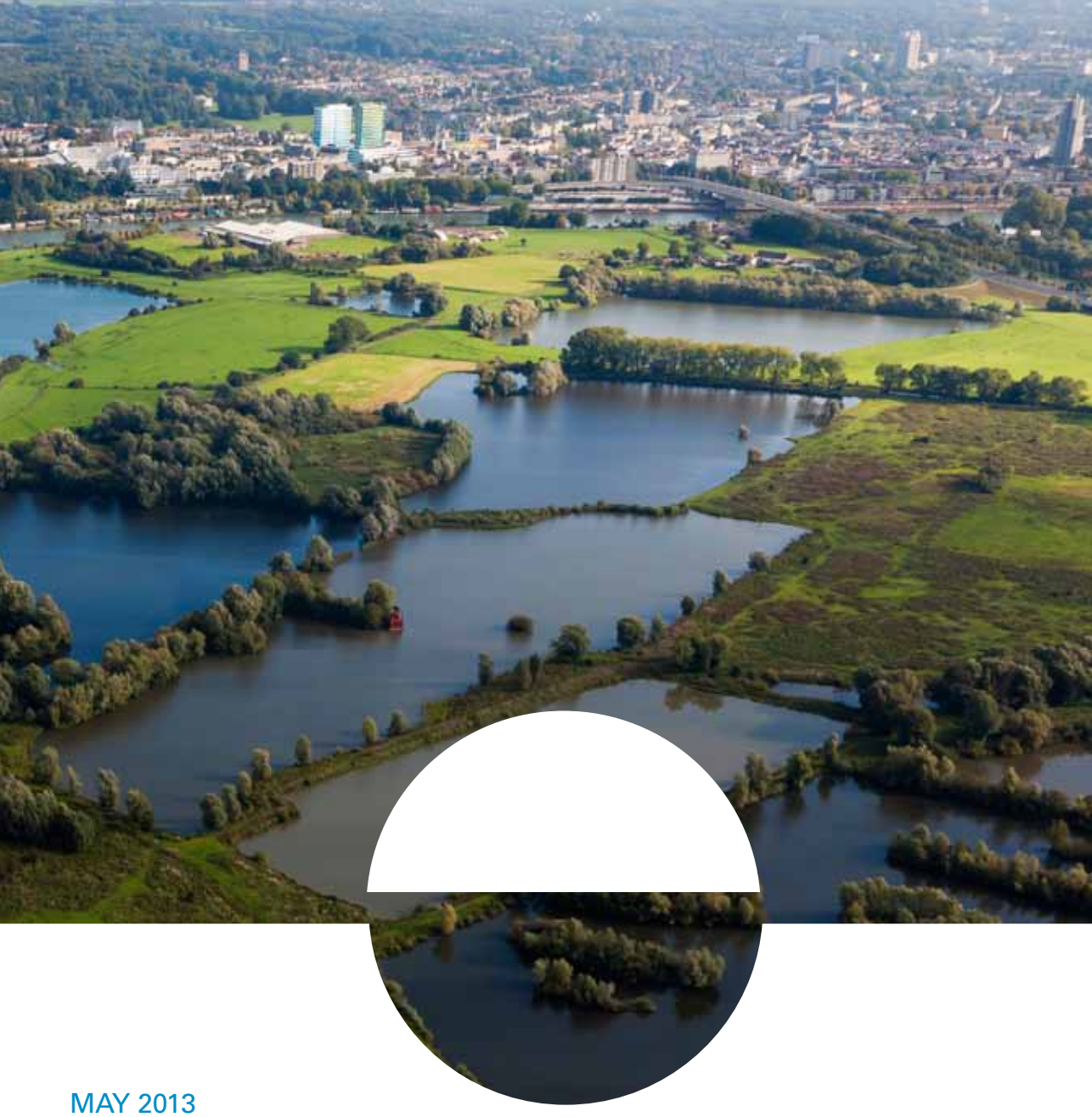

MAY 2013

NATURE'S IMPERATIVE

TOWARDS A ROBUST NATURE POLICY

Council
for the Environment
and Infrastructure

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

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A short film accompanies this advisory report and is available at www.rli.nl.

CONTENTS

PART 1 | ADVICE

1 INTRODUCTION

In its 2010 coalition agreement, the Dutch government announced a significant reduction in the nature policy budget (TK, 2010). This move prompted a political and societal reconsideration on the merits of nature policy and the way society is committed to that policy. The proposed cutbacks were not driven by financial considerations alone. The societal basis for nature policy, sometimes regarded as too specialist and technocratic, appears to be declining, Although there is continued support for the principle of conservation. misunderstanding of the legal consequences of implementing European legislation (such as the Birds and Habitats Directive and the Natura 2000 programme) further erodes the societal basis for nature policy. The most recent coalition agreement (2012) takes a different approach to nature policy, whereby the proposed cutbacks have been mitigated to some degree (TK, 2012a).

In this advisory report, the Dutch Council for the Environment and Infrastructure (Rli) examines nature policy, with an emphasis on effectiveness and the level of societal support, and makes a number of recommendations for policy renewal. In the Council's view, the results of the various studies and surveys it has commissioned justify the main objective – the maintenance of biodiversity – and the original ambitions of the 1990 Nature Policy Plan (LNV, 1990). The current report is intended to strengthen the scientific base for the adopted approach and to promote the societal embedding of nature policy.

This report is the culmination of a process which began in 2012. The central research question is: *How can nature in the Netherlands be given a sustainable future in all contexts: ecological, societal, financial, and administrative*. The Council's advice was requested by the Dutch government as part of its work programme for 2012 (Rli, 2012).

Nature in the Netherlands is changing rapidly. Some species are thriving, partly under the influence of climate change but also further to efforts to restore nature habitats, including the release of agricultural land for the purpose of nature conservation. Nevertheless, many other species are in ongoing decline. As yet, we have been unable to implement appropriate measures to halt this trend. Social attitudes towards nature are also changing rapidly in the Netherlands: an increasing number of people feel a responsibility towards nature in their immediate surroundings. Within this new constellation, the question of how we are to give nature a sustainable future in the Netherlands has become urgent. Here, "sustainable" refers not only to the financial and administrative context, but

also to the process of engaging businesses and individuals in pursuing the aims of nature policy.

The Council bases its considerations on the meaning of nature to man, and the responsibility of man towards nature and future generations, as stated in the policy document *"Natuur voor mensen, mensen voor natuur"* ("Nature for people, people for nature"; LNV, 2000). Natural processes play a crucial role in maintaining a healthy human environment. Nature fulfils a number of societal functions in terms of health, the investment climate, and water safety. Accordingly, there are functional motives for the protection of nature. There are also important ethical motives: we must acknowledge that the species indigenous to the Netherlands have a right to a continued existence, and that we have a responsibility to maintain natural resources for the benefit of future generations. This entails maintaining the habitats favoured by wild flora and fauna, and ensuring appropriate conditions for these species within those habitats.

The Council commissioned seven studies[1] as input for this report, the objective being to determine whether there is any reason to adjust current policy implementation and, if so, to identify the opportunities for doing so. The results of the studies have been published on the Rli website (www.rli.nl) under the editorial responsibility of their authors. Three of these studies addressed the ecological effectiveness of strategies to improve nature management and protect biodiversity, three more addressed societal support for nature and nature policy, while one examined the economic aspects of nature. .

1 Bakker, 2012; Buijs et al., 2012; Kamphorst & Donders, 2013; Kleijn, 2012; Ovaskainen, 2012; Sijtsma et al., 2013; Van Slobbe, 2012

TERMS OF REFERENCE 2

Effectiveness of nature policy

Current nature policy is flawed. Surveys published by the Netherlands Environmental Assessment Agency (PBL, 2009; PBL, 2012b) reveal that the decline in natural quality in the Netherlands has been slowed, and in some cases halted, but there has been no actual recovery. The way in which we use our landscape is changing, and many ecosystems are unable to adapt to that. More intensive farming and the space claims of urban development and infrastructure have exacerbated problems such as chemical pollution, desiccation, acidification, and fragmentation. The main factors which determine the stability of an ecosystem are the size of the habitat and the continuity of appropriate conditions for the species which live there. The implementation of the National Ecological Network (EHS) has not proceeded quickly enough to achieve substantial improvement in quality. By implementing the European Birds and Habitats Directive within national legislation (such as the Flora and Fauna Act and the Nature Protection Act), the Netherlands has committed itself to the conservation of a large number of vulnerable species, and to the protection of nature areas which are characteristic of the biogeographical regions of our country.
The Natura 2000 areas are intended to protect living conditions for flora and fauna in the wider context. These areas alone are not enough to meet obligations at the European level. Moreover, the designation of the Natura 2000 areas has met with opposition, as has the manner in which the measures further to the Birds and Habitats Directives are implemented and enforced. That opposition is chiefly concerned with changes in space usage. The legislative frameworks give rise to a significant research obligation and severely limit opportunities for discretion in (spatial) planning. The development of the National Ecological Network is intended to create a greater number of large, contiguous areas which offer suitable conditions for vulnerable species and ecosystems. Elsewhere, a species-specific approach is applied.

The objectives of the Netherlands' nature policy have been defined in detail. To a degree, the historical notion that it was possible to shape the Dutch landscape artificially – which underpins spatial planning in the Netherlands to this day – has also influenced ideas on nature development and the restoration of natural habitats. However, it remains uncertain whether such detailed objectives can provide a basis for accountability. Moreover, wherever vulnerable species are expected to live in relatively small areas, the objectives call for intensive (and expensive) management and restoration measures. Alongside policy geared towards the creation of sufficient space for vulnerable species in the form of designated nature reserves, there is also

policy addressing the nature and landscape elements of agricultural areas, and the species (such as meadowland birds) which are to be found there. This policy provides for a system of nature management by the agricultural sector itself. Research suggests that this policy is ineffective, however.

Alongside these problems relating to the form and content of nature policy, the Council has identified a number of organisational and financial issues. Resources are fragmented between a large number of organisations. While central government remains responsible for the allocation of resources, implementation is largely decentralised. Nature policy therefore has a very complex implementation structure which involves a large number of regulations and frameworks. The Council wishes to stress that nature is a public value, for which the government has a clear responsibility. The financing of current nature policy is heavily dependent on the availability of government resources. Fluctuations in those resources undermine the continuity of nature policy, while private parties who are willing to accept (joint) responsibility may feel that they are being sidelined.

In the first instance, decentralisation chiefly affected the manner in which national policy was to be implemented. That decentralisation has now taken on even greater proportions, whereby provincial authorities now define and implement their own objectives. Responsibility for issuing permits under the Flora and Fauna Act and the Nature Protection Act has largely been devolved to the provincial authorities. The decentralised use of resources provides opportunities for better coordination and synergy with parties who are willing to accept (joint) responsibility for achieving the aims of nature policy and enhancing quality. It is therefore possible to establish a more direct link between the associated costs and returns.

In summary, the Council concludes that the manner in which nature policy is being implemented shows a lack of ambition. In practical, organisational and financial terms, the current approach is inadequately equipped to achieve the stated objectives.

Societal support

As stated above, the Council commissioned three studies examining societal support for nature and nature policy in the Netherlands. The results offer a varied picture, depending on the indicators applied. Although there is a high level of support for nature conservation, support for current nature policy is under strain. This conclusion is borne out by the results of "quick scans" of public support, the most recent statistics on active engagement in nature management, the larger-scale public surveys, and a discourse analysis of the discussions in the (social) media.

RECOMMENDATIONS 3

Recommendation 1: Create nature networks with a view to protecting and conserving nature while also exploiting its societal value

- Adopt a "horizon strategy": based on an overall development vision, establish the long-term objectives as a point on the horizon, doing so in consultation with parliament, societal organisations, and the private sector. Combine the objectives with regard to the conservation of ecosystems and species with those addressing the other societal meanings of nature, such as its contribution to the investment climate and public health.
- Within this horizon strategy, prioritize the area-specific components of nature policy whereby the aims, in order of priority, will be to enlarge the existing nature areas and improve their quality, create new nature areas, provide better opportunities for species in intermediate areas to migrate, and create new connections between nature areas.

Long-term objectives and continuity of nature networks: the horizon strategy

Nature networks are essential in assuring a sustainable future for Dutch nature; they contribute to an attractive investment climate for new businesses and to the health of the population. Continuity is a sine qua non of nature policy and nature management alike. The Council therefore recommends the adoption of a consistent policy in pursuit of long-term objectives, while the implementation of that policy should be flexible, allowing for prioritisation and adjustments of pace in times of limited financial resources. This will also allow for adjustment in the light of any new insights which emerge over time.

This approach will have to result in the interconnection of regional nature networks to form one large contiguous network as a successor to the National Ecological Network. The regional networks will build upon the components of the National Ecological Network and the Natura 2000 areas now in place, including the robust corridors. The existing components will form the basis of regional expansions and modifications. The resulting networks can comprise both larger and smaller nature areas, including adjacent or intermediate (agricultural) areas, which will offer suitable quality and better opportunities for wild plants and animals to migrate into other areas. The regional nature networks should link up to the existing infrastructure of greenspaces and water bodies in urban areas and urban fringes ("green-blue" connections). The emphasis should be on increasing the total area of nature reserves rather than merely creating new corridors. Central government

will support provincial authorities in their efforts to create these regional networks, based on its overall responsibility for the conservation of flora and fauna. Together, the regional nature networks will form a national network for the sustainable conservation of wild plants and animals. This national network will therefore merge the current conservation areas, thereby reducing the number of area categories listed in the policy ("destacking").

Prioritisation

In the interests of effectiveness, the Council recommends that the following prioritisation in terms of focus and planning should be applied to the area-specific components of nature policy in times of limited resources:

1. Enlarging and improving the quality of existing nature areas by bringing both management practice and the external environmental conditions (such as the water system) to the required standard
2. Creating new nature areas around the centres formed by the existing areas, thus creating regional nature networks
3. Improving opportunities for migration connectivity between the regional nature networks to facilitate species migration, which can be achieved by enhancing the quality and hence the "penetrability" of the intermediate (agricultural) areas
4. Creating new corridors between areas; where the use of more expensive types of corridor – such as "ecoducts" – is indicated, the most cost-effective solution should be sought on a case-by-case basis: the enlargement of the existing nature area may be a viable alternative to the construction of a corridor.

Where agricultural activity has an inevitable adverse impact, such as pollution of the water system by nitrates or pesticides, regional authorities must attempt to achieve better spatial separation of agricultural areas and those devoted to nature. This may entail the relocation of agricultural operations and/or redesignating nature areas within the regional zoning plan. Where relatively small areas are used for intensive farming and have a disproportionately high impact on adjacent nature areas, it may be appropriate to resolve the situation by means of a compulsory purchase order.

The importance of allowing adequate time for nature development is examined in greater detail in Chapter 3 (see Part 2). The importance of providing adequate space for nature is considered in Chapter 4 (see Part 2).

Recommendation 2: Place natural processes to the fore and manage the preconditions: "compass management"

- Achieve the required qualities for the nature network and make nature conservation less rigid by deploying a system of "compass management" rather than pursuing overly detailed objectives. In other words, rather than the static target situation, the direction of development is prescribed.
- Do not manage according to detailed objectives, but ensure that appropriate conditions are in place by formulating norms for surface area, environment, and water quality ("managing by conditions").
- In those areas which are particularly affected by human activity, allow room for nature within the preconditions for the primary usage. Nature will then become a more intrinsic and accepted part of daily life, whereby the bond between man and nature will be strengthened.

"Compass management" is an approach in which the general direction of development towards a certain ecosystem or landscape type is established, but no static target situation is defined. Compass management takes into account the latest scientific insights and the autonomous development of both nature and society.

Rather than output management, the current situation demands management of the conditions. It is a question of establishing the spatial conditions, and those pertaining to environmental and water system quality, which will provide a sustainable future for nature and nature development. By creating areas of adequate dimensions in every type of landscape, both natural and cultural, the Netherlands will be able to maintain its characteristic variety of species, ecosystems, and landscapes. Managing by conditions can occur in both the area-specific and the species-specific approach.
Areas which are not designated nature zones also contain many natural elements: nature is found within the towns and cities, in agricultural areas, on industrial sites, and alongside roads and waterways. The interdependency between nature and all forms of land usage is of great significance to human health, the perception of the environment, and the regulation of environmental conditions. Nature plays a very important role in the urban areas, helping to prevent flooding and heat stress, for example.

Recommendation 3: Create synergies based on the societal significance of nature

- Strengthen the synergy between nature and initiatives and developments in other domains, based on the societal meaning of nature in terms of health, recreation, the attractiveness of the investment climate, water management, and flood protection.
- Increase investments in nature at the transition zones between the urban and rural areas to bring nature closer to the general public.
- Revise the arrangements for agricultural nature management in order to achieve a better ecological return from the resources deployed. Agricultural nature management should be concentrated within large, contiguous areas. Forms of agricultural nature management with hitherto untapped potential should be adapted as necessary to achieve a positive effect in terms of natural values. Land users should be encouraged to participate in the system of agricultural nature management.

Living, working, recreation, and nature

Improving the quality of the local human environment and creating opportunities for recreation will have a positive effect on the physical and mental health of the population, as well as on the investment climate. Many investments in the human environment are directed towards the residential and commercial areas in and around our towns and cities. If the spatial design and management of such areas allows adequate room for nature, the synergy between the various functions - housing, commerce, recreation, and nature itself – will be increased. This may entail cooperation between municipal health organisations and parks management departments, or between the private sector, societal organisations, and public authorities. The avoidance of unnecessary restrictive legislation will create more opportunity for private initiatives in the urban areas.

Another way of promoting synergy is by formulating clear targets for the amount of green space to be included in the urban area, and for the accessibility of nature in outlying areas. Similarly, space which is currently unused can be given over to nature on a temporary basis. In the Council's opinion, this will not impose any restrictions on its future use.

Water and nature

Synergy between water and nature is achieved through integrated spatial planning, where measures within the plans are implemented in such a way as to be mutually reinforcing. This should be a prime consideration in the implementation of the European Water Framework Directive and of the Delta programme (addressing

both flood safety and water provision), also in relation to climate change. Within all such policy, nature can be used to promote the ecological recovery of watercourses (as in the "nature-friendly riverbank" concept), to reduce the risk of flooding by utilising its absorbent "sponge effect", and to preclude water shortages by raising groundwater levels. Flood protection can further be enhanced by applying the "building with nature" concept, as in the Zandmotor project off the coast of Zuid-Holland and in the "Room for the Rivers" programme. The "building with nature" approach can also help regional water management authorities to achieve their objectives through interventions such as double embankments alongside regional flood defence works, reed beds as part of belt canal systems, and the restoration of smaller watercourses and streamlets.

By bringing together water and nature within robust "green-blue" connections, the objectives of both nature policy and water policy (prevention of flooding, water provision, improvement of ecological quality) will be achieved in tandem. If regional authorities and water management authorities coordinate their respective plans effectively, opportunities for synergy will be further enhanced both within and beyond the regional nature networks.

Agriculture and nature

More nature in agricultural areas enhances the quality of the landscape and creates better opportunities for flora and fauna to migrate between nature areas via the zones between these areas. More nature in agricultural areas also promotes pollination and natural pest control for instance, whereupon farmers can reduce their use of pesticides and fertilizers, which will in turn reduce the negative effects of such use on adjacent nature. Shared space usage forms an important component of the regional nature networks.
The proposed "greening" of the European Common Agricultural Policy (CAP) illustrates that there are indeed opportunities to promote this development. Under the proposal, which sets the budgetary framework for the CAP, it will become possible to set aside land to promote the natural control of pests and diseases, recreation, and nature as a public asset. Responsibility for managing the nature areas thus created will fall to the farmers themselves, possibly with assistance from the business community and private individuals. This will strengthen the relationship between farmers and society as a whole.

To strengthen synergy between agriculture and nature, the government applies the instrument of "agricultural nature management", whereby farmers are subsidised to create nature opportunities on land which would (or could) otherwise be optimised for production. However, research suggests that this instrument, and the resources used, are of limited effectiveness in terms of the conservation of endangered species.

The Council therefore recommends that the current arrangements for agricultural nature management should be revised in order to increase the yield of the resources. Specifically:

- Agricultural nature management subsidies should be directed towards: a) areas of sufficient size and adjacent to designated nature areas with the same or similar nature objectives; b) large, contiguous areas with the necessary abiotic conditions in which a large population of one or more vulnerable species still occurs, and c) in the zones between nature areas, with a view to increasing the "penetrability" of the agricultural area itself
- Forms of agricultural nature management with high potential should be adapted so that the anticipated positive effect on natural values can be achieved in practice. For example, in areas which form a habitat for meadowland birds, not only the mowing schedule should be amended, but also arrangements for groundwater management and the use of fertilizers. In areas devoted to arable farming, natural field divisions (e.g. hedgerows) should be allowed to develop, and the use of pesticides should be dramatically reduced
- Agricultural nature management should be applied in the buffer zones around vulnerable nature areas
- Land users should be encouraged to participate in agricultural land management by means of a substantial increase in the minimum duration of management contracts.

The synergy between nature and other forms of land usage is examined in greater detail in Chapter 5 (see Part 2).

Recommendation 4: Allow greater opportunity for societal initiatives; move from "government" to "governance"

- In implementing the policy, apply a system of "reflexive management" rather than "directive management".
- Seek cooperation with societal partners within the "new arrangements for nature policy", and adopt the most appropriate role for the government – facilitator, mediator, partner, producer, or knowledge source - according to the circumstances.
- Promote and strongly encourage nature education for young people in order to strengthen their commitment to nature in later life.

Clarity of governance

The responsibilities and ambitions for nature must be fully transparent at every administrative level. If the relevant public authority's position is not clearly defined, it will be difficult to create adequate opportunity for societal initiatives. Decentralisation of nature policy on the one hand, and the various European rules and agreements on the other, have resulted in several of the tasks and

responsibilities of the various administrative levels being inadequately defined. In some cases, it is not clear who is responsible for the various components of safeguarding nature policy, if indeed such responsibility has been assigned. This certainly applies to "lapsed government tasks" listed in the decentralisation agreement between the government and the provincial authorities. Moreover, there is a disparity between the national objectives of nature policy and the resources available for implementation at the regional level.

In the Council's view, central government retains overall responsibility for the functions of "safeguarding of species and ecosystems" and the "maintenance of life support systems". The reason for this is the scale of the natural systems in which the various species and ecosystems must develop and thrive, as well as the international context of nature policy. Provincial authorities are responsible for the function of "perception of landscape quality", given the importance of this aspect to the regional identity. Local authorities (municipalities) are responsible for defining the ambitions and frameworks for nature within and around the towns and cities, and for nature of local importance in the outlying areas. When responsibility for nature policy is placed at the regional and local levels, the relevant actors are better able to identify with the policy and management requirements. They will be quicker to develop initiatives which address their own needs and perceptions, and there will be greater opportunity to seek synergy by means of integrated area-specific solutions.

Taking up the public responsibility for nature requires the government to formulate ambitions at every level. Those ambitions must do justice to the societal and intrinsic meaning of nature. The government will translate those ambitions into realistic and manageable policy frameworks, which it will then implement. However, the frameworks and the precise form of implementation are not rigid; they are flexible and adapt according to both the natural and societal dynamic. The government must also take a different, more integrated, approach to conflicting space claims in order to create or maintain public support for the policy and the proposed solutions. The traditional government management style, largely based on the philosophy of rational top-down planning, does not provide an adequate response to the dynamic of public-societal developments. It is inappropriate to the effective implementation of nature policy, and indeed to the dynamic of nature itself. The Council therefore urges the adoption of a "reflexive management" approach. On the one hand, such an approach is systematic and rational since it is based on general ambitions and frameworks. On the other hand, it enables the government to respond to uncertainties and unforeseen developments with creativity and improvisational flair.

Flexibility in implementation

Decentralisation offers good opportunities to achieve the objectives of policy in consultation and cooperation with various societal actors. Decentralisation creates room for synergy and flexibility in the implementation of policy, and hence facilitates the reflexive management approach. It is essential that the public, and particularly those individuals wishing to undertake some initiative, know which (semi-)governmental organisations are open to cooperation.

Connecting policy to society

The increasingly prominent role of societal actors in the field of nature and nature policy is a manifestation of the "energetic society", a term which refers to the creativity and innovative strength of companies and private individuals. It is then appropriate for the government to assume a different role, showing restraint to take charge of initiatives but proactive in the creation of the necessary preconditions. The government should focus on strengthening and facilitating the sense of engagement and responsibility for nature felt by companies and individuals. It can do so by adopting the "horizon strategy", by removing unnecessary administrative restrictions, and through co-financing. Clear communication with regard to ambitions and the policy frameworks for nature is important in this respect. Establishing links between local practice and the objectives at international, European and national level (and vice versa) will ensure the maximum level of personal engagement. A management style which seeks to establish the necessary general conditions, rather than focusing on one or more specific species, will render the ambitions and frameworks more manageable at every level of scale. The instruments applied in nature management should encourage societal initiatives.

New arrangements are required if there is to be greater public-private cooperation. In the context of nature management, those new arrangements will entail closer ties between central government, societal partners, and other relevant authorities for a particular area or issue. Depending on the precise situation, it is not always necessary or desirable for the government to be "in charge". It may be more appropriate to assume the role of facilitator, mediator, partner, or knowledge source. The government could also put the existing "green knowledge infrastructure" to greater use in the service of society, ensuring that the knowledge is made available to all parties involved. It is also important that public sector authorities such as *Staatsbosbeheer* (Dutch Forestry Commission; SBB) and *Dienst Landelijk Gebied* (Government Service for Land and Water Management; DLG) maintain links with the societal field and its organisational structures, also at the local and the regional level. In all arrangements, central government will retain overall responsibility for the public interest at stake: a sustainable future for the nature of the Netherlands.

Nature education

The distance between nature and the daily lives of many children leads to alienation from the natural environment and underuse of the potential for personal development. The government, and in this context specifically the Ministry of Education, Culture and Science (OCW), has a crucial role in nature education, particularly that targeting the young. Nature education serves to create and maintain societal engagement, and it promotes and supports personal development. In addition to its own role in providing such education, the government should encourage the efforts of the existing private infrastructure for nature education.

The aspect of governance is considered in greater detail in Chapter 6 (see Part 2).

Recommendation 5: Ensure continuity in nature financing

- Ensure the continuity of financing for nature and nature management: introduce an effective system of risk spreading and of linking costs and returns by means of a combination of government funding and arrangements for private financing.
- Develop and facilitate a system of rights and concessions which will attract new sources of financial support at the level of the regional nature networks.

Continuity

Continuity of financing is essential to the sustainable future of nature. The current financing forms do not provide the required degree of continuity, as illustrated by central government's announced austerity measures and the fact that financing from the private sector and charitable organisations is now also under strain.

Nature is and will remain a public interest, whereupon responsibility for financing must remain with central government. That responsibility aside, it is questionable whether the government will be able to fund all aspects of the nature policy in the longer term, based on the traditional financial arrangements. The government can enhance the continuity of financing by risk spreading. This will entail involving other parties – companies as well as individual citizens – in financing nature policy, and establishing more direct links between the costs and returns of nature. In short, new arrangements are necessary and, in the view of the Council, the government must facilitate the introduction of those arrangements.

Concessions

Further to the proposed combination of horizon strategy and compass management, the Council recommends the introduction of a system of concessions to supplement direct government funding. Within the envisaged system, the right to conduct an economic activity which relies on nature will be directly linked to long-term financial obligations in respect of the sustainable protection and management of the nature concerned.

A system of concessions creates a new role for all parties: government, market, and societal organisations alike. The most important aspect is that it is not only the government itself which provides the financial resources. Rather, the government provides an organisational framework and grants concessions to organisations which operate within society, whether they are established nature conservation organisations or new organisations such as regional nature management funds. They will be expected to devote the income generated by their concession (in full and without any government intervention) to the conservation and management of nature and landscapes.

The concessions granted by the government will therefore generate private resources. The system will be of greatest relevance in new situations in which there is no conflict with established interests. There would appear to be promising opportunities in fields such as energy, underground infrastructure, flood safety, and drinking water production. The abstraction of drinking water from below the coastal dune regions of the Netherlands is an excellent example of a sustainable commercial practice. For some 150 years, the essential social function of water provision has been successfully combined with that of protecting nature and the landscape. It is the societal function which finances the nature management activities.

The concessions confer long-term obligations and are therefore most appropriate in situations in which the costs – in particular those for maintenance – are also long-term in nature. The instrument will be less effective in the case of one-off capital investments such as land purchase or incidental spatial interventions.

In the Randstad conurbation or around the (large) cities, extensive nature areas are largely absent. Nevertheless, the concessions system does provide a promising basis for new financing arrangements. For example, regional nature networks in the transition zones between the urban and rural areas can provide economic added value, not least in terms of recreation, and hence strengthen the financial basis for nature and landscape. It will then be possible to create new links between these regional nature networks and the regional management funds. Value can be added by awarding a title or appellation which appeals to the broader public and emphasises the natural and landscape qualities of the area. Designation as a World Heritage Site is one example.

The government can also encourage private involvement, whether in the form of financial contributions or volunteer work, by means of shared ownership schemes involving the sale of shares in area funds, with a "dividend" paid in kind. One way of involving the general public in nature outside the local setting is through virtual communities, enabling crowd funding for instance. Fiscal benefits might also be introduced to encourage private financial contributions, such as income tax deductibility for nature management costs and donations to nature management organisations.

The financing of nature and nature management is considered in greater detail in Chapter 7 (see Part 2).

Conceptual framework

In this advisory report, the Council introduces a number of terms which, in combination, describe the direction in which it wishes nature policy to develop. These terms refer to certain concepts which the Council hopes will prove useful and usable in the longer term, without being influenced by political discussions at any given moment. These concepts are certainly not intended to form a blueprint or a new planning instrument. They are briefly described below.

Compass management: A management strategy in which the overall direction towards the development of a certain ecosystem or landscape is known, whereby the necessary preconditions in terms of environmental quality and space are to be achieved. The approach allows for an autonomous dynamic that preserves characteristic diversity. It is therefore unlike the traditional management strategy which is based on detailed objectives such as the (former) "nature target types".
Horizon strategy: The pursuit of set long-term objectives by means of the flexible implementation of policy, whereby it may become appropriate to slow down pace in times of limited (financial) resources. The long-term objectives will be defined by the government in consultation with businesses and societal organisations.
Managing by conditions: Management approach that establishes the specific spatial and environmental conditions that ensure the optimal safeguarding and further development of nature.
Natural processes: The spontaneous establishment, spatial distribution and autonomous dynamic of wild flora and fauna. Natural processes can also be abiotic (e.g. drifting and flooding) and can occur at various levels of scale.
Nature network: The combination of regional nature networks, including the intermediate and adjacent agricultural landscapes, intended to ensure a sustainable future for the Netherlands' nature.
Reflexive management: A strategy which combines planned and rational management (based on ambitions and frameworks) with a flexible, interactive and adaptive management approach that is responsive to the natural and societal dynamics and unforeseen events.
Regional nature networks: Clusters of nature areas, both large and small and including the intermediate and adjacent agricultural landscapes, in which the landscape quality and "penetrability" is sufficient to permit the migration of flora and fauna throughout the greater network. The regional networks should link up to the existing infrastructure of greenspaces and water bodies in urban as well as outlying areas ("green-blue" connections).

PART 2 | ANALYSIS

NATURE POLICY IN DEVELOPMENT

1

Part 2 of this report presents a detailed examination and justification of the recommendations given in Part 1.

1.1 Developments in nature policy

Nature and nature policy are subject to ongoing societal debate. There are, and have always been, varying opinions regarding nature and its place in our society. In the early twentieth century, individuals and, later, organised groups called attention to the loss of nature. They pointed to the meaning of nature to man, and to the responsibilities of man for nature. Public concern eventually prompted political action. In the Netherlands, the *Natuurbeschermingswet* (Nature Protection Act) came into force in 1968. The government itself was now involved in nature protection and conservation, at first passively in the form of legislation, and later more actively by means of (both spatial and ecological) development policy and investments. Policy became increasingly intensive: in 1990, the government began the process of developing the EHS, a cohesive network of existing and planned nature areas, together with zones around the major cities intended for nature recreation. In 2004, it announced the National Landscapes programme. By now, the government was no longer merely following societal initiatives but was the leading party. Societal organisations coordinated their activities with those of the government, at least in part. The result has been the institutionalisation of nature conservation.

Polarisation within the debate on nature policy

Other developments have heightened the existing contrasts within nature policy. They include the *juridification* and *technocratisation* of policy, and conflicting claims to the space available. This has prompted a critical approach to nature policy which, in the opinion of the Council, cannot be reconciled with the great value which the Dutch public attaches to nature in the broad sense of the term. At the same time, it is becoming increasingly obvious that nature is extremely important to aspects such as human health and the attractiveness of the investment climate.

Food security is drawing increasing public attention. The renewed interest in every aspect of food raises new questions with regard to land usage. The conflicting claims of agriculture and nature, which were less acute when agricultural income was falling and the sale of land provided a means to rationalise the sector, have re-emerged due to rising global food prices.

Animal welfare is of increasing public interest and importance. As attention for nature and the well-being of domestic animals grows, so does that for wild species and the way in which they are affected by human activity. Animal welfare in the Oostvaardersplassen region, for example, has prompted fierce debate with starkly contrasting opinions regarding nature.

Legislation is sometimes extremely detailed. This results in the juridification of the relationships between land users. Legal arguments about economic initiatives create the impression that the Netherlands is in a deadlock. Conflicts between nature and adjacent agricultural usage have been ongoing for many years. The designation of certain areas as protected under the "Natura 2000" programme (further to European legislation) has given these conflicts a marked juridical dimension.

The manner in which the Netherlands is governed is changing, and this too has consequences for nature policy. A dichotomy is emerging: on the one hand, we see ongoing internationalisation of nature policy due to the important role of the EU in formulating legislation. On the other hand, the implementation of nature policy is being decentralised with a view to bringing that policy closer to the regions and the people. This dichotomy gives rise to administrative complexity, grey areas, and uncertainties in policy implementation. Moreover, the cutbacks in government spending which have followed the various waves of decentralisation serve to create discontinuous, and hence unreliable nature policy which in many cases has led to the abrupt halt of area-specific measures and interventions.

The technocratisation of nature policy and nature management is due to the demand for accountability in and the application of SMART[2] criteria for public financing. The technocratic approach entails detailed and accountable objectives (e.g. the former "nature type" and species-specific targets) and is permeating policy to an ever greater degree. At the same time, the public sense of engagement in the immediate human environment is growing. Increasingly, nature conservation officers face the challenge of justifying their approach and matching their activities to the wishes and requirements of society.

2 SMART: Specific, Measurable, Achievable, Realistic, and Time-bound

Ecological recovery (the restoration of nature) is not making adequate progress. The Netherlands' nature is showing rapid changes. Some species are thriving and spreading, partly due to climate change but also due to restoration measures and the conversion of agricultural land into nature areas. However, there are also many species in continued decline. To date, we have been unable to take appropriate measures to halt this trend.

These developments have given rise to a societal momentum which has created opportunities for the rapid and far-reaching shifts in policy seen in recent years.

1.2 Nature policy calls for renewal

Because the principles and objectives of nature policy have been retained but the manner of implementation (administration and financing) is subject to drastic changes, there is a risk that the cohesion between the principles, the objectives, and the application of instruments will be lost. This could well lead to a policy impasse, stagnation, and perhaps even the negation of the achievements to date. In fact, this is already visible. Land that was set aside for nature is now being given other uses. Existing nature areas are being sold. In some cases, regular nature management activities have been discontinued, whereupon areas no longer offer the "wild" conditions needed to sustain certain vulnerable species. Many such species are being lost.

The lack of cohesion within nature policy also results in insufficient use being made of the autonomous dynamic and strengths of both nature and society. For many people, nature makes a major contribution to the quality of life. There are differing views regarding the primary role of nature: offering protection against flooding, stimulating health, contributing to a pleasant working and living environment, offering recreational value or providing an attractive landscape in which to walk or cycle. There is a clear sense of responsibility for nature among the general public: people are eager to play their part. Society should make full use of their enthusiasm and energy.

There are also a number of autonomous changes ongoing within nature itself, due to the dynamic of natural processes and the effects of climate change. The autonomy of nature makes it less susceptible to human intervention than is often believed. Attempts to manage nature at the micro-level usually do little more than create shackles which severely restrict opportunities to bring about the desired improvements. In short, renewal of nature policy is now a matter of urgency.

VISION OF NATURE: A PRIMARY LIFE NECESSITY 2

Everyone who is in any way involved in nature thinks and works (explicitly and implicitly) according to a given vision of nature. An understanding of the various possible visions is essential if we are to understand each other. Accordingly, the Council wishes to present its own vision of nature.

Man is reliant on his environment. He needs input, both physical and mental, from that environment. Without mental challenge and stimulation, his will be a dull and boring life. Without food, it will be a very short life. Natural processes regulate the quality of water and air. Without a living biosphere, the CO_2 content of our atmosphere would be 98%, and the average temperature on our planet would be 240° C (Lovelock, 1990).

Wholesome food, water, a clean environment, protection against flooding, room to move, the opportunity to experience inspirational scenery, and a common sense of responsibility for our environment: these, in the view of the Council, are basic preconditions for adequate functioning, personal development, and sustainable societal development. This applies not only in the "here and now", but throughout the world and for generations yet to come. These primary conditions of existence – the life necessities – are of societal importance: it is not only the individual who benefits but society at large.

Nature must therefore be regarded as an important public interest. Society has a clear responsibility to balance private interests which may affect nature against the common societal interests. Doing so demands a vision of the meaning of nature as part of our human environment and as the "supplier" of our primary life necessities. How should nature be defined in this context? What is the precise value and importance of nature? What is the relationship between nature and landscape? How does our vision of nature affect the way in which we interact with nature?

2.1 The concept of "nature"

2.1.1 Nature

Almost everyone will have his or her own definition of "nature", and this can lead to disagreements. One person may think of nature in terms of all green space, while another may think only of protected flora and fauna. For some, a dandelion growing from a crack in the pavement is nature, while for others, nature refers only to that which has not been altered by man. The many definitions, and their significance, are not mutually exclusive. Rather, they complement and reinforce one another.

The Council applies a particularly broad definition of nature, to include – depending on the discussion at hand – nature areas, flora and fauna on industrial sites, and inner-city nature. Natural processes can occur absolutely anywhere, from tufts of grass growing between paving stones to the mighty dynamic of the sea, shoreline and mudflats of Schiermonnikoog. For the purposes of this report, the term "natural processes" refers to processes which lead to the spontaneous establishment and distribution of wild flora and fauna. This may occur alongside the major rivers aided by the presence of grazing animals, amid the wooded banks of the Gelderland Valley, or in the fields and meadows of Groningen, where various types of wildflower are establishing themselves and birds such as the Montagu's Harrier brood in significant numbers.

As human influence increases, the natural order decreases. In some cases, human influence is complete: think of a tarmac car park, where nature has been displaced entirely. The transition between nature and culture is gradual. In the practice of nature management, a division is applied between (almost) completely natural landscapes such as the Waddenzee, semi-natural landscapes such as meadows, and cultural landscapes such as agricultural areas. Nature can be found in all those systems, but natural processes determine an ever-diminishing proportion of the landscape. It is man who determines the remainder.

Differing meanings can also be attached to the words we use for "nature" in everyday speech. Some are immediately recognisable as synonyms for nature: "green" and "greenery" for example. Others are less obvious. Many young people refer to nature in terms such as "fresh air" or "outdoors", possibly due to the integration of nature with other aspects of their lives. In this context, "fresh air" represents (individual) freedom, space, and health. Most importantly, it refers to all such aspects in combination. Nature is not a separate value in itself, but forms an integral part of an overall set of values (Van Slobbe, 2012).

There is no "official" government definition of nature, an omission of particular significance to this report. Legislation not only fails to define "nature", it excludes the word altogether. The species and habitats to which that legislation applies is specific; it cites the taxonomy of the species and the classification of the habitat. See for example the General Regulation in Council which accompanies the Flora

and Fauna Act, or the various annexes to the European Habitats Directive (92/43/EEC). Similarly, legislation such as the *Boswet* (Forestry Act) and *Waterwet* (Water Act) offer no definition of the term "nature" as it is to be understood for the purposes of implementing those acts.

Policy development is based on a very broad definition of nature, from the city pavement to the Waddenzee. The government has stated that it would be difficult, and not particularly useful, to arrive at a firm, legally binding definition when the term is used so widely (LNV, 2000).

The term "nature" is not explicitly used in the national Constitution, although the Constitution does establish the government's direct responsibility for various aspects of societal well-being, such as public health, social and cultural development, and leisure opportunity. Nature is an important component of all such aspects.
The Constitutional Index (version of 1 June 2004, here in translation) states:

- The continued existence of the population and the distribution of welfare are matters of government concern and responsibility (Article 20).
- The government is responsible for the habitability of the country and for the protection and improvement of the human environment (Article 21).
- The government shall take measures to protect and promote public health (Article 22).
- The government shall create the preconditions for social and cultural development, and for leisure and recreation (Article 22).

The Council distinguishes between *physical* nature ("nature you can touch") and the *functions* of nature ("nature from the administrative perspective") such as its contribution to human health, the attractiveness of the investment climate, and the conservation of wild flora and fauna (see also PBL, 2012a). Societal debate, policy formulation, and decision-making should, the Council believes, be based on the *functions* of nature in order to clarify the actual topics under discussion. Moreover, a focus on functions renders it easier to establish links between the interests and the various parties involved: the stakes and the stakeholders.

2.1.2 The relationship between nature and landscape

The words *nature* and *landscape* are often used together or even interchangeably. Landscape has been defined as 'the observable part of the planet, the form of which is determined by the mutual influence of the factors climate, topography, water, soil, flora and fauna, and human activity' (LNV, 1992). In the field of ecological research, landscape is defined as 'the cohesive whole of ecosystems, including the interactions between those ecosystems' (Berendse, 2009). Landscapes are areas which are recognisable by virtue of certain common characteristics: meadows, mudflats, or the hills of South Limburg, for example. The landscape provides the context within which nature can develop. Birds such

as the black-tailed godwit and the ruff need an open meadow landscape in order to forage and nest. The hedgerow landscape of Zeeland provides an appropriate habitat for species such as the lesser whitethroat and the European turtle dove. A wooded landscape will have yet other species, such as the black woodpecker and the European pine marten. This report is concerned with the landscape in its role as the physical host and vector of nature, and as the setting in which the natural elements of other functions are to be found, such as watercourses, streamlets and wooded banks in the cultural landscape of agricultural areas. The architectonic and cultural-historical aspects of the landscape fall beyond the scope of this report, concerned as it is with nature policy.

2.2 Nature brings responsibilities

2.2.1 Responsibility for the continued existence of flora, fauna, and ecosystems

The societal significance of nature implies certain responsibilities for nature and its conservation. Those responsibilities are based on both functional and ethical motives.

Functional motives

The *functional* motives for nature conservation are derived from the major societal meaning of nature, including its meaning for health, recreation, the investment climate, production, environmental regulation, and knowledge.

Health: Mental relaxation and physical exercise enhance health and are part of preventive and curative health care (Gezondheidsraad & RMNO, 2004; Groenewegen et al., 2012; Joye & Van den Berg, 2013). Whether nature is used for regular relaxation will largely depend on its accessibility; can it be easily reached on foot, by bicycle, or by car? When within ten minutes' walking or ten kilometres by bicycle, nature provides opportunities for preventive healthcare (PBL, 2009). In terms of curative care, the proximity of nature to hospitals and residential care locations is important. Short walks amid nature can promote recovery after an illness.

Recreation: Nature provides a setting in which many people like to spend their leisure hours. Statistics indicate that, in the Netherlands, one in two people visit a nature area at least once a month (CBS, 2012a). One in three vacations involves a visit to a nature reserve or area of outstanding natural beauty (GNL, 2012). The natural environment serves to reduce stress, improve mood, and enhance vitality due to the feeling of a connection with nature (Joye & Van den Berg, 2013). Nature therefore helps to meet the higher needs for beauty, knowledge, connection, and wisdom (Sijtsma et al., 2013). Nature contributes to recreation in the sense of "recovery": it has a restorative function and value.

Investment climate: A company's choice of business location is often influenced by the presence of green areas, this being recognised as a contributory factor in terms of the health and well-being of the workforce, and hence productivity. Green areas are essential to a pleasant human environment and to an attractive investment climate (Province of Zuid-Holland, 2012; SER Noord-Brabant, 2012). Greenery also makes a direct contribution to economic development (Bade, 2011). The city and the nature which surrounds it create a subtle symbiosis in terms of well-being and economic prosperity. In terms of the national economy, the advantages created by agglomeration are essential. However, an estimated one million people suffer from a "green deficit" in their everyday environment, whereupon they opt to spend some leisure time outside that environment in the green areas in order to maintain their sense of well-being (Sijtsma et al., 2013).

Production: Nature areas produce biomass (e.g. wood or reed) but also produce a wide range of organic compounds, many of which are of great importance to man. In the United States, over 70% of cancer drugs approved by the FDA in recent years are based on substances derived from newly discovered plants which grow in the tropical rainforests (Loreau et al., 2001). In the Netherlands, many insect species play an important role in pollinating fruit stocks, while others help to combat pests and diseases which would otherwise threaten agricultural production.

Environmental regulation: Natural processes regulate the quality of water and air. Without any biosphere, the carbon dioxide content of Earth's atmosphere would be 98% and its temperature would be 240° C. Without the extensive nature areas which accumulate carbon dioxide, the CO_2 level would rise at twice the current rate of increase (IPCC, 2007). The regulatory effect of nature mitigates the effects of climate change in the urban areas: evaporation from vegetation will greatly reduce heat stress, while the presence of that vegetation can restrict the adverse effects of increased water run-offs. Soil erosion along water defences is clearly reduced when a diversity of plant species is introduced. The "sponge" effect of nature is of major importance in terms of quantitative water management; water can be stored in times of surplus to meet demand in times of shortage. Introducing more plants and trees within the urban areas and alongside roads helps to reduce air pollution. Nature areas alongside rivers and shorelines provide protection against flooding.

Knowledge: The DNA of all life forms contains information about the ways in which they are able to survive various, often hostile, conditions. This information – the result of four billion years of evolution – is of major importance and offers hitherto unimagined opportunities to anticipate future changes in our human environment.

Ethical motives
The ethical motives for the conservation of habitats and their flora and fauna are just as important as the functional motives. Most people acknowledge the right of existence enjoyed by other species, and further acknowledge a moral obligation to protect that right (PBL, 2012b). The right to existence implies that nature must be allowed every opportunity to develop, and to adapt to rapidly changing conditions. There must be room for evolution and spontaneous genetic adaptation. Only then will plant and animal species be assured of a sustainable future.

Many people feel a sense of responsibility for the continued existence of the other species with which we share the planet. Accepting and acting upon that responsibility enhances well-being in the broadest sense, bringing both tangible and intangible benefits. The Council does not therefore endorse the "progressive" view that technology can ever be a substitute for nature (Van Slobbe, 2012).

In the context of sustainability, the Brundtland Report (WCED, 1987) states that today's generation must be able to pass on all natural resources to its successors intact. More recently, animal welfare and animal rights have become the topic of societal debate (RvS, 2007). There have also been calls to include the right to play outdoors, amid nature, in the United Nations Convention on the Rights of the Child (NatuurCollege, 2010). Ethical motives often play a decisive role in political decisions. In a broader historical context, the influence of ethical considerations on the development of our civilisation is continuously growing. The nineteenth century saw the abolition of slavery. In the twentieth century, attention shifted to child labour. Today, we are engaged in an intense discussion about animal rights (Berendse, 2012).

Given the many functions of nature, the Council concludes that nature makes a positive contribution to virtually all aspects of human welfare and well-being. Nature is ubiquitous, and so is its value. The multi-functionality of nature is its key strength. One and the same nature area can simultaneously provide recreation, protect against flooding, and play a part in the conservation of flora and fauna.

2.2.2 Responsibility for animal welfare

Responsibility for nature, with particular reference to animal welfare, is now a major topic of public debate. It is impossible to accept and act upon our responsibility for nature unless we have a clear vision with regard to the rights and well-being of wild animals.

One characteristic of nature is that wild animals are, by definition, autonomous. They decide for themselves how to make use of their environment, choosing to establish themselves in certain areas and not others, for example. This autonomy can give rise to situations in which there are periods of reduced well-being, which

we humans might interpret as a form of suffering. The periods of reduced well-being can have various causes, including the natural behaviour of the species concerned (which may move into areas with a limited food supply), the natural development of areas which then become unsuitable for habitation, or extreme weather conditions. Such situations occur regularly in nature and have been the driving force of the evolution of both species and ecosystems. The possibility of evolutionary development and genetic adaptation is at the very heart of the concept of "nature". Without evolutionary development, nature – or in the broader sense, *life* – cannot adapt to changing conditions and circumstances.

Situations of reduced individual well-being are inherent to the process of evolutionary development. That process is driven by aspects such as natural selection by predation or food shortages: being eaten by a predator or starving to death would clearly qualify as a period of reduced individual well-being. Evolutionary forces have been at work for some four billion years. They produce developments which affect the well-being of individual animals. The Council views these instances of reduced well-being as an inevitable part of the evolutionary process, as the result of the natural processes which are the driving force of evolution itself. It therefore behoves us to respect the autonomy of nature and to accept the evolutionary processes, even if they are the cause of reduced well-being. If we do not allow room for spontaneous genetic adaptation, the periods of reduced well-being will be far longer than necessary. Counterintuitive as it may seem, well-intentioned measures such as providing artificial shelter could actually result in greater animal suffering in the longer term.

However, this in no way detracts from the responsibility of man for animals, which is based on the nature of the relationship between man and other species. Where humans have deliberately made certain animals reliant on us, through domestication for example, then we are wholly and solely responsible for their well-being. This responsibility manifests itself as a "duty of care", whereby the level of care and well-being required will be context-dependent. Similarly, a duty of care exists where man has imposed certain conditions on other species, perhaps by introducing them to areas which they would not have selected as a habitat or by changing the conditions within an area in such a way as to impact on their natural ability to survive.

CONTINUITY IS ESSENTIAL FOR THE CONSERVATION OF NATURE

3

If the stated objectives are to be achieved, continuity of nature policy and management is essential. The processes involved require time. Continuity must be sought in terms of engagement with nature, the conditions for nature, and the synergy between nature and other societal interests. The development of an ecosystem, from the establishment of "pioneer vegetation" which eventually becomes mature "climax" vegetation through a series of transitions, takes decades. Time is therefore an important factor. Many species of flora and fauna require many years to establish themselves, even if the necessary environmental conditions are already in place. Long-term policy is essential because it can also take many years or even decades for the various societal partners to achieve the necessary level of cooperation.

A notable example of continuity in policy is the Nature Policy Plan of 1990, which introduced the concept of the EHS which formed the binding principle of all Dutch nature policy for over twenty years. However, and perhaps even more often, we can also see instances of discontinuity. There has been an ongoing cycle of established approaches, relationships and structures being discontinued, whereupon investment in new approaches is required. The (organisational) effects of such discontinuity are felt over a long period, especially when changes follow each other in rapid succession, because organisations are no longer in balance with their particularly dynamic work setting. Discontinuity leads to uncertainty in investment decisions and in whether it will be responsible and useful to forge new cooperative partnerships with other societal organisations.

For nature itself, discontinuity often accelerates the demise of certain species because they require a long period in which to adapt to changing conditions or to establish themselves under new environmental conditions.

3.1 Continuity in policy and engagement: the current situation

Societal continuity
Societal continuity is relatively high, as illustrated by the stability of various nature conservation organisations. In response to the decline of nature and further to a renewed appreciation of its significance, social engagement was mobilised in the late nineteenth and early twentieth centuries in the form of several professional organisations which remain in existence today. For example, *Vogelbescherming Nederland* (the national society for the protection of birds) was founded as long ago as 1899, while *Natuurmonumenten* (a society for the preservation of nature reserves in the Netherlands) was established in 1905. The structure of this private sector has shown continuity and ongoing development to include organisations with specific objectives, such as the provincial Landscape Management Trusts established in the 1930s, and *Stichting Kritisch Bosbeheer* (SKB), concerned with responsible forestry practice, which was founded in 1977. The societal motives for nature conservation also show continuity. The importance of nature to health has long been recognised, as has its importance to the human environment, i.e. the physical setting in which people live and work. Although these aspects are now attracting government attention, the general public has been acting further to such motives for many decades (think of the establishment of sanatoriums in nature and the popularity of houses in green areas). The private sector has adopted the improvement of nature as a consistent objective, and has taken advantage of the opportunities that have presented themselves.

Policy continuity
Changing views with regard to nature policy and governance in general can have an adverse impact on the continuity of policy, as can changes in government which result in the appointment of new administrators. New views and insights can form a justifiable motive for significant shifts in policy. When based on a careful evaluation of current policy, changes may well result in new policies which better meet societal requirements.
Examples of justifiable policy changes include the adoption of an offensive strategy in the form of the EHS and the stricter norms for emissions of ammonia and pesticides, all of which help to achieve the overall objectives of nature policy. On the other hand, shifts in policy can hinder the attainment of those objectives. The hurried process of adapting national legislation to the requirements of the European Birds and Habitats Directives caused discontinuity because it disrupted the relationship between nature and the commercial sector, and because the processes of communication and information provision were inadequate (RLG, 2002). More recent examples include central government's relinquishment of responsibility for various policy categories – whereby it failed to establish which administrative level was expected to assume responsibility (EL&I, 2011a) – and the reduction of the nature budget by some 70% announced in 2010.

Discontinuity of policy can also be caused by changing societal attitudes. The "decentralisation push" of 1991 resulted in some components of nature policy being devolved to provincial (regional) level. This was not prompted by the content of the policy itself, but by general administrative considerations. A second wave of decentralisation was seen in 2005, with provincial authorities assuming responsibility for the implementation of the Nature Protection Act and various measures under the Investment Budget for Rural Areas, or ILG (Selnes & Kuindersma, 2006). By 2009, it was clear that decentralisation had not (yet) achieved the intended results. Provincial authorities had not adapted their working methods to take advantage of the opportunities offered by integration, while their decision-making powers remained restricted by overly detailed national legislation (PBL, 2009).

Interaction between societal continuity and policy discontinuity
Changes in policy and implementation practice have influenced both the governmental executive agencies, such as the Government Service for Land and Water Management (DLG) and *Staatsbosbeheer* (SBB), and the societal organisations, such as *Natuurmonumenten*, the provincial Landscape Management Trusts, *De Vlinderstichting*, and *Sovon*. The lack of continuity in policy forces societal organisations which work alongside the official agencies to adapt. The investments they must make in order to adapt are not always warranted by the prospect of greater benefits from cooperation. Moreover, decentralisation has forced these organisations to shift their attention from partnership with a single national government to partnership with twelve separate provincial authorities, which has inevitably had consequences in terms of their organisational structure and staffing requirement. There have also been major changes to the subsidy arrangements, including the rapid transition from long-term structural subsidies to incidental project grants in the late 1980s, which required the societal organisations to make drastic changes to their working methods.
Central government's net contribution to the achievement of societal nature objectives has been substantial, as illustrated by the slowing of the rate of decline of various species and ecosystems, the success of the EHS concept, and the reported improvement in environmental conditions (PBL, 2012b). Nevertheless, greater continuity in policy would significantly increase the benefits of cooperation between public sector authorities and the societal midfield.

3.2 How continuity can be achieved

Societal continuity and policy continuity are essential to support investments in nature by societal organisations, the private sector, public sector authorities, and individuals. There must be continuity of objectives and in the basic conditions for the achievement of those objectives. In the view of the Council, the basic conditions for the continuity of nature policy are: 1) the involvement of the general public and business community; 2) the availability of knowledge; and 3) the availability of financial resources. Discontinuities can be functional when intended to remove existing obstacles, but must not be allowed to undermine the objectives or the basic conditions for their attainment.

3.2.1 Apply a horizon strategy

The Council believes that continuity can only be assured by formulating long-term objectives and applying a "horizon strategy" with a thirty-year vision based on a meta-concept, the main outlines of which are agreed upon by politicians, societal organisations, and the private sector. Such a policy will be sustainable in administrative, ecological and economic terms. The government will formulate the objectives at a reasonably high level of abstraction, based on its responsibility for nature as a public interest. One important objective will be to restore and maintain ecosystems and landscapes, and hence the natural habitats of various species of flora and fauna. There are, however, societal objectives and interests, including the substantial contribution which nature makes to public health, which must also be taken into account. The vision should not present a static target situation: society and nature are, after all, dynamic. New insights and the results of scientific research may prompt modifications and improvements, provided the main objectives are not jeopardised. The government will not determine how any particular objective is to be achieved. It will however define that objective and will uphold that definition over time. The Council calls for the further elaboration of the proposed horizon strategy, together with the following steps in pursuit of the necessary continuity:

1. The development of a "Nature Network" at the national scale (as described in Chapter 4) is the point on the horizon towards which all efforts are directed. The path towards this point can be adapted as necessary in line with new scientific insights, further to the socially desirable functions of nature, and on the basis of our responsibility for the maintenance of ecosystems, landscapes, and flora and fauna. Establish clear priorities with regard to the steps to be taken, based on "no regret" measures
2. Reduce the intensity of implementation measures in times of limited financial resources, but maintain the final objective.

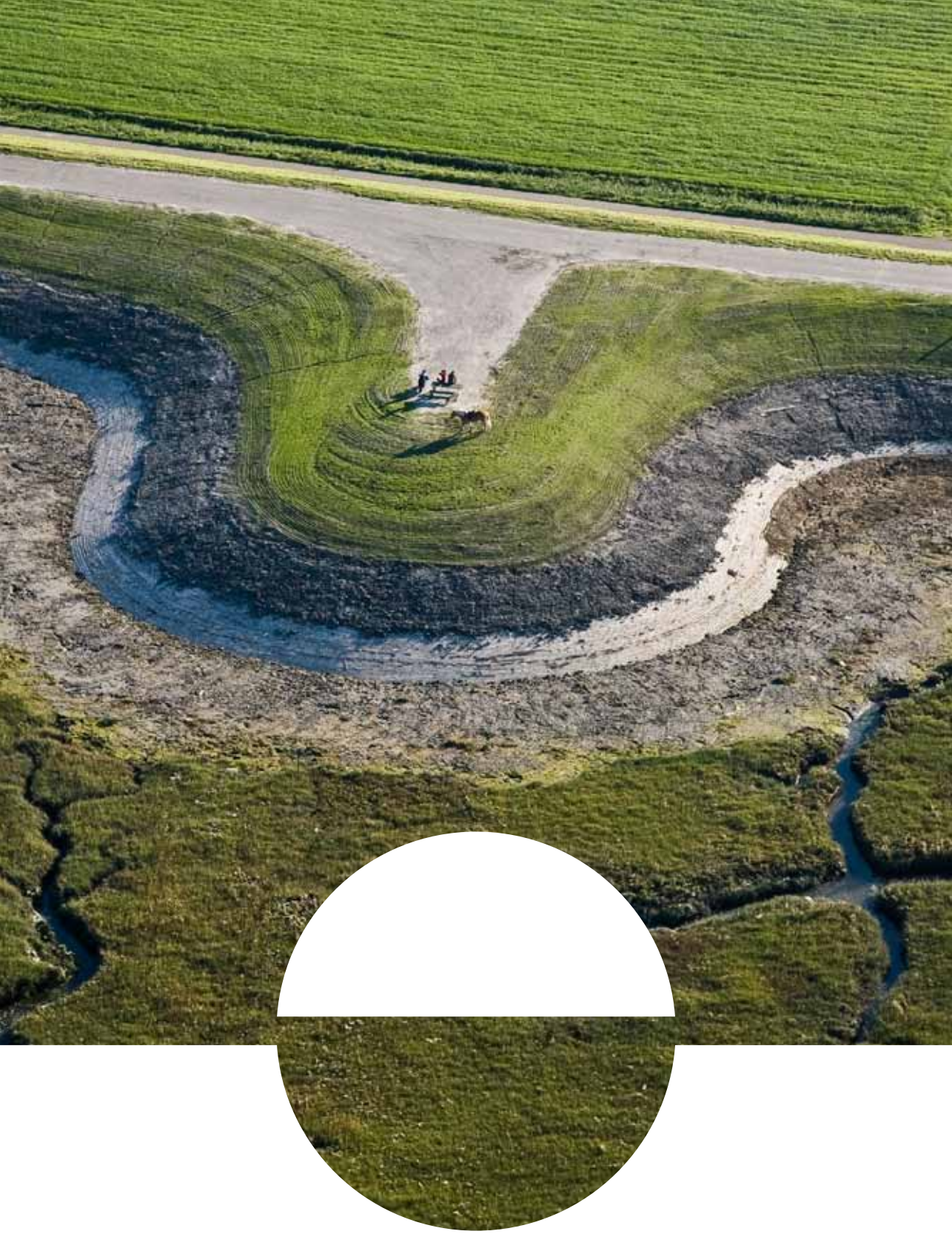
3.2.2 Ensure acceptance of the basic conditions

To ensure the continuity of the basic conditions of "involvement", "knowledge", and "financial resources", the government and the societal organisations must create general acceptance of these basic conditions within society as a whole. Acceptance can only be achieved if the conditions are seen as an entirely logical extension of our joint responsibility for nature.

Active involvement or engagement will be created based on a feeling of shared responsibility for the environment. The government is entitled to ask every citizen to accept and act upon that responsibility. It should encourage sustainable behaviour. Investment in nature education is essential, particularly at primary school level.

Another responsibility of the government and the other stakeholders is to ensure that there is adequate *knowledge* available to support decision-making with regard to the form of management activities, the assessment of the effects of interventions, and the implementation of mitigating or compensatory measures. In addition, the consequences of decisions must be monitored in order to evaluate and further develop the knowledge itself.

Acceptance of the importance of continuity in financial resources will be greater if it is made clear how the absence of such resources will accelerate the loss of valuable nature. Willingness to make a financial contribution will be increased if a balance between costs and returns (benefits) can be demonstrated. The government is entitled to ask a user who derives benefits from nature to contribute towards the costs of maintaining that nature. One way of doing so would be through a system of rights and concessions, as described in Chapter 7.



SPACE AS THE BASIS FOR THE CONSERVATION OF NATURE

4

In principle, every area of the Netherlands – both on land and offshore – is influenced by human activity. However, the degree of influence varies from one area to another, whereupon the autonomy of nature is more manifest in some areas than in others. There are areas which are set aside for nature and in which nature is allowed free rein to develop, the main objective being the conservation of ecosystems and species. In the agricultural, cultural and urban landscapes, other forms of land usage – such as housing, commerce, and food production – are dominant and have a marked influence on nature. Here, the area available to nature is limited, but nature nevertheless plays an important role. It helps to ensure a pleasant residential environment, for example, or aids in pollination and natural pest control.

4.1 Space for nature: the current situation

In the Netherlands, many nature areas remain too small and fragmented to make any substantial contribution towards the sustainable conservation of ecosystems and flora and fauna (PBL, 2012b). An area must be large enough to:

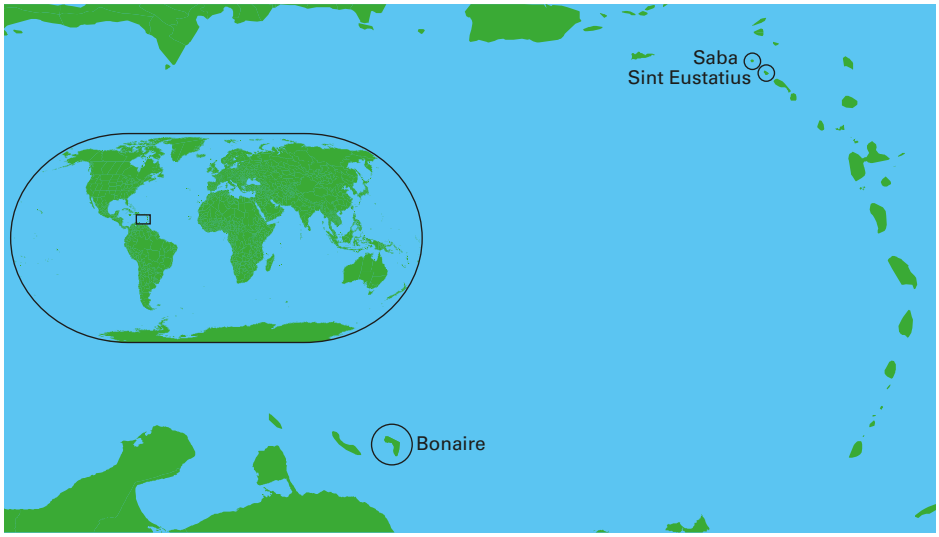
- Accommodate populations of such size that an incidental decline in numbers will not result in local extinction
- Accommodate species which require a large territory, such as large mammals, birds of prey, and other predators
- Accommodate a minimum number of subpopulations of a particular species in order to facilitate re-establishment if one subpopulation fails to survive changing conditions.
  According to the metapopulation theory (Hanski & Gilpin, 1997; Ovaskainen, 2012), there must be at least fifteen or twenty subpopulations of a species within a regional nature network in order to ensure a realistic prospect of long-term survival
- Ensure that the negative effects of agricultural activity (e.g. chemical pollution, soil desiccation) are at an adequate distance.

Figures 1 to 3 give an impression of nature and nature areas in the Netherlands both onshore and offshore.

Figure 1: National Ecological Network (EHS) as at 2012

Sources: PBL/Compendium; PBL, 2012; IPO, 2012 (The Hague); CBS, 2012.

Figure 2: The Caribbean islands of Bonaire, Saba, and Sint Eustatius, boasting rich nature both onshore and offshore

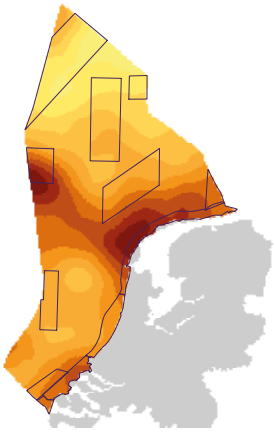


As of 10 October 2010, the territory of the Netherlands has been extended with the Caribbean islands of Bonaire, Saba, and Sint Eustatius. Source: PBL.

Figure 3: Biodiversity in the North Sea between 1991 and 2010 (left) and the status of nature areas in the North Sea (right)

Biodiversity in the North Sea, 1991-2010

Total



Status of nature areas in the North Sea

Number of species (index)
High Low

Status
Natura 2000
Natura 2000, Birds Directive

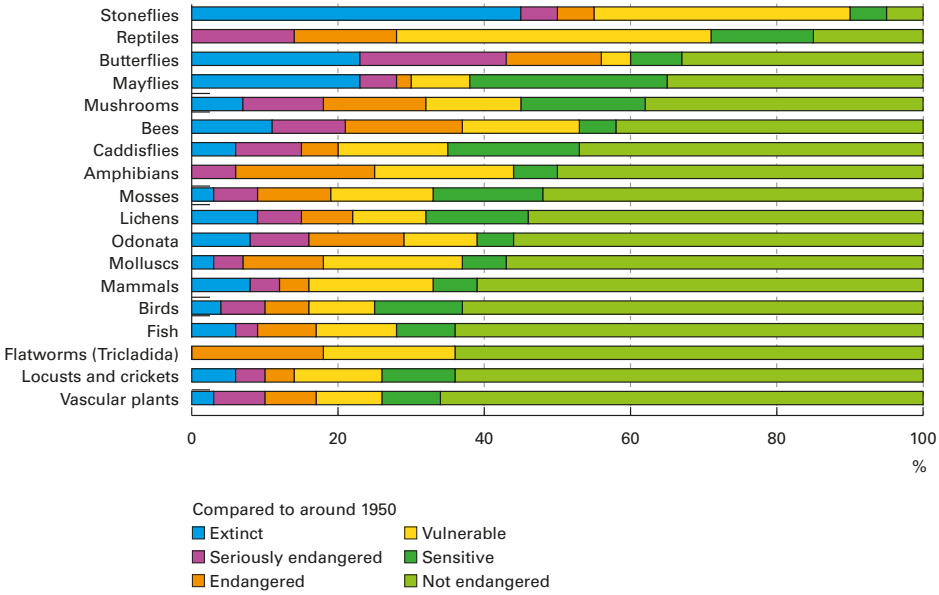
Areas with special ecological values

Source: PBL.

For nature, not only the size of an area is important but also its environmental conditions, including the water system. Environmental conditions in the Netherlands have improved; emissions of sulphur and nitrogen compounds have been greatly reduced, as has the use of chemical pesticides. The major investments in wastewater treatment at both the national and international level have proved effective. However, these improvements have now slowed or halted, and environmental and water conditions remain unsatisfactory, particularly in terms of the nitrogen and phosphate level and that of residual pesticides, as well as both the quality of groundwater and the level of the groundwater table.

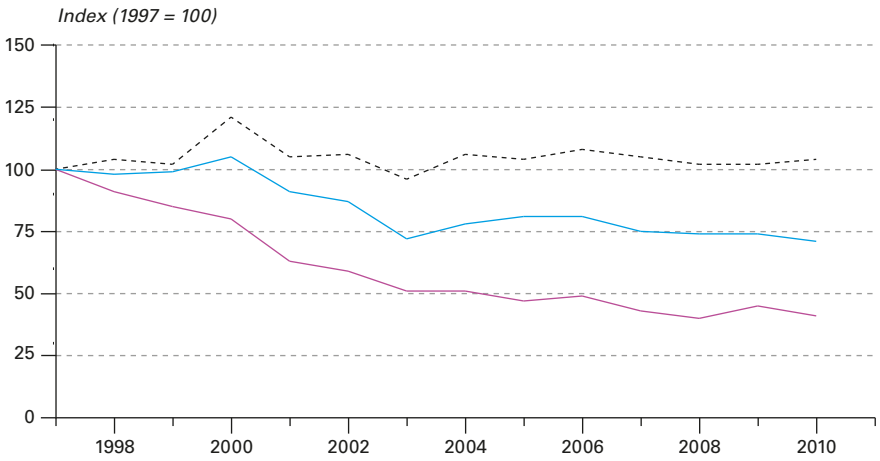
At the national level, current policy has not yet resulted in the desired large and contiguous networks of nature areas in which environmental conditions have been improved enough to assure the sustainable future of ecosystems and species. The land area available to nature remains too small and fragmented to achieve these aims. This also applies to the areas designated as part of the Natura 2000 network (PBL, 2012b). Biodiversity has yet to recover and remains vulnerable (see Figures 4 and 5).

Figure 4: Endangerment of species around 2000



Source: LNV and others.

Figure 5: Species population size



The decline of species that are characteristic for the Netherlands from an international perspective has not been halted. This also applies to many Red List species. Source: Alterra and pbl.nl

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The current policy measures have been similarly ineffective in areas dominated by other forms of land usage, in which nature is a peripheral function. The government has made very significant investments with a view to restoring nature in the agricultural areas, but without notable success. Recent analyses reveal that the number of brooding pairs of birds in the agricultural areas has fallen by 75% since 1960 (Sovon, 2012). There are some vulnerable species, primarily of meadow birds, for which the agricultural areas form the main habitat. These species are also in decline and, in the absence of assertive action, will soon disappear altogether (Berendse et al., 2004; Schroeder et al., 2009). The policy of agricultural nature management has been of very limited effectiveness. The key factors for the survival of many vulnerable species are often diametrically

opposed to the factors essential to economically viable agricultural production (Kleijn, 2012). Discontinuing the use of pesticides or dramatically raising the groundwater level would increase the species' prospect of survival but would infringe upon the economic viability of farm businesses. In some cases, however, it has proven possible to reconcile the interests of nature and agriculture.
In Northeast Groningen and the Flevopolder region, field and hedgerow management has greatly increased the population density of field mice. Nests built by Montagu's Harriers amid the crops are protected. These successes notwithstanding, field edge management has not been successful in halting the decline in other bird species such as the Eurasian skylark.
By contrast, the urban areas offer increasing opportunities for nature development. City residents are devoting more attention to nature and greenery in the form of gardens, green walls, green roofs, and temporary parks on disused land. In many cases, biodiversity is now greater in and around the city than in the outlying rural areas (Van Zoest & Melchers, 2006).

4.2 Determining the preconditions for nature policy

The Council recommends that nature policy should no longer be based on extremely detailed objectives such as the "nature target types" and "target species" of the past, but should focus on creating or restoring appropriate conditions (in terms of space, water system, and general environmental conditions) which will support the spontaneous establishment and autonomous dynamic of ecosystems and species. Provided these conditions are met, it will be possible to sustain a wide range of ecosystems and species – although it is not possible to predict which ones – and nature will be in a position to fulfil its various functions.
The conditions, which are therefore *preconditions* of effective nature policy, can vary greatly from one area to another. Natural landscapes are in need of space to enable large-scale processes such as drift, grazing, and flood control. By maintaining an appropriate balance between these processes while allowing ongoing and spontaneous development of vegetation, the landscapes will continue to support a wide range of ecosystems, even though the relative abundance of the ecosystems may vary over time. Within the semi-natural and cultural landscapes, management measures such as haymaking, topsoil removal and wood-thinning (the selective removal of trees) promote natural processes. Such management measures must be continued in order to maintain the landscapes. Every management strategy results in a specific type of landscape with its own characteristic array of flora and fauna. Only by acknowledging the overall value of the entire spectrum of natural, semi-natural and cultural landscapes, and by continuing the appropriate management strategy in each, can nature policy maintain the diversity of wild flora and fauna in the Netherlands in a sustainable way.

4.2.1 Essential conditions: space and corridors

The majority of wild animals and plants are found in various subpopulations, living at separate locations across a spatial mosaic of different habitats. This is a simple observation but it has far-reaching consequences in terms of the species' survival. For example, the Silver-spotted Skipper (*0*) is a butterfly which can only reproduce in grassland areas which are not too dry and not too wet. In dry years, it cannot thrive in the very driest areas and entire subpopulations will die out, while those butterflies in the wettest areas continue to thrive. In wet years, the situation is reversed and subpopulations disappear in the wettest areas. Once an area loses its subpopulation, it will remain devoid of the butterfly unless and until there is migration and colonisation from elsewhere. This means that suitable habitats must not be too far apart: the maximum distance varies from one species to another. In the case of the Silver-spotted Skipper, colonisation is limited to approximately one kilometre. If there is no subpopulation within this distance, the species will eventually disappear altogether.

There are many other reasons for having protected nature reserves of sufficient area. It is the land area which determines how many individual members of a particular species can live there. The smaller the area, the fewer examples of the species and the greater the likelihood of local extinction due to the fluctuation in numbers between good and bad years. When numbers are already low, random events may easy wipe out the local subpopulation.

The third, and perhaps most important, aspect of space is that in smaller areas the relative influence of the external environment (usually agricultural activity) is very much greater. In small nature areas, the effects of low groundwater tables, ammonia emissions, and the use of pesticides are likely to have drastic consequences for many species. In large nature areas, it is far simpler, and very much less expensive, to mitigate or obviate the adverse effects.

The land area devoted to nature and corridors between nature areas – enabling flora and fauna to migrate – are pillars of nature policy. In prioritising measures, it should be remembered that space, in terms of land area, is the most important factor for the majority of ecosystems and species (Ovaskainen, 2012). In the Council's opinion, the government can best achieve the required corridors between the subpopulations of flora and fauna by ensuring that all intermediate land is either devoted entirely to nature, or that any agricultural landscape is of a quality which allows good "penetrability", providing green connections which enable the migration of flora and fauna. Here, it is important to remember that different species migrate and spread in very different ways. While a wooded bank or copse may provide a good corridor for one species, another species may need some form of streamlet, while others will favour the coastline or follow the major rivers. Although special measures are often very effective for one particular species (badger tunnels under main roads for example), the prime measure for all

species should be maximising the land area available to nature. Not only will this ensure an adequate number of subpopulations, but it will enhance the ecological quality of the intermediate agricultural areas.

4.2.2 Natural processes as the basis for nature and landscape management
One of the most important characteristics of areas in which the influence of human activity is limited is that natural processes will occur. There will be spontaneous development of vegetation but there will also be natural "disturbances" such as sand drifting, fires, and floods. Each type of disturbance can displace part of the soil and its vegetation, whereupon the development of the ecosystem must begin afresh. This natural dynamic produces various stages of development, from "pioneer" vegetation to mature "climax" vegetation. The various stages may be seen alongside each other. In landscapes which are (almost) entirely natural, many species of flora and fauna, including vulnerable species, can be found (Bakker, 2012).

Allowing natural processes to take their course can also result in the presence of species which have evolved by the same or similar processes and which therefore "belong" in this type of landscape. By ensuring that each of the characteristic Dutch landscapes – natural, semi-natural, and cultural – includes adequate space for nature to develop, we can maintain the diversity of ecosystems and species which characterises the Netherlands. A precondition is that the necessary environmental conditions must be maintained within set margins over a long period.
In the semi-natural and cultural landscapes, human activity is a determining factor. Nevertheless, natural processes occur even in cultural landscapes – doing so within the restrictions created by the other usage – and thus provide a basis for the sustainable future of nature. Opportunity for spontaneous and unexpected developments enhances man's perception of nature, demonstrating that we are part of a far greater whole.

Allowing natural processes to take their course renders many human interventions redundant as their is no more need to imitate or regulate natural processes, such as adjusting water levels, removing topsoil, mowing meadows, or introduction of species. Where appropriate conditions are in place, the importance of human intervention to sustain ecosystems and species declines. However, where nature is given inadequate space, frequent interventions will be needed to prevent species being lost at this local level. For instance, in small meadow areas which are surrounded by intensive agriculture, regular and expensive management activities – such as removing the topsoil – are required to maintain the typical meadow vegetation.
The costs of nature management largely originate from combating unfavourable conditions (such as limited area and a high atmospheric level of nitrates), which stand in the way of the natural processes. Compensatory management is then

required. Suitable conditions will result in lower costs.
The precise conditions required within a landscape (in terms of area and the quantity and quality of water) will depend on the processes which form that landscape, and on the ecosystems and species which are associated with it. A peat meadow landscape, for example, is typified by topographical openness, areas with a high water table, and clean water in the ditches and streamlets. In coastal flats and dune-land regions, there must be adequate space to allow for tidal influences and processes such as erosion and sand movements.

Beyond SMART management practice

In the 1990s, the private sector and later the government were introduced to a management philosophy based on accountable tasks and objectives known as SMART, which stands for Specific, Measurable, Acceptable, Realistic, and Time-bound. Based on this concept, almost all nature management contracts listed the species which were to be found in the area concerned, and in what numbers they should be found. The amount of remuneration paid for, say, meadow bird management was then based on these stipulations. The achievement of the objectives relied more on the subsidy term (usually six years) than on the ecological possibilities. The emphasis on feasibility (or the R for "realistic" in the SMART acronym) gave rise to various handbooks and documents describing target situations and listing specific species, which in turn formed the basis for the various financing forms available to those with the sheer patience to complete the lengthy application forms. In short, nature management had become technocratic. Management by conditions rather than by specific "target species" allows a far more realistic and relaxed approach to nature management, whereupon the administrator is responsible and accountable for introducing the measures intended to achieve those conditions.

The Council recommends the adoption of a "compass management" strategy. This entails establishing one or more long-term objectives in order to implement the development towards a certain ecosystem in each type of landscape. The general direction towards the achievement of that objective is then determined and pursued. The essential feature of this approach is that there must not be a static target situation. The objectives may be adjusted over time to take into account autonomous developments in both nature and society. It is not desirable to manage according to very detailed objectives such as the "nature target types" or "target species" of the past, but rather to create the appropriate preconditions for the development of the necessary environmental conditions (in terms of space, environment, and water system). Within nature policy, this "managing by conditions" approach can be applied within both area-specific policy and species-specific policy.

The Council also recommends that the most appropriate management strategy for each landscape is that which will preserve the current form and appearance of that landscape. In the case of peat meadows, the strategy might comprise a combination of grazing (by sheep) and regular removal of the topsoil in selected areas, as was customary practice for centuries. In a wetter landscape such as river forelands (in which the government wishes to allow "wilderness" nature to establish itself), horses and cattle can be allowed to roam and forage once the top layer of clay has been removed. In the estuaries and coastal areas, an important management measure will be the adjustment of land usage intensity. In the Council's opinion, this broad range of different strategies is essential to maintain the equally broad diversity of Dutch landscapes, ecosystems, and species.
"Accountable" tasks and objectives based on the presence of certain specific species or minimum numbers op individuals are inappropriate and largely doomed to failure. Management objectives should be formulated in terms of the physical environmental conditions and processes which are to be created or restored. The administrator is then not held accountable for the nature objectives he has actually achieved, but for the measures he puts in place to allow natural processes to achieve those objectives. This strategy therefore exploits the strong autonomous dynamic of nature itself.
The distribution patterns of species are constantly changing, often due to climate change but also due to changes in the habitats far beyond our own national borders. Sometimes this dynamic leads to gains, as in the (re-)introduction of the Little Egret, Common Crane, and White-tailed Sea Eagle to the Netherlands. In other cases, it is inevitable that species are lost. This is of course no excuse not to meet the space requirement, or to avoid meeting the environmental conditions, such as reducing ammonia emissions and the use of pesticides and ensuring that the water system is in order.

4.2.3 Consequences of managing by essential conditions and natural processes

Space requirement
Thirty years ago, the design of the National Ecological Network (EHS) presented in the Nature Policy Plan (LNV, 1990) was seen as the spatial blueprint for the achievement of the national nature conservation objectives. More recent research (Hanski & Gilpin, 1997; Hanski & Ovaskainen, 2000; Hanski, 2005; Ovaskainen, 2012) supports the Council's view that the EHS concept should remain at the heart of an effective nature policy. However, new insights into the dynamic of metapopulations and the effects of climate change call for the further development of the basic design.

- The part of the EHS which has since been put in place has shown insufficiently effective to achieve the stated objectives, not least because the land area concerned is too small and the necessary environmental conditions have yet to be established. Species must be able to adapt in the face of rapid climate

change. They can do so in two ways. The first is genetic modification, which is only possible when there is enough space to allow for genetic variation within the species concerned. The second is migration, whereby species move to areas in which the new conditions provide a suitable habitat. This too calls for larger nature areas with adequate interconnections.

- The precise size of the areas within the EHS required to accommodate an entire ecosystem can now be more accurately determined on the basis of our better understanding of the relationship between the prevalence of a vulnerable species and the land area available (Hanski, 2005; Harrison et al., forthcoming; Ovaskainen, 2012). Today, we have more tools at our disposal when updating the design of the EHS, including modern metapopulation theory and greater knowledge of the life support conditions of various species. Using these tools, we can state that a reduction in the total area of the EHS from 730,000 to 650,000 hectares, as proposed a number of years ago, will lead to the eventual loss of several hundred species (Berendse, 2012). This type of knowledge enables further optimisation of the balance between the objectives (maintenance and conservation) and means by which they will be achieved (the EHS).

Experience with current policy and the enhanced knowledge confirm the necessity of both the basic design of the EHS and of further analysis of the necessary modifications. The location of designated and existing areas must be re-assessed and optimised, and necessary expansions must be analysed based on the new scientific insights. The pursuit of all ambitions should continue, but they should be modified wherever necessary based on new knowledge as well as on societal developments. The deployment of the available financial resources must be carefully prioritised during the further development of the EHS.

This approach is intended to lead to an interconnected system of regional nature networks as the successor to the EHS. The regional nature networks will build upon the Natura 2000 areas and those parts of the EHS now in place, including the robust corridors. These areas will form the basis for regional modifications and expansions. The resultant networks will comprise nature areas of varying sizes, to include the adjacent and intermediate (agricultural) areas which will be of a quality which allows the migration and distribution of species due to a high degree of "penetrability". It is crucial that the resources available for agricultural nature management are invested in such a way as to maximise the penetrability of the agricultural landscape while also minimising the adverse effects of agricultural activity, such as ammonia emissions, the use of pesticides, and falling groundwater tables. The regional nature networks should be connected with the "green-blue" structure of the cities and their outlying areas. Rather than merely connecting individual nature areas, the network should strive to increase the total land area available to nature. Central government must support the provincial authorities in creating these regional nature networks, based on its overall

responsibility for the conservation of wild flora and fauna. Together, the regional nature networks will form a nature network at the national scale, the purpose of which is to ensure the sustainable future of the Netherlands' flora and fauna. This Nature Network will represent a complete and contiguous integration of the existing nature areas, whereby the number of "area categories" within policy can be reduced ("destacking").

Relationship between national nature policy and European legislation
Although in designated areas devoted to nature under the European directives monitoring of the quality of nature within that area requires information at the species level, the EU allows Member States themselves to determine the most appropriate steering of management. It holds Member States accountable for the objectives actually achieved, not the measures put in place, although it also requires evidence that those measures are likely to lead to the desired result. Managing by conditions is therefore not contrary to European legislation. That legislation is often thought to imply a steering at the species-level, or even at the actual number of individuals of a species present in an area. This is a misconception, as explained below.

When registering an area for the purposes of the Birds and Habitats Directives, and when monitoring (changes in) natural quality, the nature within the area must be described in detail, at species level and in some cases the (estimated) number of individual plants or animals of that species (EU, 1979; EU, 1992).
A "designation order" is produced for each registered area. However, this document quantifies only the conservation objectives further to the Birds Directive in any detail. The objectives further to the Habitats Directive are presented in summary, as general maintenance or improvement targets, whereupon their elaboration (and the level of detail required) is left to the discretion of those producing the management plans.

The European obligation to restore species and habitat types which are currently deemed "unfavourable" to a "favourable" status has led to the inclusion of improvement targets in the designation orders. The Member States themselves are responsible for determining and implementing the measures which will achieve the required results. The Netherlands has opted to pursue the improvement targets further to the directives wherever possible within the Natura 2000 areas, thus avoiding a situation in which measures must be implemented beyond those areas (LNV, 2005).

The European Commission has stated that achieving a "favourable conservation status" does not necessarily imply that all, or even the majority of, the selected typical species for that habitat type should be present at all times. Rather, it wishes to see viable populations of the typical species enjoying the favourable conservation status in the long term. The Commission is therefore providing

for the possibility of species "turnover". Provided each typical species shows a balance between local extinction and new establishment here or elsewhere in the long term, the habitat will be deemed to have reached a favourable state of conservation. The quality of the species populations will be assessed on the basis of birth and death rates, as well as age distribution (Backes et al., 2011).

Within nature policy, area management by conditions can lead to some ecosystems and species being replaced by other ecosystems and species. At the area level, this can mean that the conservation and improvement objectives are not met. Backes et al. (2011) contend that there is room for the conservation objectives to be amended. After all, the Member States are only obliged to designate the most suitable areas, and to ensure a favourable conservation status for species and habitats to be protected. It falls to each Member State to determine the contribution that a given area is likely to make to the achievement of an overall favourable conservation status for the relevant species and habitats. In principle therefore, the Member States can also amend their assessment of that contribution at a later date. Nevertheless, firm conservation targets must be formulated for all species and habitats for which that area is of importance. This imposes certain restrictions, particularly if the amendment of a conservation target places the cohesiveness of the international Natura 2000 network at risk. This would be the case if the conservation targets for one area were made significantly less ambitious without raising the level of ambition elsewhere, or where it cannot be shown that the decreased contribution of one area will be compensated in some other manner, or where the Member State cannot provide evidence that it is not necessary to achieve a favourable conservation status for the species concerned (Backes et al., 2011).

In the Council's view, European legislation does not preclude a system of management based on essential conditions and natural processes, even if doing so will result in the incidental loss of certain species. This should not be seen as a problem provided there is a realistic prospect of achieving appropriate diversity in the longer term and at the required level of scale. Action leading to the prolonged absence of a species, or its local extinction, would indeed be in contravention of the European legislation. However, provided the preconditions are met in terms of land area and external environmental conditions, and provided a management strategy in keeping with the type of landscape is applied, all measures to give the relevant species a sustainable future can be said to have been taken. The burden of proof lies with the Member State; we must be able to show that the appropriate measures have indeed been implemented. This means that adequate ecological knowledge is of great importance.
In a number of cases, geographical shifts in species distribution further to climate change or autonomous processes will result in that species disappearing from a certain region. Far-reaching measures, such as re-introduction, feeding, and the removal of natural enemies are in most cases not sustainable. They are likely to

have an adverse impact on other species and will impinge upon the autonomy of nature. Further discussion at EU level is required to engender greater understanding and respect for the autonomous character of nature.

4.3 Required steps in land acquisition, restructuring, management, and environment

Working from the current situation to reach the overall objective requires a number of steps to be taken in terms of the acquisition, restoration and management of land, as well as certain environmental interventions. In defining those steps, the Council builds upon the experience in nature policy gained over the course of thirty years. To ensure an effective use of resources, the Council therefore applies priorities which are based in part on the results of the studies it has commissioned (Bakker, 2012; Ovaskainen, 2012) and other recent independent research (Lawton et al., 2010). Those priorities are as follows.

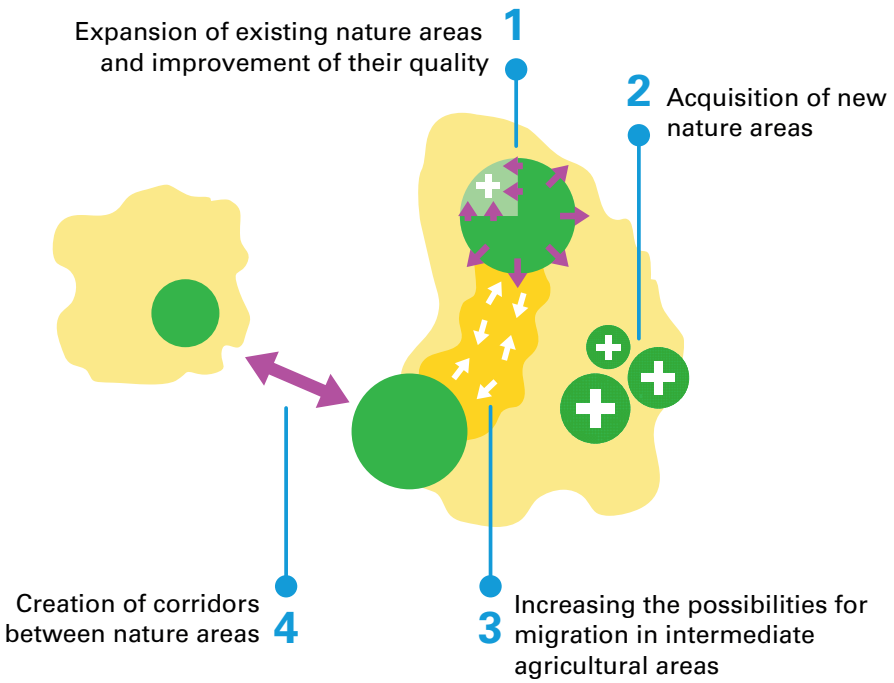
1. Expansion of total land area available to nature, and improvement of external environmental conditions as well as management practice in existing nature areas
   This step will lead to an improvement in the conservation of species and ecosystems in the existing areas, and better colonisation by plant and animal species in new areas by migration. In many nature areas, we see a small number of "parcels" of cultivated land, some subject to very intensive usage. Their presence precludes full use of the area's ecological potential, and greatly increases the management costs. These land parcels stand in the way of matching environmental conditions (e.g. the groundwater table) to the aims of nature management. To resolve this situation, the Council recommends that the possibilities for compulsory purchase should be extended. The fact that financial resources for management are limited makes it all the more urgent to use those resources efficiently, which entails optimising the conditions for each nature area. Expanding the existing nature areas will facilitate the conservation of a greater number of ecosystems and species. Expanding an area which is currently only just large enough will bring greater returns than adding the same acreage to one that is already of adequate size.

2. Creating new nature areas nearby the existing concentrations of nature in order to create regional nature networks
   This will facilitate the conservation of a greater number of ecosystems and species. The priority locations are those which are close to existing large nature areas, as this will make the greatest contribution to conservation at the higher spatial level of scale (Ovaskainen, 2012).

3. Increasing the possibilities for migration within the regional networks thus created
   This is possible by enhancing the quality – and hence the "penetrability" – of the intermediate agricultural area, e.g. in the form of hedgerows, watercourses, and wooded banks, to permit the migration of wild flora and fauna between areas (Lawton et al., 2010). This step is to produce greater returns on the management activities in the existing areas (Hanski & Gilpin, 1997; Ovaskainen, 2012).

4. Creating new corridors between nature areas
   From the perspective of cost-effectiveness, it is preferable to create connecting zones or "corridors" which have similar natural characteristics as the areas they connect rather than introduce artificial structures (such as "ecoducts") intended to overcome barriers such as roads or railways. In a time in which resources for nature policy are being reduced, a reorientation of the practice of building ecoducts is called for. Alternative measures, such as the expansion of an existing nature area, must be examined on a case-by-case basis to determine whether they offer a more cost-effective solution.

Figure 6: Priorities in allocating resources



SYNERGY WITH OTHER SOCIETAL INTERESTS

5

Nature fulfils many, often essential, societal functions such as enhancing the quality of the human environment and providing protection against flooding. Nature is a means by which certain societal objectives can be met in an efficient manner and with a very high level of quality.

5.1 Living, working, recreation, and nature

Nature is very much part of people's daily lives, whether at home, at work, or during leisure hours. In the Netherlands, one in seven people spend some leisure time outdoors every day, travelling an average of one kilometre on foot, by bicycle, or by car. On Sundays, the distance rises to 2.4 kilometres (CBS, 2012b). Eight out of every ten young people deliberately seek out open nature in order to cycle, walk, swim, or skate (TNS NIPO, 2009).

In the Netherlands, one million people perceive a lack of green space in their own residential environment. This is sometimes called the "green deficit". As a result, they spend a total of twenty million nights away from home each year (6% of the total number of nights in guest accommodation in the Netherlands), often in recreation areas set amid nature. The city and the nature beyond therefore form a subtle symbiosis between economic activity and human well-being. Among prospective house buyers, especially the up-market buyers, the presence of greenery is often a deciding factor in their choice of location. They opt to live in either the most urbanised neighbourhoods of the towns and cities, or in the most rural districts. Their house will be four times larger than the average, with a garden sixty times bigger than average. The distance to attractive nature is often also less than the average (Sijtsma et al., 2013).

Nature in the day-to-day environment enhances health and well-being. A tranquil setting and the sense of a connection with nature serves to reduce stress. Being close to nature improves mood and provides a sense of vitality (Joye & Van den Berg, 2013). This is important because each year, between four per cent (those with a partner) and ten per cent (single) of people seek help for depression or an anxiety disorder (CBS, 2012c). Another important function of nature is that it promotes social cohesion.

The health benefits of taking exercise outdoors are of particular relevance to children and seniors (De Vries et al., 2008; Groenewegen et al., 2012). Childhood overweight is a major risk factor for conditions such as diabetes. Combating overweight in young people therefore helps to reduce future health care costs. The social costs of overweight and obesity in the Netherlands already exceed three billion euros a year (IenM et al., 2012). In urban districts which have at least five hectares of green space, the incidence of childhood overweight is 18% lower than in those which do not. There also appears to be a correlation between the number of health complaints within a local community and the distance to nature (Groenewegen et al., 2012).

The Council believes that the full meaning of nature is sometimes overlooked because its benefits are taken for granted. In the past, intuitive knowledge of that meaning prompted the establishment of sanatoria and summer parks in nature areas. Knowledge of nature's meaning is of great importance to government decision-making, including that addressing nature itself. Where beneficial relationships are taken for granted, they are rarely subject to serious scientific research whereupon the required knowledge remains incomplete. As a result, government investments in aspects such as the relationship between nature and health have been slow to emerge.

"The green city"

"The green city" pays dividends in both social and economic terms. This is confirmed by the results of a study which forms the basis of the publication Groen loont met TEEB Stad (TEEB, 2012a). The study examined green space and water in a number of Dutch municipalities and found that the value of greenery and water in terms of quantifiable social benefits was between 1.5 and two times greater than the initial investments and maintenance costs. The greatest benefits can be derived if the potential returns of green development are taken into account at the earliest possible stage of the design process. The study further concludes that a green human environment not only produces a significant net social yield but enhances biodiversity (TEEB, 2012a).

An environment which has a positive effect on health and well-being is also crucial to the economic investment climate. This is of growing importance given the increasing international competition. Provincial authorities' investments in nature and landscape in the rural areas are partly motivated by both health and economic considerations (Province of Zuid-Holland, 2012; Province of Noord-Brabant, 2012a, 2012b; Province of Utrecht, 2012).

Balance with the natural environment is an important feature of a favourable working and business climate in a high-production, built-up setting. Spatial economic research increasingly notes the importance of including parks and green spaces. Urban planning practice recognises that open spaces must be included to enhance the attractiveness of the urban area as a residential and commercial environment (Sijtsma et al., 2013). Only those areas which are attractive can glean the full agglomeration benefits of an urban environment, and those benefits are the driving force behind the national economy.

Industrial estates

Industrial estates in the Netherlands are relatively small (an average of 27 hectares) but numerous, with an average of eight in each local authority area. For many years, little attention was devoted to their appearance or long-term maintenance, whereupon approximately 30% of the 3,600 industrial estates in the country are deemed to be "outdated" or "obsolescent" (in economic terms). The appearance of an industrial estate is largely determined by the quality of the public space. Upgrading that space with nature can revitalise the entire estate. The attractiveness of the immediate working environment for the employees of the companies located there will then increase, as will the (appearance of) sustainability (Snep, 2009).

Natural functions can also offer companies direct economic value, in the form of cost reductions, competitive positioning, the creation of new markets, enhanced reputation among consumers, and product innovation (TEEB, 2012b; Melman & Van der Heide, 2011). For example, approximately 15% of the drinking water produced in the Netherlands (184 million m^3) is abstracted from the dune-land areas, where it is purified by the natural filtration effect of the sand layer (TEEB, 2012b).

Each year in the Netherlands, a total of some 90 million tourist nights are spent in guest accommodations such as hotels, bed-and-breakfasts, holiday homes, campsites, and boats. The leisure industry represents an economic value of approximately 2.4 billion euros. Approximately one third of this amount (almost 700 million euros) is related to the nature areas, whereby the spatial structure of the various tourist facilities is also linked to that of the nature areas. Much tourist accommodation is located within or nearby a nature area (Sijtsma et al., 2013).

The value of recreation and tourism in nature areas is very high, but difficult to translate directly into economic terms related to that area. This is because the experience of nature may not entail any actual expenditure (walking costs nothing) or because any expenditure relates to an economic activity undertaken elsewhere (e.g. the manufacture of the boat, vehicle, or caravan).

Developing the synergy between nature and the residential, business and recreations functions
People feel a marked sense of connection with their immediate environment. Knowledge about nature's contribution to health and well-being – long the motive for the inclusion of nature in the local setting – is now being given a firmer scientific-evidence base. As a result, there are greater opportunities to deploy nature in a planned and systematic manner in order to create a healthy human environment.

Synergy is enhanced when wishes and requirements are made explicit. If residents are consulted about what sort of residential environment they would like, the result will be clear, communicable objectives such as minimum targets for nature and green space, the maximum distance to open nature, and how that nature is to be accessed.

Nature in the residential and business environment is to a large degree the domain of local authorities and of residents and users themselves. They see the design and maintenance of the human environment more as an integrated undertaking than a sectoral one. This offers good opportunities for synergy between nature and the functions of housing, work, and recreation. Health and nature can be brought together effectively at the local level. The lines of communication between the city alderman for health and his colleague responsible for parks and open spaces are somewhat shorter than those between the government ministers holding these portfolios. Local authorities have an ever greater interest in maintaining a healthy environment now that their responsibility for the implementation and funding of social legislation has been increased. The possibilities for an integrated approach to nature within the city (local authority) and around the city (provincial authority) have also been enhanced.

The provincial authority's responsibility for regional economic policy can provide an impulse to the synergy between nature policy, health policy, and economic policy. New opportunities for integrated decision-making at the national level can been created by merging the policy domains of economy and nature within the remit of the Ministry of Economic Affairs.

5.2 Water and nature

Nature can help in the efficient implementation of water management tasks. For example, seeking synergy with nature can reduce the costs of implementing the European Water Framework Directive (2000/60/EC). It becomes possible to address the requirements of this directive at the same time as those of the national Administrative Agreement on Water by combining the expansion of floodplains and catchment areas with nature development intended to improve the ecological quality of surface water. Germany has already adopted a similar approach, creating a number of *Flusslandschaften* ("water landscapes"). Water can in turn provide greater connectivity for nature, since a combined approach to water and nature will help nature to develop along the routes of the watercourses (e.g. the IJssel valley, Vechtdal, Reggedal, Dinkeldal, and Reestdal in Overijssel province), whereupon nature area's will no longer be isolated.

Many of the societal water management tasks have a strong relationship with nature: water defences to protect against flooding (under the national Flood Protection Programme), storage of (rain) water, and retention of groundwater (to ensure constant availability of fresh water). The government is using nature to improve both the chemical and ecological quality of water (further to the European Water Framework Directive). In agricultural areas in the low-lying regions of Netherlands, new marshlands are being created to remove fertilisers from the water. Some 16% of the Netherlands' drinking water is purified by filtration through the sand of the dune-lands, while the subsoil of other areas is also used for this purpose.

Natural processes within the nature areas help to protect against flooding. It has long been realised that "hard" water defences such as dams and dikes are not always the most effective or efficient option (V&W, 2000). The Zandmotor project, the new seawall on the island of Texel, and the "Room for the River" programme are all examples of alternative approaches.

Zandmotor is an innovative project addressing both coastal flood defence and coastline maintenance. Sand has been deposited offshore to create an artificial peninsular with an area of 128 hectares between Ter Heijde and Kijkduin in Zuid-Holland province. It provides extra space for nature and recreation. Over the next twenty years, the wind, waves, and currents will redistribute some of the sand along the coastline between Hook of Holland and Scheveningen, thus helping to protect the shoreline against the anticipated effects of the rising sea level.

On Texel, the height of the landside *Prins Hendrikdijk* has been raised using the conventional method, whereupon the dike structure was further reinforced by sand suppletion and the addition of new dunes on the landwards side. This coastal defence project has created a contiguous dune-land transition zone

between Texel and the Wadden Sea. On the seawards side, oyster and mussel banks have been laid to counter erosion. The sand suppletion has encouraged the development of new nature: birds use the area as a high-water refuge and brooding ground, while seals have been given a new resting place (Province of Noord-Holland, 2012).

Nature plays a very important role in the national "Room for the River" programme, the primary purpose of which is flood protection. Riverbeds and floodplains are being expanded in preference to increasing the height of the protective dikes. The programme comprises a chain of over thirty cohesive projects intended to increase safety throughout the river regions. At the same time, it offers an opportunity to improve natural and spatial quality. Landscapes and buildings are to be upgraded, and new recreational amenities are created, thus increasing the economic strength of the regions.

Water storage

De Onlanden is a large nature area of 2,000 hectares in the north of Drenthe province, comprising mostly wetlands. Plans for its creation were brought forward after the city of Groningen suffered serious flooding in 1998. The area fulfils two functions: large-scale water storage and large-scale nature development. The project was undertaken by *Natuurmonumenten, Staatsbosbeheer*, the Noorderzijlvest Water Board, and the Province of Drenthe at a total cost of 41 million euros, of which central government (the Ministry of Infrastructure and the Environment) contributed 1.1 million euros. De Onlanden is now the largest "climate buffer" in the Netherlands.

The *Coalatie Natuurlijke Klimaatbuffers* (Coalition for Natural Climate Buffers, CNK) is a coalition of seven nature conservation organisations which receives financial support from the Dutch government. It has developed several pilot climate buffers, which it describes as 'areas in which natural processes are given space, whereby nature can develop in line with climate change and the liveability of the Netherlands can be improved'. The climate buffer programme currently comprises twenty area-specific projects (CNK, 2012).

Further development of the synergy between water and nature
Given the important contribution which nature makes to water management, further development of the current far-reaching synergy between water and nature is the obvious way forward. The opportunities for synergy are to a large extent determined by policy further to the European Water Framework Directive and the national Delta programme (addressing flood safety and freshwater

provision). Both are important – also with regard to climate change – in terms of the integrated approach to planning and the actual implementation of measures, in which they have a mutually reinforcing effect. Coordination between provincial authorities' decision-making on nature policy and the activities of the water authorities offers significant opportunities for synergy both within and beyond the regional nature networks.

It is possible to make even greater use of nature to promote the ecological recovery of watercourses and streamlets (e.g. "nature-friendly" riverbanks), to reduce the risk of flooding by increasing the absorbent "sponge effect", and to preclude water shortages by raising the groundwater table. The "Building with Nature" concept also plays a part in flood defence, allowing regional water managers to achieve their objectives by such means as double embankments along regional water defences, reed beds in the drainage systems, and restoration of smaller watercourses and streamlets further to the Framework Water Directive.

By bringing water and nature together within robust "green-blue" connections, the nature objectives and water objectives (flood protection, freshwater provision, and improvement of ecological quality) can be achieved in synergy.

5.3 Agriculture and nature

Two thirds of the total land area of the Netherlands is used for agriculture. Agricultural land is therefore of great importance to a number of wild plant and animal species. In addition, many nature areas are influenced by adjacent agricultural activity, which accounts for emissions of ammonia and pesticides, and affects the natural water system.

Synergy between nature and agriculture is possible, certainly when that agriculture involves extensive (as opposed to intensive) arable farming or organic cultivation. Some forms of nature and the enjoyment of nature are linked to agricultural land usage and the structuring of an area as a cultural landscape. The maintenance and development of natural values demands commitment on the part of farmers, the inclusion of the costs of nature (management) in the price of the end product, and government financing in respect of agricultural nature management. Some agricultural use in combination with nature can benefit nature itself while also increasing the income of the farmer.

Biodiversity in agricultural areas allows ecosystems to perform important functions such as the pollination of crops, natural pest control, and releasing nutrients into the soil (Meehan et al., 2012). Using natural predators to control harmful insects can result in substantial cost reductions (Landis et al., 2008). In the United States, for example, this is estimated to save over four billion dollars

per annum (Losey & Vaughan, 2006). This figure does not take into account the environmental and health benefits which result from the discontinued use of chemical pesticides. Worldwide, the agricultural sector is trying to reduce its use of chemical pesticides, whereupon demand for natural, biological alternatives is increasing. The Netherlands is now a major exporter of biological pest control systems for glasshouse horticulture. However, investments in research and development for outdoor systems are inexplicably low.

There are some conflicts between nature and the more intensive forms of agriculture which can have a significant adverse impact on nature in the form of depleted groundwater levels and emissions of ammonia and pesticides (PBL, 2012b). Conversely, there are some forms of nature which have an adverse impact on agriculture, such as the weed Creeping Thistle (*Cirsium arvense*).

5.3.1 Agricultural nature management

In 1975, when nature protection was still under the responsibility of the State Secretary for Culture, Recreation and Social Work, the Lower House of Dutch Parliament ratified a policy memorandum ("Relatienota") which had been prompted by major concerns about the rapid decline of nature in the agricultural areas (CRM et al., 1975). The Netherlands was far ahead of the rest of Europe in introducing this policy. It was not until 1987 that the United Kingdom followed suit with the Environmentally Sensitive Areas scheme, followed by the Countryside Stewardship scheme in 1991. Unfortunately, and despite all good intentions, the Netherlands' policy intended to protect nature in the agricultural areas was far from successful. In the early stages, it proved difficult to enter into management contracts with farmers due to widespread opposition. The first contract was signed in 1980, and only in 1990 could the area covered by management contracts be described as substantial (over 20,000 hectares).

Between 1975 and 1990, a serious ecological deterioration of the agricultural landscape was seen in the Netherlands, the result of the ongoing intensification of farming practices. Wading birds such as the ruff and the common snipe virtually disappeared from the farmlands, and the numbers of the formerly prolific Eurasian skylark declined by over eighty per cent. By the time the 1975 policy document was actually implemented, deterioration was already well advanced. In 2005, central government spent 42 million euros on agricultural nature management. For the purposes of comparison, the terrain management organisations (TBOs) received 49 million euros in funding (MNP, 2007), excluding the costs of acquisition and restructuring at 1,367 euros per hectare (Boers & Luit, 2005).

The effectiveness of agricultural nature management

Research, both that commissioned by the Council and a number of independent studies, concludes that much of the agricultural nature management system

has been ineffective, doing hardly anything to stop the decline in the numbers of meadow birds (Kleijn et al., 2001; Berendse, 2004; Breeuwer et al., 2008). The discussion about the effectiveness of agricultural nature management seems to have calmed somewhat in the Netherlands, but it has re-emerged fiercer than ever at the international level (Fischer et al., 2011; Phalan et al., 2011). Arguments in favour of the current system include the significant land area given over to agriculture and the high landscape value which agricultural areas, even those of little biodiversity, can represent. However, these areas are unlikely to contain animal species which require specific protection (Kleijn et al., 2006). In the longer term, agricultural nature management in its current form will therefore contribute little or nothing to the conservation of such species.

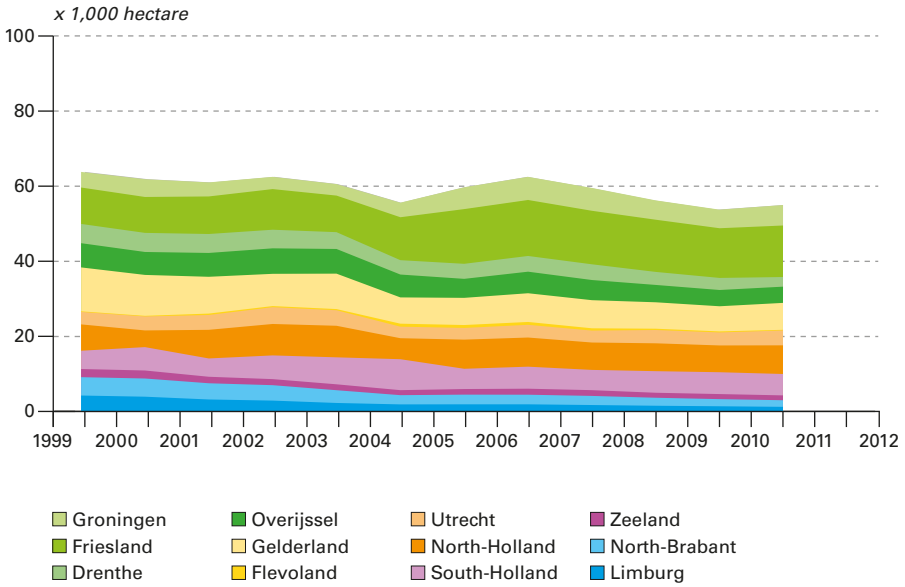
In addition, agricultural nature management does little or nothing to maintain vulnerable plant species. Land subject to the "botanical package" arrangement (a subsidy based on the plant species represented) contains only relatively common species which would continue to thrive here, also without any agricultural nature management activities. The creation or conservation of semi-natural landscape elements does indeed enhance the attractiveness of the landscape, but rarely does anything to improve the conditions required by the most vulnerable species. In the short term, affirmative action is required to prevent their disappearance (Schroeder et al., 2009). Discontinuing the use of pesticides or raising the groundwater table by a significant degree would, however, detract from the profitability of agricultural activity (Kleijn, 2012).
Agricultural nature management has nevertheless played a part in the maintenance of landscape elements (fieldedges and ditches, wooded banks, and suchlike), in the numbers of Montagu's Harrier in the arable farmlands of Groningen, and in conserving the hamster population in the Netherlands.

The bird population in agricultural areas is under strain throughout the European Union, showing a decline of over 25% since 1990 (PBL, 2012b). Assuming an average population of 36 species, the loss was 0.7% per annum between 2000 and 2008 (Eurostat, 2009). The loss in the Netherlands is comparable to the European average (see also CPB et al., 2011). Since 1960, between 3.3 and 5.7 million brooding pairs of 27 species of (once) common meadow birds have been lost to the Dutch agricultural areas: a decline of between 61% and 73%. It is estimated that the Eurasian skylark population has fallen by between 750,000 and 1.1 million brooding pairs (a decline of at least 96%), and this species is now an extremely rare sight in most parts of the country. Other species in serious decline include (in order): the partridge (93%), the European turtle dove (92%), the Eurasian tree sparrow (93%), and the black-tailed godwit (68%). This short list demonstrates that it is not only the typical meadow birds which have flown our nest, but also the species which inhabit the small-scale cultural landscape, where over two thirds of the overall population is no more (Sovon, 2012).

The reported deterioration in the agricultural areas is, however, not borne out by the findings of the *Common Bird Index*, which monitors 145 common species found in all types of area throughout Europe. The Index reveals a stabilisation and even cautious recovery over the past decade, both in the Netherlands and elsewhere (Eurostat, 2009).

The limited effectiveness of agricultural nature management is compounded by a lack of continuity. The total land area subject to agricultural land management has diminished since 1999, although there are major differences between the provinces (see Figure 8). The most common reasons given by farmers for discontinuing nature management activities include practical difficulties (e.g. in weed control), combining nature management with business activities, poor remuneration, bureaucracy, and the sale of the land to which the management contracts related (Wiertz et al., 2007; PBL, 2010).

Figure 7: Acreage for agricultural nature management



From a national perspective, the acreage devoted to agricultural nature management has been falling since 1999. In some provinces however, the acreage is still stable. Source: pbl.nl

The management arrangements which impose more restrictive conditions can sometimes be effective but demand a significant adaptation of farming practice. One example is "botanical grasslands", where the hay produced is not suitable for feeding livestock because of its lower nutritional value. One option is to release agricultural land to nature altogether, and the compensation payable in respect of the decrease in land value may facilitate the transition to a "nature business". However, surveys reveal that two out of three farmers are unwilling to make this step (NGF, 2004; Geelen & Leneman, 2007).

5.3.2 Further development of the synergy between agriculture and nature
Some forms of agriculture have negative effects on Dutch nature, as in the lowering of groundwater tables. In the Netherlands, environmental pressure has been steadily dropping since the 1990s, although this positive trend has now levelled out with respect to the use of pesticides and ammonia emissions. The recent evaluations of the consultation paper on the future of livestock farming (Van Zeijts et al., 2011), legislation governing the use of fertilisers (Willems et al., 2012), and the policy document on sustainable crop protection (Van Eerdt et al., 2012) suggest that environmental pressure is now declining less rapidly, whereupon the achievement of crucial environmental targets is not yet within reach (Wamelink et al., forthcoming). Many nitrogen sensitive habitat types and nitrogen sensitive habitats of specific species for which the Netherlands has introduced protective measures still have an "unfavourable" environmental status (RvS, 2012). The greatest problems relating to nitrate contamination are to be seen in the sand regions of Overijssel, Gelderland, Utrecht, Noord-Brabant, and Limburg, where nature is extremely sensitive to the effects of fertiliser use and soil desiccation. It is in these areas that the Netherlands' poultry and pig-farming sector is concentrated. The (chemical) quality of regional waterbodies remains far below that of national waterbodies (PBL, 2012b).

Progress in resolving the problem of soil desiccation remains laborious. According to the interim report published by the National Support Centre for Desiccation (LSV, 2010), provincial authorities have prepared measures but have yet to implement them. To overcome this impasse, a number of areas were given priority status within the Investment Budget for Rural Areas (ILG). In these areas, the main problems have been identified as a lack of progress in land acquisition, low regional public support, inadequate financial resources, and insufficient administrative "drive".

The relationship between agriculture and nature relies on the space which agricultural companies can afford to dedicate to nature within the confines of their economic activities. The relationship is further determined by the agricultural management system, the common agricultural policy, and the external effects on nature areas (such as water abstraction and emissions of ammonia and pesticides).

Increasing the effectiveness of agricultural nature management
If agricultural nature management can be made more effective with regard to the conservation of flora and fauna, this will increase the legitimacy of government funding, the yield of the investments made in nature, and the income of farmers themselves. It is possible to do so by making significant modifications to certain forms of agricultural nature management (such as that designed to protect meadow birds), by rechanneling resources currently devoted to less promising activities (such as botanical management), and by allowing greater opportunity for the creation of natural elements in the interests of both landscape and production (natural pollination and pest control) within European common agricultural policy.

Agricultural nature management can only be effective if it is applied in large, contiguous areas in which appropriate abiotic conditions are already in place or can be (re-)established. In the case of meadow birds and hamsters, agricultural nature management will be effective when applied alongside nature reserves having the same objectives, in order to provide a large enough habitat for these species.

The effectiveness of agricultural nature management can be increased by:
- Prioritising agricultural nature management in zones alongside nature reserves with the same objectives
  By creating such zones adjacent to the existing nature areas, whereby nature is given more space within the agricultural landscape, a higher quality of landscape will be achieved, while various ecosystem functions such as pollination and natural pest control can also be included; this will reduce the use of chemical fertilisers and pesticides, thus greatly reducing the negative impact on nearby nature
- Concentrating agricultural nature management within large, contiguous areas in which the appropriate abiotic conditions for meadow and arable land birds are already in place or can be re-established
- Prioritising agricultural nature management in order to increase the "penetrability" of the agricultural land between nature areas, thus facilitating the interaction between subpopulations of vulnerable species
- Making significant modifications to the current agricultural nature management activities (such as meadow bird management) in order to enhance natural values
- In areas which are important to meadow birds for instance, management should not only be concerned with adjusting mowing times, but also with more substantial measures in relation to the groundwater level and the use of fertilisers; in arable farming areas, management should not focus solely on maintaining edges of arable land, but should seek a significant reduction in the use of pesticides

- Withdrawing financial support for ineffective agricultural nature management
- Increasing land users' willingness to take part in agricultural nature management by substantially increasing the minimum duration of the management contracts (provided this will not have the opposite effect).

Making better use of the common agricultural policy
The forthcoming amendments to certain provisions under the European common agricultural policy should be exploited in order to increase synergy between agriculture and nature where possible. The European Commission intends to link 30% of income support to the attainment of three "green conditions" (cross compliance): crop rotation, the preservation of permanent grassland, and the designation of "areas of special ecological interest", by devoting 7% of the land area (excluding the permanent grassland) to ecological purposes (Van Zeijts et al., 2011; Westhoek et al., 2012; Van Doorn et al., 2012). This set-aside will allow certain nature functions – including species conservation – to be realised because the areas concerned will be entirely devoid of agricultural functions, which is not the case under the current agricultural nature management arrangements. Key factors for the effective use of the areas of special ecological interest will be their period of withdrawal from production processes (long-term or permanent), the management approach, how regional characteristics are exploited, and the spatial cohesion between the existing nature elements and areas to facilitate species migration. Small-scale landscapes can be given an additional impulse if the 7% of the land area is given over to additional and permanent landscape elements (Van Zeijts et al., 2011; Westhoek et al., 2012; Van Doorn et al., 2012).

At the area level, there is much to be gained by both agriculture and nature by merging the set-aside land of several farmers or companies to form one contiguous whole (PBL, 2012b). This will facilitate optimising the parcelling out of agricultural land to production usage, while also creating greater areas of nature that blend the agricultural land at an adequate level of scale. The amalgamation of the nature areas in this way will also strengthen the relationships between farmers and commoners, and between commoners, farmers and nature. Good cooperation In order to share land, knowledge, manpower, and other resources will provide a further impulse for social networking at the local area level.

In the Council's view, the proposals of the European Commission offer further opportunities for greater synergy between agriculture and nature (see Westhoek et al., 2012). Farmers, working alongside others (commoners), are enabled to effectively manage the natural elements in the agricultural area. This will strengthen the relationship between farmers and society at large. The resultant agricultural landscapes will form part of the new regional nature networks, providing greater opportunity for the enjoyment of nature and the recreation. In these zones, agriculture and nature functions will be mutually reinforcing.

The Council therefore recommends that the available resources for agricultural nature management should target such zones to the greatest extent possible.

Reducing conflicts between agriculture and nature
In the longer term, agricultural areas which focus exclusively on the intensive production of biomass (food, ornamental plants, and energy-producing crops) are, given the increasingly intensive character of their operations, not likely to offer any contribution to nature functions such as the conservation of vulnerable species and ecosystems (Kleijn, 2012). Nevertheless, the external effects of this intensive agricultural production must not be allowed to detract from the societal functions of nature. An ongoing reduction in emissions and the use of pesticides therefore remains essential.

The space currently available to nature is too limited to guarantee the preservation of many ecosystems and species. Economic development without any adverse impact on nature is only possible with additional investments, in both time and money. At the local and regional scale, much energy is therefore being devoted to projects which seek to reconcile economic interests with those of nature (e.g. the PAS nitrate reduction programme). However, such efforts and the investments in nature management will not be enough to ensure an adequate and timely improvement in conservation practice (PBL, 2012b).

The Council sees a solution in the further separation of functions, to be achieved by allowing more space for nature within the larger areas. The paradox is that creating space for nature inevitably makes less space available to other land usage functions, most notably agriculture, but the environmental conditions will be such as to allow the further development of those functions. The space available to agriculture will be smaller, but the remaining land area will provide greater production opportunities. By reserving more space for nature, and further separating nature from intensive agriculture, it will be possible to increase agricultural production yet further. This will make a contribution to economic and other societal objectives such as food provision and food security.

The separation of functions may in certain cases call for the relocation of agricultural companies and the redesignation of nature areas. Where smaller, isolated parcels of land are used for intensive farming, they may have a disproportionately severe negative effect on adjacent nature areas. In such situations, compulsory purchase may be appropriate. The conflict between public interests (area restructuring) and private interests (of individual farmers or companies) calls for political choices to be made. The implementation of those choices demands careful consideration of the private interests.

In the Council's view, the development outlined above is not only essential but also possible. Our country has adequate space in which to pursue the societal objectives of nature and agriculture (serving the public interests of biodiversity, food provision, and food security) alongside each other. The relationship between the production of raw materials and food provision is strongly determined by efficiency within the chain (inefficiency leads to the loss of half of the original production output), by the use of animal proteins, by the deployment of biomass for energy production, and by (future) innovations. The availability of agricultural land only partly determines the extent of a sustainable food supply. Food provision and nature can therefore go hand in hand at the national level, and certainly at the European level (RLG, 2009).

The interests of nature and agriculture can be reconciled by encouraging the dynamic of land usage transactions in such a way as to create a spatial configuration in which nature and agriculture each occupy a larger contiguous area, and the negative interactions between them are minimised. The regional nature networks – including the adjacent agricultural landscapes in which the type of agricultural activity permits a combination with nature functions – will play an important part. In some situations, redesignation of nature areas will be inevitable, as will the relocation of some agricultural businesses.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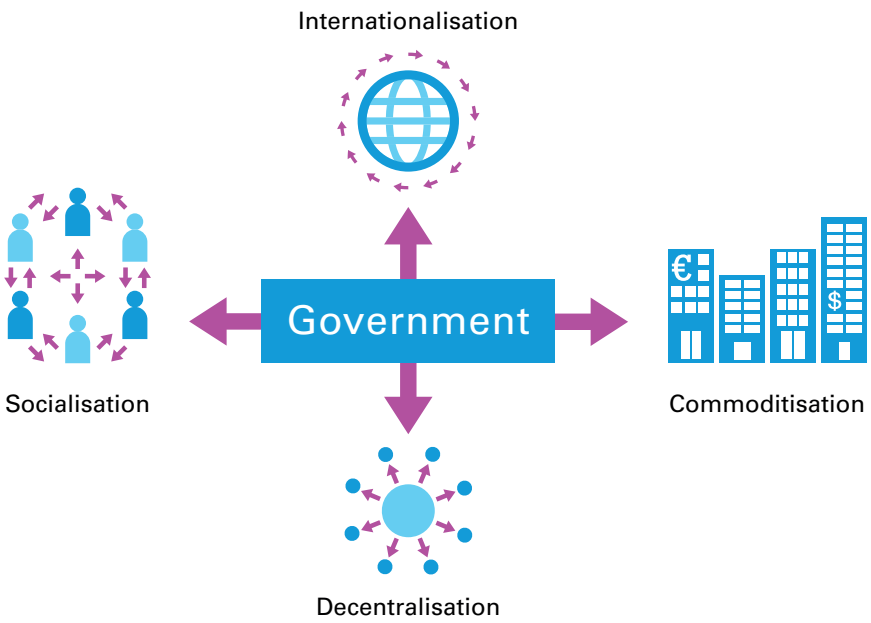
GOVERNANCE: NEW ARRANGEMENTS FOR GOVERNMENT, THE PRIVATE SECTOR, AND SOCIETY

6

6.1 Current situation and trends affecting the governance of nature

The process of developing and implementing nature policy involves many parties in both the public and private sectors: international and national governments, regional authorities, companies, societal organisations, and individual citizens. In order to describe and understand the relationship between their various tasks and responsibilities, and how those tasks and responsibilities are changing, the Council applies a model with two axes: along the horizontal axis are the societal actors shown in relationship to each other and the relevant level(s) of government, while the vertical axis represents the relationships between the various public sector authorities (see Figure 8).

Figure 8: Relation between societal actors and government bodies (horizontal axis) and between various levels of government (vertical axis)



The Council believes that it is important to state clearly which actor is responsible for which task, and the interests on which that responsibility is based. Similarly, it should be clear how those activities contribute towards the attainment of the societal objectives for nature. The division of tasks and responsibilities within nature policy is constantly changing and developing. The relationship between the societal actors and between government authorities therefore moves along both axes.

6.1.1 Societal engagement with nature

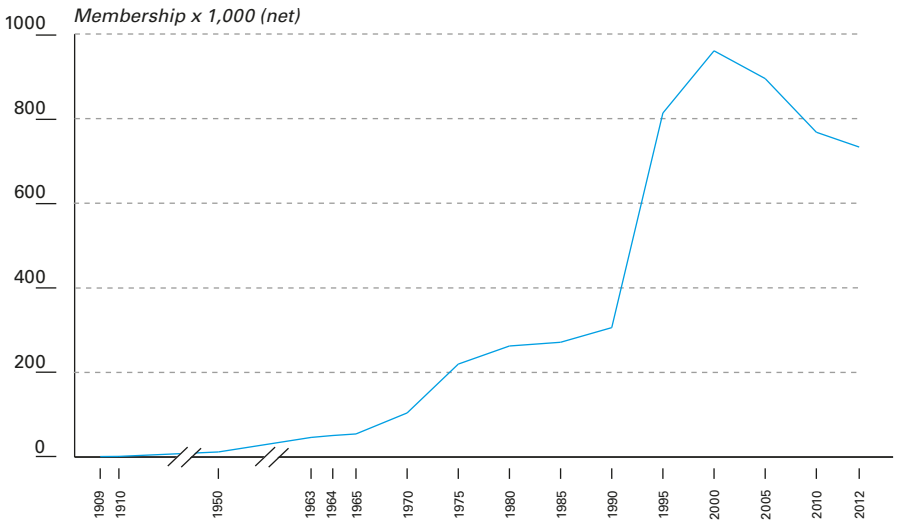
The movement along the horizontal axis is driven by the processes of *socialisation* (or communalisation) and *commoditisation*, whereby some traditional government tasks are assumed by other actors, including private market parties. Nature policy in its current form derives from the Nature Policy Plan (LNV, 1990), which introduced the concept of the National Ecological Network (EHS). Originally, the emphasis was on the acquisition of land by nature management organisations and government agencies such as *Staatsbosbeheer*, with only a very modest role for farmers and private landowners. That role became greater in the early years of this century when the government revised the subsidy system for nature management by private parties, and land acquisition focused more on areas for nature development and the ecological connecting zones (corridors). In 2000, the Ministry of Agriculture, Nature and Food Quality published the policy document "*Natuur voor mensen, mensen voor natuur*" ("Nature for people, people for nature"; LNV, 2000). The emphasis was now on the functions of nature as they benefit man, and on efforts to involve society and the market more in protecting nature. By now, the government had opted to limit its own tasks to those which directly address the public interests and responsibilities. A further development has been the emergence of the "energetic society", in which certain societal responsibilities are met by means of private initiatives (Hajer, 2011). Provincial authorities in particular began to involve the public ever more closely in their policy-making decisions, realising the importance of broad-based support (Kamphorst & Donders, 2013).

Further to these developments, the attainment of the public interests increasingly relied on the efforts of societal actors and market parties, and ever less on direct government interventions. However, this process of "socialisation" and "commoditisation" does not discharge the government from its overall responsibility for the safeguarding of the public interests (Swanenvleugel, 2012).

The general public

A milestone in the engagement of the general public in nature protection was the foundation of Vereniging Natuurmonumenten in 1906. If we take this society's membership as an indicator, we see a strong growth in societal engagement, as illustrated in Figure 9.

Figure 9: Membership development for *Vereniging Natuurmonumenten*



Source: *Natuurmonumenten.*

During the 1990s, *Natuurmonumenten* ran a television campaign which led to a significant increase in its membership, which by 2000 had reached almost one million before falling back to approximately 770,000. In 2003, nature organisations in the Netherlands had a combined membership of some 4.1 million. Again, this figure has since fallen slightly to approximately 3.8 million (*Vroege Vogels*, 2012). There has also been a shift from national to regional organisations. Between 2002 and 2010, the number of donors to the Provincial Landscapes programme rose by over 20%. The total membership of nature or environmental organisations, which the Netherlands Institute for Social Research (SCP) put at 3.6 million in 2010, is significantly greater than that of the political parties (0.3 million) or trade unions (1.9 million), and broadly comparable to the overall membership of sports associations (3.9 million; SCP, 2011a). Compared with the situation in other countries, we see that a relatively large percentage of the Dutch population are members of a nature organisation.

Not only are many Dutch people members of a nature organisation, they are generous in their financial contributions. Between 2001 and 2009, the percentage of charitable donations made to organisations working in the field of nature, environment and animal protection rose from 8% to 11% (SCP, 2011a). Support for nature is therefore undiminished. This is evident from the active involvement of many people in local nature management, policy consultation processes, civil initiatives, and volunteer work (Buijs et al., 2012). People are

often prompted to take part in policy consultations by some threat to local nature or changes to nature management practice. Protest groups grow to become civil initiative groups or volunteer groups which assist the nature organisations in nature management activities. Civil initiatives can also be prompted by a desire to realise personal ideals and to 'do something useful', by some personal connection with an area or location (e.g. nature in the city: see inset), or by a combination of motives. Volunteer work may involve nature management activities such as pruning and trimming coppices, planting new vegetation, censuses (counting populations of flora and fauna), or nature education. There are some 75,000 volunteers active on behalf of the Netherlands' nature organisations, a high number compared to other European countries. Moreover, the number continues to rise, particularly with regard to active nature and landscape management, while the number of volunteers involved in nature education and population censuses has remained reasonably stable for several years. There is as yet very little statistical information relating to the development and scope of civil initiatives.

Civil initiatives for nature in the city

Active engagement on the part of the general public is illustrated by the growth in "urban nature". Local residents might introduce plants and greenery to their neighbourhood, transform disused land into a temporary park, or install planters alongside the pavement outside a block of flats (ANWB, 2013). These are often ad hoc initiatives which are not linked to any larger organisation. Nevertheless, they are of ecological significance. Research conducted into urban nature during the past fifteen years reveals a greater diversity of species than had been thought. The urban environment offers distinctive conditions: the temperature is on average one degree higher than elsewhere, the air is less humid, and there is often less direct sunlight, while much of the surface area is paved. Ecosystems in the city are often unstable, dynamic systems with mostly "pioneer" species.

Public support for nature can also be seen in other areas, as revealed by research into attitudes towards nature, the diversity in images of nature (see inset), and the importance which people attach to recreation in nature areas (Buijs et al., 2012). Time spent amid nature is seen as a positive experience. Some 80% of Dutch people visit a green area at least once a year. Doing so often prompts a further commitment to nature. It is therefore hardly surprising that the statistics reveal very little support for government spending cuts on nature policy. In a 2010 survey, only ten per cent of respondents agreed that the government would be justified in reducing its expenditure on nature and the environment (Van Groenestein & Verheggen, 2010). In another survey, respondents were asked

to quantify an "appropriate" level of expenditure on nature protection. Over two thirds stated that current attention for nature is not excessive, while a third believed that conservation is so important that it must come before economic progress (SCP, 2011b).

Public perceptions of nature versus those of the policy-makers

Virtually all Dutch people (95%), both experts and members of the general public, consider nature and nature conservation in the broad sense of the term to be important (Buijs et al., 2012). Many disagreements about nature protection are not based on the importance of nature, but rather on the manner in which it is managed. However, people tend to base their arguments on a somewhat idealistic view of nature, in which landscape diversity is more highly rated than wild, untamed landscapes. In addition, significant opposition is prompted by the contrast between the conservation of abstract or holistic entities such as a habitat or ecosystem, and the concrete conservation of a specific animal or plant.

A number of trends can be observed within public engagement. For example, the debate has become polarised in recent years, whereby criticism of nature policy has become more vociferous. The manner in which nature policy has been implemented has also prompted criticism at both the regional and local levels. At the same time, this polarisation has actually given rise to new forms of engagement, such as civil initiatives.
The relationship between government and the general public is also changing. In the past, government authorities had to deal with demanding, sometimes dissatisfied citizens and their complaints. Today, new forms of partnership are emerging between the government and the public.

The private sector
In recent years, the private sector has devoted greater attention to nature as part of the theme of sustainability. Initiatives such as Leaders for Nature (International Union for the Conservation of Nature, IUCN), concerned with biodiversity and ecosystems, illustrate the growing engagement of (large) companies in nature. Businesses are increasingly recognising the importance of contributing towards nature development and management. They increasingly acknowledge that man and society are reliant on biodiversity, and they are becoming ever more aware of the functions of nature in terms of clean water and clean air, for example.[3] Moreover, companies are increasingly judged, by customers and suppliers alike, on their "corporate social responsibility" (Harms & Overbeek, 2011).

3 E.g. Platform Biodiversiteit en Bedrijfsleven: Thirty nature organisations and Dutch companies join forces to seek ways in which to halt the loss of biodiversity

Companies are particularly likely to take action when doing so will prevent any damage to their reputation, or if it will enhance their image. Many have entered into alliances with nature organisations, or make substantial donations. Approximately one third of the income of nature organisations is derived from corporate sponsorship and donations (verbal information from the NGF, 2012). Companies tend to sponsor or donate to local causes (Harms & Overbeek, 2011). However, their donations to nature remain lower than those in other areas such as sport. Nature organisations seek cooperation with the private sector in order to supplement their falling public funding, but also because societal support is becoming ever more important in legitimising their societal function and in developing the regional profile.

According to Harms & Overbeek (2011), the extent of cooperation between private sector companies and nature organisations depends on a number of factors. First, there must be interest in the mutual use of resources (funds; corporate image and communication strategies; commercial, physical and ecological knowledge; manpower; consumer and member networks), and the available expertise. Cooperation might, for example, give a company access to relevant knowledge. The societal organisation's network of members might help to develop potential consumer networks. For its part, the nature organisation will be interested in certain resources or competencies, or in the company's consumer networks in order to promote name awareness.
The second requirement is that the partners should be willing to define joint projects in which to invest. In the past, a company would have simply made a financial contribution. Today, companies expect something in return. The partners must agree what form this reciprocity will take. This leads to the development of a relationship based on trust, in which the exchange of knowledge, networks, and manpower also plays a part. As yet, there are relatively few concrete examples of such partnerships (see inset). The caution being shown by the nature organisations is largely due to a fear of their identity being too closely linked with that of a particular corporate interest.

Examples of cooperation between companies and nature organisations

Projects:

- Natuurcollectief, a joint project involving provincial nature conservation society Zuid-Hollands Landschap and health insurer De Friesland Zorgverzekeraar, the purpose of which is to encourage people to enjoy local nature in an active way.
- Cooperation between Rabobank and the twelve provincial Landscape Management Trusts, with regional funds to support projects or incidental activities which help to maintain the aesthetic quality of specific areas; for example, the partnership might sponsor a flock of sheep and shepherd, work to restore important trees, or install benches at locations with a particularly attractive view.
- Cooperation between Landal Greenparks and Natuurmonumenten: the nature organisation runs nature education classes in the Landal holiday parks, while Landal offers a discount to Natuurmonumenten members.
- Cooperation between VSB Fonds and Zuid-Hollands Landschap in land acquisition and the development of new nature along the Diefdijk in Zuid-Holland Province in order to interconnect various nature areas in the region.

At strategic and policy level:

- Leaders for Nature, an instructional and action-oriented network for private sector managers and professionals, focusing on three themes: ecosystems, sustainable business practice, and leadership, the aim being to integrate "ecosystem thinking" within core business processes.

Nature management organisations and private landowners

Various actors manage the nature areas. The largest are the government agencies such as *Staatsbosbeheer* and major nature organisations such as *Natuurmonumenten*, which are known collectively as "terrain management organisations" or TBOs. In addition, there are numerous private landowners, including farmers, and the owners of tenanted farmland, woodlands, and country estates. This group also includes church communities and private investors. The TBOs are primarily concerned with the management of the forests and large nature areas. They are responsible for over 400,000 hectares, including approximately two thirds of all land within the EHS. In addition, members of the Dutch Federation for Private Landownership (FPG) hold approximately 200,000 hectares of woodlands, nature areas, country estates, and agricultural land, some of which may be tenanted, which include a third of the EHS (FPG, 2010). When the area devoted to nature within the EHS was expanded, the private owners were given no specific role or responsibilities at first. In 2004, however, it was agreed that they would develop 40% of the new nature areas, totalling some 43,000 hectares. Depreciation of land value and the costs of restructuring were

compensated by means of subsidies. In the event, this arrangement resulted in the creation of only 1,000 hectares of new nature per annum which, according to the "Linschoten Declaration", was due to the inadequacy of the payments for nature management (TBO, 2009).

For the TBOs, the most important trend of recent years has been the reduction in public funding further to government austerity measures. At present, approximately one third of the organisations' income is derived from government subsidies, one third from donations, and the remaining third from revenue generated by activities on their land such as the sale of wood, excursions, and holiday home rentals (verbal information from the NGF, 2013). *Staatsbosbeheer* occupies an unusual position among the TBOs in that it is a government-funded state agency. However, it too faces a reduction in direct income. For this reason, the organisation has developed alternative sources of revenue, and with success. Over a five-year period, autonomous income has risen by 38% (from 37 million euros in 2006 to 51 million in 2011), from activities such as logging, recreation, short-term rentals, and leaseholds on buildings and land (see Trouw, 2012a).

In late September 2012, over fifty nature organisations decided to take a radically different course: they wish to become less reliant on subsidies and are to develop a joint strategy, e.g. involving a single sector organisation for nature. Their ambition is that species diversity in the Netherlands should double over the next fifteen years. The organisations also wish to link their activities to matters such as health care, flood safety, energy provision, and climate adaptation (see Trouw, 2012b).

Opposition to the implementation of nature policy

Although the private sector, societal organisations, and general public remain committed to nature, the implementation of nature policy has met with some opposition (see NRC, 2012). The belief that protecting nature stands in the way of economic development seems to be gaining ground. There is a general feeling that any initiative is discouraged due to overregulation. When subsidies for nature and nature development are subject to conditions which hamper economic development, the government can count on less public support, particularly in times of recession. People feel alienated from nature policy because the objectives are often formulated in very specialist terms which the man in the street may not always understand, and because local stakeholders are often not consulted or involved in establishing those objectives.

In the implementation of nature policy, the objectives are regularly seen to conflict with other claims on area processes, while it is possible that future nature development is seen as a threat to the current agricultural structure and business development in the region. The many nature-related policy intentions affecting the rural area reinforce this impression. Moreover, implementation of nature

policy can be a lengthy process, since acquiring land for nature development relies on the cooperation and goodwill of many actors. The financing of nature development is also complex and time-consuming. These drawn-out processes do nothing to foster societal support.

6.1.2 The government and nature: internationalisation and decentralisation

A second shift in the division of nature tasks and responsibilities is seen along the vertical axis and is due to *internationalisation and decentralisation*. Since the 1970s, national nature policy has increasingly been coordinated at the international level, as in the Convention on Biological Diversity (UN, 1992) and the European Birds and Habitats Directives (EU, 1979; EU, 1992). Other European policy, such as the Framework Water Directive (EU, 2000) and the common agricultural policy, do much to influence national nature policy and its implementation.

Until 1990, nature policy in the Netherlands was largely determined at the central level. The Ministry of Agriculture, Nature Management and Fisheries (as it was then known) had its own provincial departments and its own executive agencies in the form of the Government Service for Land and Water Management (DLG) and *Staatsbosbeheer* (SBB). Since the Decentralisation Impulse of 1991, responsibility for policy implementation has increasingly been devolved to provincial authorities, together with financing through Investment Budget for Rural Areas (ILG) and the *Provinciefonds* (Provinces Fund). The executive agencies have become largely independent organisations. The prime motives for this decentralisation were to bring governance closer to the public, and to maximise the benefits of synergy.

Internationalisation and decentralisation have served to increase the administrative distance between the national and international levels on the one hand, and the decentralised (provincial or local) level on the other. This growing distance presents a challenge in terms of the division and coordination of tasks and responsibilities between the various layers of government. Similarly, there is a widening gap between generic, sectoral policy at the national level and its integrated implementation at regional level, where synergy and cohesion must be sought with other policy sectors and actors. Cohesion between the policy of the various government levels and policy sectors cannot be taken for granted. It is not only governmental involvement in nature and the formulation of nature policy which is spread across various levels of scale; the same applies to nature's development itself. Effective implementation of nature policy demands interaction and coordination between those levels.

At the European level, various legislative instruments prescribe the Member States' nature policy and implementation practice. The most important are the Birds and Habitats Directives, the designation of the Natura 2000 areas, and the Framework Water Directive.[4]

International legislation, conventions and treaties

- Ramsar Convention (UNESCO, 1971): An international convention on the protection of valuable wetlands
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973): A convention prohibiting or restricting the trade in (products derived from) endangered species
- Bonn Convention (UN, 1979): An international treaty intended to protect migratory animal species
- Bern Convention (CoE, 1979): In full, the Convention on the Conservation of European Wildlife and Natural Habitats, intended to increase cooperation and coordination between the signatories
- United Nations Convention on Biological Diversity (UN, 1992): A framework agreement covering 'the global protection of biodiversity, sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources'
- European Birds Directive (EU, 1979) and Habitats Directive (EU, 1992): Legislation which gave rise to the protection regime for designated Natura 2000 areas
- European Biodiversity Strategy (EC, 2011): Strategy intended to halt the loss of biodiversity and ecosystem services in the EU by 2020.

Additional obligations are derived from other international agreements which affect nature policy, of which the most relevant are:

- Framework Water Directive (EU, 2000): A European directive which sets minimum quality standards for surface water (rivers and lakes, groundwater, and coastal beaches); the standards become mandatory in 2015
- Common agricultural policy: European policy intended to structure agricultural food production activities and rural development, whereby grants and subsidies are linked to nature objectives, among others.

4 NB: Legislation and policy relating to international trade and products which may influence the development of biodiversity elsewhere, such as CITES or biofuel requirements, fall outside the scope of the current report

The Netherlands has for many years been active in promoting international and European agreements on nature policy and objectives (Van der Zouwen, 2006). A European framework for the development and implementation of nature policy undeniably offers a number of significant advantages: instruments such as the Habitats Directive help to create a "level playing field" throughout Europe with regard to the restrictions which concern for nature and the environment are likely to impose on economic activities. Such legislation also facilitates coordination with other instruments, such as the common agricultural policy. Moreover, nature does not respect national boundaries. The effectiveness of national measures is that much greater if the same level of protection exists in neighbouring countries and beyond.

Much of the Netherlands' nature policy is thus formulated on the basis of, and in interaction with, European legislation, notably the Birds and Habitats Directives. The purpose of these directives is to safeguard biological diversity in all Member States by creating a common framework for the conservation of the habitats of flora and fauna which are of significance to Europe as a whole. Member States are required to designate protected zones which together form the Natura 2000 network. Within these zones, the Member States must implement all measures necessary to maintain habitats and prevent any ecological decline or significant disturbance to flora and fauna. Member States are also required to undertake or facilitate active management of the landscape elements which are essential for the migration, geographical distribution and genetic adaptation of species, and must implement and enforce measures to protect certain endangered species. The Netherlands has 166 designated Natura 2000 areas, with a combined surface area of over 1.75 million hectares (Regiegroep N2000, 2013). Approximately one third of this area is land, the remainder water.

The link between national policy and European objectives provides clarity for the stakeholders as well as a strong basis of legitimacy. There are nevertheless a number of disadvantages. When nature policy is entirely reliant on European frameworks, it takes on a strong sectoral and juridical focus, while implementation requires an integrated and flexible approach. The risk is that opportunities for regional differentiation and the creation of regional connections with nature will be restricted. This would reinforce the impression that nature policy is being imposed "from on high", is overly rule-bound and technocratic, and does not contribute to the local and regional natural environment. A compounding factor is that, unlike the Framework Water Directive, Natura 2000 does not have an explicit consultation procedure to ensure the participation of all stakeholders. If the frameworks for nature impose restrictions on other societal activities or are contrary to regional preferences, it is very tempting to sidestep or oppose those frameworks because they were devised "elsewhere" and at a distance (Buijs et al., 2012).

How can European sectoral nature policy and its integrated implementation at regional level strengthen each other, and what role will the national government play in ensuring that this is the case?

In the Netherlands, decentralisation is an important trend within the administrative division of tasks and responsibilities with regard to nature policy, and indeed many other policy areas. The underlying principle is that decentralisation increases public engagement in policy and implementation, and that it becomes simpler to arrive at integrated regional solutions to complex spatial issues. Decentralised direction therefore makes implementation more efficient and less expensive. In the Council's view, the success of decentralisation will depend on a number of conditions being met (RIi, 2011):

- In addressing all public interests, tasks and responsibilities must be assigned to the various levels of government in a clear and transparent manner.
- A clear distinction must be drawn between "tasks" and "responsibilities".
- It must be clear precisely what the tasks and responsibilities are intended to achieve.
- The overall structure of tasks and responsibilities must be fully transparent to the public.
- The relevant authorities must possess the expertise, skills, and financial resources needed to carry out their tasks and fulfil their responsibilities.

The current division of tasks and responsibilities is established by the Administrative Agreement (*Bestuursakkoord*) 2011-2015, between central government and the provincial authorities (BZK, 2011), which incorporates the "decentralisation negotiation agreement" of 20 September 2011 and the subsequent elaboration of 7 December 2011 (EL&I, 2011a; EL&I, 2011b). The agreement states that central government remains responsible for meeting all extant international obligations with regard to biodiversity. These obligations are not specified, but the government assumes that all will be met through adequate management of the EHS and the Natura 2000 areas.

Under the provisions of the Administrative Agreement, the provincial authorities are responsible for the implementation of the EHS, i.e. the designation of protected areas, their structuring, and their management. Central government imposes the condition that all such activities must be conducted in line with the international objectives. The areas which form part of the EHS are established by means of provincial ordinances. If necessary, central government can confirm their status by means of an Order in Council.

"Lapsed" tasks of central government, as listed in the Administrative Agreement

- "Other nature"
- Land-based agriculture: area-specific measures and area (re-)structuring
- Sustainable enterprise (pilots)
- Rural route networks
- Accessibility / public rights of way over private property (farmland)
- National landscapes
- National parks
- Generic landscape
- Environmental quality of the EHS
- Sustainable land usage
- Reconstruction of sand areas
- Liveability
- Recreation close to cities
- Robust corridors

Central government retains responsibility for the international obligations with regard to species conservation. An evaluation is to be conducted in 2016 to determine whether current arrangements will meet the aims of species and ecosystem conservation. It is noteworthy that the government has expressly abrogated responsibility for all other aspects of nature management. The Administrative Agreement includes a list of "lapsed government tasks" (see inset). The Agreement does not state whether these tasks are to be assumed by other authorities.

The nature management tasks in the former national parks have passed to the provincial authorities as part of the revised EHS arrangements. Provincial authorities have not been given explicit responsibility for the educational function of the national parks or the organisational links between them. Whether central government will continue to oversee these aspects is unclear, since they are not listed among the "lapsed tasks".

Provincial authorities have stated a willingness to assume responsibility for the practical implementation of the EHS, but stress that central government must retain financial (joint) responsibility. The External Commission for Nature Development (ECON), which on behalf of the Interprovincial Consultation Platform (IPO) has produced a proposal with regard to the manner in which the Administrative Agreement should be fleshed out, notes that the agreement establishes a hard dividing line between the responsibilities of the various levels of government (ECON, 2012). It does not, however, provide adequate resources

for the implementation of the revised EHS or the international obligations under Natura 2000. Moreover, the Administrative Agreement is based on a development requirement of 17,000 hectares (acquisition) and 40,000 hectares (restructuring). According to the IPO, the European obligations almost double that requirement.

The Netherlands Environmental Assessment Agency (PBL) also warns of a funding shortfall. The 2012 coalition agreement ("Building Bridges") offers opportunities to bring forward the attainment of the international objectives, in that the accompanying budget allocates extra resources for nature management to the Provinciefonds. Nevertheless, the PBL foresees a 40% policy deficit in 2020 (PBL, 2012c).

6.2 Nature as a shared public and private responsibility

Public responsibility
Nature is a collective asset: it is not possible to exclude individuals from making use of nature, whereupon neither the costs nor returns of nature can be individualised. Ensuring the continued availability of nature is a public interest, whereby responsibility for doing so must rest with the government.
The Scientific Council for Government Policy (WRR, 2012) notes that, alongside the fair distribution of non-individualisable costs and returns, there are other possible motives for government responsibility: compensating for market failures, the importance of a common set of values, and the greater efficiency which public implementation may entail.
All such considerations apply to the functions "conservation of ecosystems and species", "life support systems", and "perception of landscape quality". Accordingly, the Council believes that these functions qualify as a public interest. Other functions of nature, such as health and flood safety, could be deemed a public responsibility, but not by definition . For example, nature can help to reduce stress, and therefore supports the objectives of public health policy. In certain cases, however, it may well be more effective and efficient to reduce stress by other means, such as medication. This also applies to the other public interests to which nature contributes: water purification can also be achieved using chemical technology, while flood protection can rely on hard infrastructure such as concrete dams.
Even where nature is deemed a public interest, this does not necessarily mean that the government should fullfill all necessary tasks itself. Other (private) parties can also help to establish and maintain the public interests. Private parties may feel a sense of responsibility – or may be held responsible by society – for the functions of nature from which they too benefit: health, the quality of the human environment, and the attractiveness of the investment climate, for example.
The government can fulfil its public responsibility by formulating ambitions, establishing frameworks, bringing the parties together, through incentives and

prescriptive legislation (including monitoring and enforcement), by making a structural contribution towards the management costs incurred by third parties, or by undertaking management activities itself. Which of these options the government has to apply is largely a matter of customization.

Shared public and private responsibility for nature (areas) is often the product of the multi-functionality of nature. Several objectives, both public and private, can be achieved simultaneously at one location. A nature area can also serve several objectives (e.g. recreation and conservation) at various levels of scale (local, regional, and national), whereby the parties who derive the benefits are many and diverse. Responsibilities can often be divided among many parties whereupon we see cooperative alliances between public and private partners. The exact division of responsibilities between them is not static but is likely to change over time.

Strategies for safeguarding the public interest of nature
There are two key strategies for the administrative and societal organisation of nature as a public interest: allowing opportunities for action by the "energetic society" (along the horizontal axis of Figure 8) and strengthening the cohesion between the various levels of government to form an "administrative backbone" (along the vertical axis).

The "horizontal strategy" of the energetic society entails facilitating, and potentially helping to mobilise, societal potential. The government's role is then to offer a "compass" while taking care not to frustrate social initiatives. In other words, it must offer a cohesive vision of sustainability and innovation, and by extension nature, and at the same time allow and show confidence in public initiatives. The "socialisation" of nature policy is not only a question of new sources of finance, but also involves expanding the perception of nature, creating alternative images of nature, and encouraging creativity (Kamphorst & Donders, 2013). This approach will exploit the energy, enterprise and learning ability of Dutch society to ensure that the Netherlands has ample nature which fulfils all its societal functions.

In the "vertical strategy" of the administrative backbone, the government must provide frameworks within which the public objectives of nature can be realised, the national interests served, and the international agreements translated into regional tasks and challenges.

Neither strategy stands alone. To achieve interaction between the vertical administrative strategy and the horizontal societal strategy at every level of scale demands new and innovative concepts for cooperation and management.

6.2.1 Towards greater societal engagement with nature (policy)

Strengthening the bond between man and nature
The basis of engagement with nature is the bond between man and nature. That bond is formed at an early age. To ensure that engagement continues in later life, each new generation must be helped to understand the meaning of nature. Childhood experiences of nature are very important and help to determine attitudes towards nature in later life. Alongside local nature and opportunities to enjoy nature close to home, nature education plays a crucial role. Nature provides positive experiences in terms of recreation and enjoyment, and those experiences form the basis of support for nature and conservation, and for nature as a means of self-development.

Nature education

Nature education increases societal engagement with nature, both in terms of appreciation and active commitment. Nature education also plays a major part in individual self-development, a healthy lifestyle, and awareness of the role of nature as a basic life necessity (Van Koppen, 2012; see also Chapter 3).
Nature education is not necessarily tied to formal educational situations such as the classroom, but can form part of activities which are primarily intended to serve some other purpose, such as nature management or conservation. Nature education can take many forms, and can involve people of all ages. Research shows that nature education has greatest effect in the formative primary school years, especially when given in a practical "hands on" way such as fieldwork, excursions, or in a school garden. This effect is long-term, extending into adult life (Van Koppen, 2012). Both the integration of nature education into other subject lessons (whereby a connection is established with the other key objectives of primary education[5]) and outdoor activities help to promote a lifelong engagement with nature.

In the Council's view, nature education is a government responsibility, and specifically that of the Ministry of Education, Culture and Science, as part of every child's basic education. Just as everyone should be able to read and write, so they should have an understanding and appreciation of nature. Implementation falls to several, mostly local, parties: the local authority, societal organisations such as the Institute for Nature Education and Sustainability (IVN) and Landscape Management Netherlands (LBN), schools, and – not least – parents.

5 Nature can have a positive effect on the development of key skills such as numeracy and language

Devoting greater attention to urban nature, to nature in the transition zones between the city and the countryside, and to nature in outlying areas with local significance will strengthen the bonds between people and nature. It is primarily in the transition zones that the public come into contact with nature, and it is here that the various social functions of nature can be seen in combination. The relationship between the city and the rural area is a "two-way street". The transition zone forms a gateway to the nature, recreational amenities, farmlands, and green landscapes beyond. For its part, nature can access the city, bringing more green into the urban area. Parks are the city's traditional green spaces, but waterways and urban agriculture also have a part to play. Gradual transitions between the urban and rural environments strengthen interaction between society and nature.

Societal coalitions

To allow nature to perform all its social functions, not only public sector authorities and nature organisations must be involved in its realisation and protection, but also the business community and the general public (Harms & Overbeek, 2011). Societal initiatives must be encouraged. Such initiatives will gain in strength where there are coalitions between the various actors, such as nature and landscape organisations, residents' groups, and private sector companies. Successful co-production usually demands the input of a broad range of actors and interests; the development must enjoy adequate long-term support, and must be compatible with the other wishes and requirements of the community (Buijs et al., 2012). Cultural differences between citizens, authorities, and institutions must be bridged, and it is particularly important to acknowledge emotional arguments and the personal sense of connection with the immediate area, aspects which are of great importance to individuals. In the end, the nature objectives must be reconcilable.

Coalitions have greatest chance of success if they include "strong" parties: those with the perseverance, influence, and/or resources to bring the initiative to a successful conclusion. Examples of strong parties include water management authorities, water treatment companies, and operators of underground pipelines and cables. Given their investment ability and significant interests (either economic or public, such as flood safety), these parties are well placed to ensure that projects are both implemented and completed.

Organisation of societal initiatives

An analysis of the "socialisation" of nature policy reveals that there are many possible organisational models.

- One option is a cooperative alliance between societal organisations, public sector authorities, and members of the public. One example is the partnership involving the Gelderland Landscape Management Trust (GLK), the municipality of Voorst, and local residents. The local authority establishes the frameworks, while the GLK acts as an intermediary, mobilising local residents and coordinating the landscape management activities.
- Another option involves the role of intermediary being taken by a networking organisation such as GreenWish, which specialises in guiding individuals in initiatives concerned with all aspects of sustainability, including nature.
- Other models bring people and initiatives together through events (e.g. *Beursvloer Brabant*) or digital networks such as *Groen Dichterbij* and *www.natuurwerk.nl.*
- When the private sector is also involved, other models will emerge. They include cooperative alliances between companies and societal organisations based on sponsorship, fund management, and financing of (new) nature.

The government can encourage the societal potential by:

- Devoting attention to small-scale nature projects (such as temporary nature on disused construction sites) as well as larger projects.
  The risks to the project initiators and the public interests (such as loss of support) are smaller, the room for individual contributions is greater, and the results can be achieved more quickly whereby participants learn from their experiences (Hajer, 2011). Moreover, such "lighter" nature projects are often more appropriate to the vision of nature and landscape held by the general public, which can differ from that of the policy-makers
- Formulating an inspiring vision and transparent framework as the basis for civil initiatives; the government establishes a long-term objective as a "dot on the horizon"
- Allowing small-scale initiatives to "hitch a ride" with larger projects in areas such as flood safety, water quality, and infrastructure, or other large(r) landscape interventions such as the laying of pipelines or cables.

One example of cooperation between societal parties and government authorities at both national and regional level is the production of "manifestos" setting out aims and how they will be achieved. Such documents include "Natuur, landschap en economie voor een vitaal platteland" ("Nature, Landscape and Economy for a Vital Rural Area"; ANWB et al., 2010), and the "Begrenzing EHS" manifesto for Gelderland ("Delineating the EHS"; Province of Gelderland et al., 2011).

The government and societal implementation: new arrangements and reflexive management

Active societal involvement in the implementation of nature policy has its own dynamic which demands that the government reviews its attitudes and practices with regard to cooperation and management. Hajer (2011) contends that the government is too inclined to regard society as an "object", whereupon inadequate use is made of the social dynamic. The government needs a new management philosophy if it is to make proper use of that dynamic. It must place the social dynamic to the fore and give greater heed to the motives and wishes of the people.

The Council believes that new arrangements for cooperation between the public sector and society are required in order to interconnect administrative ambitions and societal initiatives. Such arrangements will involve the administrative and societal actors who are most relevant to specific issues and themes and who are able to define and assign their own roles, tasks, and responsibilities accordingly (Arnouts et al., 2012). The role of the government in these arrangements can vary; it need not always be that of the overall director. The government might act as facilitator, as a source of knowledge, or as mediator and intermediary. In other situations, the government might be an (equal) partner within a cooperative alliance. The greatest involvement may be achieved when taking the role of overall director, but it could also restrict that role to providing generic facilities such as access to the knowledge structure, to monitoring, or to providing nature education. What is most important is that the government acknowledges the various roles (and acts accordingly) which should be formalised under the heading "new arrangements for nature policy".

The traditional management approach of government, which owes much to the philosophy of rational top-down planning, is in general inappropriate to the dynamic of the public-societal development and implementation of nature planning, and indeed to the dynamic of nature itself. For this reason, the Council urges the adoption of what the governance and transition management literature terms "reflexive management" (Arts et al., 2006; Hendriks & Grin, 2007; Voss et al., 2009). On the one hand, this approach is systematic, planned, and rational in that it is based on general ambitions and frameworks. On the other hand, it allows for improvisation in implementation practice and a creative response to uncertainties and unforeseen events.

Opportunities for further socialisation of nature policy

The government can support the socialisation of nature policy and its implementation by:

- Facilitating and strengthening (existing) engagement on the part of businesses and private citizens (e.g. through the horizon strategy, green deals, the removal of administrative obstacles, and co-financing)
- Providing clear communication with regard to the ambitions and frameworks for nature development
- Linking European and other international objectives with those at national and local level to create a greater sense of relevance
- Designing the instruments for nature policy in a way which promotes societal initiatives and their self-regulation
- Creating clear points of contact for public initiatives within the government apparatus
- Devising new arrangements for public-private partnerships within the domain of nature
- Making greater use of the existing "green knowledge" infrastructure by making it (even) more relevant to societal requirements and by ensuring its full accessibility for private nature managers
- Ensuring that any reorganisation of government agencies (such as SBB and the DLG) devotes due attention to their coordination with the organisational structures of the societal midfield
- Reinvigorating nature education at primary level, under the responsibility of the Ministry of Education, Culture and Science, which will call for additional investments
- Supporting and incentivising the existing private infrastructure for nature education.

6.2.2 Towards a transparent administrative division of tasks and responsibilities

The increasing role of the societal actors in realising public objectives such as nature is entirely appropriate to the paradigm of reduced government involvement. There are, however, limits to that paradigm. Those limits are created by the required effectiveness of implementation and by the government's overall responsibility for safeguarding the public interest of nature ("system responsibility"). It falls to the government to establish frameworks and ensure cohesion in order to fulfil its responsibility. In the opinion of the Council, the government must adopt a different management style with regard to nature, undertaking such tasks as:

- Establishing ambitions for the public interest of nature, both in terms of biodiversity and the functions of nature
- Establishing frameworks within which societal actors and other levels of government can contribute towards the attainment of those ambitions

- Interlinking and coordinating initiatives in order to achieve cohesion and synergy.

By making the ambitions explicit at every administrative level, the government will clearly demonstrate where the public interest lies. This will strengthen the public commitment to policy and will encourage participation by the societal actors. The frameworks within which policy is created and its implementation is given form should seek to allow ample opportunity for societal initiatives which will contribute towards the attainment of the ambitions. However, it must be remembered that frameworks and implementation practices are not static; they must be allowed to develop in line with the dynamic of both society and nature. A framework implies limitations and boundaries. The government must not be afraid to place the public interest of nature above other interests where necessary.

Structure of administrative responsibility
Acceptance of these tasks by the government demands a strong "administrative backbone", first in the *structural* sense. It falls to the government to create the appropriate link between international, sectoral objectives and their integrated implementation at regional level. The tasks and responsibilities of the various levels of government must be clearly described and delineated in relation to each other, thus creating a framework for societal initiatives. The Council considers it important that government and parliament should take steps to arrive at this clear description and delineation which must by all means include what is now to happen with regard to the "lapsed" government tasks listed in the Administrative Agreement.

At the *European level*, the ambition with regard to the conservation of habitats and species has been defined at European scale, and the EU has established frameworks for both nature (the Birds and Habitats Directives and the Convention on Biodiversity) and adjacent policy areas (Framework Water Directive, common agricultural policy).

In the Council's opinion, *national government* retains full overall responsibility for the functions "conservation of species and ecosystems" and "*life support systems*". The level of scale of the natural systems in which species and ecosystems develop, and the often international context of many objectives and agreements, require this responsibility to be addressed at central, national level. It concerns the realisation of internationally agreed objectives as well as national objectives. In terms of (national) public objectives, other functions of nature – such as its contribution to public health or water management – only require central government to take a leading role if nature is regarded as an "instrument" to be deployed in the implementation of the relevant policy.
Central government is also responsible for establishing the framework within which the nature network is to be developed. The spatial confirmation of that

framework at the national scale (in outline) is likely to be an effective approach given the supraregional and international dimensions involved. This would also be a clear and demonstrable acknowledgement of the importance of the Netherlands' key nature areas. The current government has already followed this line by declaring the EHS to be of national importance within the (draft) Infrastructure and Spatial Planning vision document (SVIR).
The government's tasks also extend to defining the form of international cooperation at EU level further to agreements such as the *Convention on Biological Diversity,* and to translating international and national agreements into action at the regional level. In doing so, it must provide opportunities for integrated solutions which address other policy areas, and must support knowledge development and nature education.

The *provincial* (regional) authority bears overall responsibility for the function "perception of landscape quality", based on the interests of areas' contribution to the regional identity, whereupon frameworks for implementation are also established at this level. This function supports identification with nature policy on the part of the business community and general public, and thus forms a seedbed for active engagement with regional nature. The provincial authority has the task of bringing together the interests and actors within balanced and integrated area processes. The provincial authority is also the designated administrative level for implementation management, since central government and local authorities have agreed that spatial interests should first and foremost be considered at the regional level of scale: see the Administrative Agreement, 2011-2015 (BZK, 2011) and the report of the Lodders Commission on decentralisation proposals (Lodders et al., 2008). The provincial authority must, of course, have the financial resources and autonomy needed to realise the intended contribution to national objectives, as well as the necessary legislative authority and instruments. Where there are certain regional or local preferences, or where the nature-related issues differ, decentralisation provides room for pluriformity of policy.

At the regional and local levels, the elaboration of frameworks and policy outlines will be undertaken by area commissions and land restructuring commissions. When management responsibility for implementation is established at the regional level, it becomes possible to link activities with those addressing other (regional) objectives – such as water management, economic development, the investment climate, and regional profiling – and to foster additional support for provincial policy. A precondition will be effective coordination between the implementation agendas of all stakeholders, both public and private, which may include *Staatsbosbeheer*, the DLG, water management authorities, *Natuurmonumenten*, the provincial Landscape Management Trusts, and individual landowners. Cooperation between the societal partners and other regional or local authorities will be given form within a diverse range of "new arrangements for nature". A characteristic of this implementation level is that coordination

and synergy are sought between the functions of agriculture, nature, water, recreation, urbanisation, and socio-economic development with a view to enhancing the vitality of the rural and semi-rural areas.

It is important that the interrelationship between the nature objectives and the objectives of other area functions is made clear within implementation practice. 'Which aspects and perspectives within nature policy will provide useful opportunities for other forms of action?' is thus an important question. Nature policy will then take on added value with regard to other area functions. The PAS nitrate reduction programme is a good example of how the implementation of nature policy can achieve synergy with water management activities and the creation of opportunities for economic development. When conditions for nature – e.g. acreage, water management – are improved by resolving pollution, the result is the development of robust nature which can withstand the effects of economic development. Accordingly, the PAS approach can also be usefully applied in all areas, not merely the designated Natura 2000 areas.

The task of a *local authority* is to establish ambitions and frameworks for nature in the urban area and transition zones, and for nature of local significance further afield. The ambitions will be reflected by the authorities' spatial development policy and in other policy areas (e.g. housing, economic activity, public greenery) which involve the design and management of public spaces. Means of deriving the benefits of the functions of nature (e.g. water management, urban climate control, and social cohesion) can be given form at the local level, and hence help to meet other local responsibilities, including public health and social welfare (verbal information from GGD Rotterdam-Rijnmond, 2012).
The local authority also has a task in encouraging engagement with nature as the basis for civil initiatives. Alliances between local nature organisations and schools, for example, will promote nature education.

The administrative backbone in implementation
An administrative "backbone" is also required in the sense of *mentality*: the government must be willing to uphold the public interest and take responsibility when required to do so. Implementation of nature policy has always proven complex, whether by a public sector authority or by societal actors. In Section 6.2.1, we set out what central government can do to strengthen social engagement and to arrive at concrete implementation arrangements with and between the societal partners. A second strategy is to seek the greatest possible interaction and synergy with other interests and issues which play out in the domains of spatial development, public health, safety and security, and economics. Last but not least, a realistic response to obstacles and opposition is important. Possibilities for overcoming objections through compromise should be sought where possible, but the public interest of nature should be allowed to prevail over private interests. For example, the acquisition of land for nature

should be based on its voluntary sale and transfer. However, if there is broad societal support for the realisation of a certain green zone but that realisation is blocked by a landowner's refusal to sell, the government must be prepared to impose more coercive measures such as a one-for-one exchange of land or, as a last resort, compulsory purchase. An advisory report published by the Council for the Rural Area, entitled "*De mythologie van onteigening*" ("The Mythology of Compulsory Purchase"; RLG, 2008), considers the use of compulsory purchase orders in acquiring land for the EHS. The guidance it offers remains applicable today.

The Council sees the general direction of development to entail:

- Prioritising, in both implementation and financing, those projects which offer synergy with other policy objectives
  An example would be the joint implementation of activities by the Government Service for Land and Water Management (DLG), water management authorities, and provinces. The water management authority needs the input of the province in order to implement the requirements of the Framework Water Directive, while the province needs the water management authority if it is to meet its obligations under the Natura 2000 programme. Opportunities for synergy will created by linking the respective agendas in both space and time
- Creating opportunities for the flexible development of nature areas in both space and time, thus allowing and encouraging the business community and general public to make their contribution (rigidity in implementation is seen as threatening and will therefore create opposition)
- Providing clarity to landowners, at the earliest possible opportunity, with regard to the future development of nature and the possible consequences for other forms of land usage
- Ensuring the government is seen to act with complete propriety where the public interest demands an incursion on the private right of ownership.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FINANCING: LONG-TERM STABILITY

7

Continuity of financing[6] is essential for the sustainable future of nature. The existing financing forms do not provide adequate continuity, as illustrated by the announced government cutbacks and the strain on funding provided by the private sector and non-profit organisations. Central government is responsible for the financing of the public interest that is nature, and can apply a combination of various instruments to meet that responsibility. It can, for example, provide direct financing from collective resources (the public purse) while also creating conditions permitting and encouraging financing on the part of other parties, such as the private sector, societal organisations, and private individuals.

7.1 Sources of finance for nature: the current situation

The 2012 national budget allocated approximately 400 million euros to nature policy, including the management of the nature areas, the acquisition of land for the EHS, and the mitigation of environmental obstacles (TK, 2011; TK, 2012a; PBL, 2012c). This amount represents approximately 0.16% of the total planned government expenditure of 245.3 billion euros in 2012, as stated in the National Budget Statement for 2012. Originally, under the proposals of the 2010 coalition agreement, the government's contribution to nature policy would be reduced from 600 million to just 200 million. The coalition agreement of 2012 adjusted the planned reduction of 400 million euros to 200 million euros.

Between 2009 and 2011, provincial authorities accounted for total expenditure on nature policy of approximately 190 million euros per annum. The average is however significantly distorted by incidental large contributions by Gelderland and Noord-Brabant in 2010. In 2014, the provinces are expecting to allocate approximately 150 million euros of their own resources to nature in their long-term budgets. This figure takes into account the additional policy incentives which a number of provinces have agreed for the period 2011-2015 (PBL, 2012b).

6 Here, "financing" is used in the sense of allocating financial resources and funding, not that of lending money to be repaid with interest

The government also contributes to nature through its financing of other policy areas. Investments in water provision and environmental quality benefit nature to some extent, due to the improved environmental and water conditions they create. Expenditure on flood safety and water defences (as in the Second Delta Programme) also promotes synergy in areas such as eco-engineering ("Building with Nature"), as seen in the offshore Zandmotor project. Other forms of eco-engineering, such as the oyster reef and reedbed projects, also have a clear beneficial effect for nature (IenM, 2012). The investment amounts concerned are significant; in 2012, 1.1 billion euros has been set aside for the maintenance of dikes and dams and for coastal defence projects (TK, 2011b). The proportion of this amount which will directly or indirectly benefit nature is difficult to quantify, but may also be deemed significant.
Within the public health budget, almost 500 million euros is devoted to preventive measures such as lifestyle information (Post et al., 2010). Of this amount, an (extremely) small proportion relates to the promotion of outdoor recreation and exercise in nature areas, which is part of the societal function of nature.

The green sector's income from private sources rose from 98 million euros in 2006 to 126 million in 2010, since when it has remained relatively stable. Part of this income is derived from the proceeds from lotteries etc. Expressed as a percentage of total charitable donations, the "green" causes saw their private income fall slightly between 2006 and 2010, from 13.7% to 13.2%. However, this relative decrease is due to an increase in the absolute amount from private sources during this period (PBL, 2012b). The "green" causes form the smallest group among the charitable sector as a whole.

Approximately one third of the expenditure of nature organisations such as *Natuurmonumenten* and the twelve Landscape Management Trusts is financed by the government (in the form of grants and subsidies), one third by the private sector (sponsorship and joint projects), and the remaining third by the general public (donations, bequests, proceeds from lotteries). The latter category also includes income from admission charges to (historic) buildings, against which expenditure on their upkeep must be offset (verbal information from the NGF, 2013).

Not all donations are financial in nature: volunteer work and the encouragement of nature development on private land are also forms of charitable donation. Companies may contribute in the form of "work with work" schemes in which nature is created or managed as part of the regular production processes (TEEB, 2012b).

Linkage between the costs and returns in nature financing
Nature has a value, but financing opportunities are often limited by the difficulty of establishing an effective link between the costs and returns of nature. That is because cost and benefit of nature can not be allocated to the same single party but end up by a very large number of stakeholders between whom few ties or commonalities exist. A person can enjoy a walk in an area maintained by a nature organisation of which he is not a member, and to which he does not make any financial contribution. Although there are opportunities to link costs and returns (e.g. in the form of an admission charge), there are many situations in which doing so has been shown to be problematic. The "redistribution" of costs and returns therefore often takes place by means of collective resources, as in the government's contribution towards management costs.
One example of a direct link between costs and returns is the PAS nitrate reduction programme, in which investments in nature (to provide a solid basis for the attainment of conservation aims) create new opportunities for economic development (TK, 2012b).

Recent years have seen much research focusing on the value of nature and landscape. Based on the Social Cost-Benefit Analysis (SCBA) methodology, attempts have been made to quantify that value in financial terms. However, even if an economic value can be assigned to, say, the health benefits of a tree or the ecosystem services provided by urban greenery, this value cannot be used as a direct basis for financing decisions with regard to the planting and maintenance of the tree or the urban greenery. As one local alderman at a conference on the use of the SCBA methodology to quantify the value of landscape commented, 'The landscape may well be worth six billion euros, but where do I find the 150,000 euros a year I need to manage it?' The SCBA methodology can nevertheless help to make balanced decisions with regard to the use of public resources, thus linking costs and returns via public resources.

7.2 Financing as a government responsibility

Based on its responsibility for nature as a public interest (see Chapter 6 on Governance), the government also bears overall responsibility for the financing of nature. It can, for example, provide direct financing from collective resources (the public purse) while also creating conditions permitting and encouraging financing on the part of other parties, such as the private sector, societal organisations, and private individuals. There are some functions of nature in which the returns (benefits) can indeed be individualised. One example is the purification function of nature in the dune-land drinking water abstraction areas. It then becomes possible to involve the users and beneficiaries of this function directly in its financing.

"Nature" is a very broad concept. The government is not responsible for every form of nature. It cannot be expected to concern itself with any dandelion growing between city paving stones or with a privately owned nature area. Nevertheless, the government does have a responsibility for nature which serves one or more collective interests, such as the conservation of ecosystems and species, public health, or perception of the landscape.

It is not realistic to expect that the government (alone) can finance all the long-term objectives set out in this advisory report using the traditional financial arrangements. To achieve continuity and an appropriate distribution of risks, it is essential that the private sector and general public are more closely involved in financing nature policy. To supplement the traditional arrangements, such as financing from taxation income, new arrangements are needed. Within these new arrangements, the role of the government will be that of facilitator: the party which establishes the necessary conditions for private financing.

What must be done

In financing, both adequacy and reliability are important. The Council sees achieving reliable financing arrangements as the most significant challenge, since current financing structures for nature policy offer little assurance of long-term continuity. This situation is diametrically opposed to the interests of the conservation and development of ecosystems and species, which call for continuïty in management interventions, in development and maintenance of knowledge, and in efforts to increase engagement on the part of the general public. The financing arrangements for nature should be in line with the period over which nature develops, and over which the necessary spatial conditions can be created. Uncertainty with regard to income will mean missed opportunities and discontinuity of activities can induce irreversible loss of capital. In the years ahead, it is therefore essential to arrive at a sustainable system of financing for nature management, in a logical, straightforward and consistent manner.

When considering whether this sustainable financing system can be achieved on the basis of taxation income or that of new arrangements based on the benefits derived by private parties, it is necessary to distinguish between investment (in the restoration and expansion of nature areas) and management (maintenance).

The costs of management are, in part, recoverable. In the interests of continuity, it will be prudent to distribute those costs between the three income streams: government, non-profit societal organisations (supported by public donations) and businesses. Based on its responsibility, the government must guarantee that the costs of management (maintenance) will indeed be met, and must make a contribution towards those costs alongside the private sector and societal organisations. The government is also responsible for facilitating and incentivising financing by the private parties.

The amount of financing required will depend on the ambitions for nature and the level of efficiency achieved in realising those ambitions. This advisory report is based on a "horizon strategy", whereby the gradual process of attaining the long-term objectives is based on the scientific insights and societal developments of the moment. It is not possible to assess the financing requirement for the longer term, only that for the shorter term. This amount will be based in part on the current policy intentions as set out in the Negotiation Agreement between central government and the provinces, and on their further elaboration by the External Commission for Nature Development (ECON, 2012) on behalf of the Interprovincial Consultation Platform (IPO). The Commission has calculated the average annual costs for management, specific outcome-oriented measures, and the *Faunafonds* (Fauna Fund) to be in the order of 190 million euros (including 141 million for area and land management, 30 million for outcome-oriented measures, and 16 million for the *Faunafonds*). The Commission further estimates the total costs in respect of hard contractual obligations further to the acquisition and (re)structuring of land to be in the order of 2.014 billion euros, over a longer period. Other components of nature policy and implementation (the international obligations further to Natura 2000, the Framework Water Directive, and conservation agreements) are expected to result in additional costs.

Given the recommendations of this report, the Council anticipates that incidental investments for area (re-)structuring are likely to be higher in future, while the structural costs of management will be lower. The structural management costs can be reduced by making certain one-off investments in interventions intended to prevent the succession of existing biotopes (e.g. by removing the topsoil, or removing dikes or dams), whereupon further maintenance and management will be unnecessary for perhaps several decades. A precondition is that the area concerned is large enough to permit such interventions.

Technological developments (mechanisation and intensification), scale expansion, and specialisation can also help to reduce costs, not least through greater cooperation within the administrative organisation and the deployment in nature management of specialist contract workers (PBL, 2012a). It seems likely that the physical expansion and defragmentation of nature areas will also serve to reduce management costs. Further research is required to determine the extent to which this effect will be seen.

The horizon strategy assumes that the final objective (the "dot on the horizon") will remain unchanged, even where the speed of the process is temporarily reduced due to a lack of financial resources. The yield on the investments made will then remain intact. There are however limits to how much the process can be slowed; a degree of continuity remains essential to maintain the qualities achieved thus far (for instance via management interventions), to preserve knowledge and experience, and to continue offering the prospect of success to all

stakeholders. The financing requirement is therefore linked to time and place. The Council contends that monitoring of the consequences of reduced financing will be required to identify any adverse effects at an early stage, whereupon timely measures can be taken.

7.3 Future possibilities for the financing of nature

7.3.1 Financing from public resources

Based on the respective responsibilities of the various levels of government (see Chapter 6), where private funding is not available or adequate, public resources must be available for the creation, development and management of nature. That can take place via subsidies, preferably long-term (say thirty years), in order to achieve maximum effectiveness. An alternative would be fiscal measures, such as providing full income tax relief on donations to green causes or private expenditure on nature management activities (NGF, 2012). A system of fiscal benefits is likely to mobilise the use of private funds to a greater degree than subsidy arrangements, while subsidies may allow better targeting of funds in line with the specific objectives. A combination of these instruments will provide all benefits.

Integrated policy-making which addresses both nature and economic development will benefit now these policy domains are brought together under the general responsibility of the Ministry of Economic Affairs, and through the decentralisation of both regional economic policy and nature policy to the provincial authorities. The societal synergy between these policy domains can then be achieved in both policy and financial terms. As stated elsewhere in this report, expenditure on policy domains such as flood safety and health is significant, being of an entirely different order than spending on nature policy. Where the functions of nature can support these societal objectives by means of synergy, there are excellent opportunities to apply a "work with work" approach.

Integration within financing is also being sought at the European level (Kettunen et al., 2011). The European Commission wishes to channel financial resources for the Natura 2000 programme through non-specific nature and landscape funds. The major European funds upon which Member States can call to finance Natura 2000 measures are largely part of the common agricultural policy arrangements. Other important funds include the European Agricultural Fund for Rural Development (EAFRD), the various Structure and Cohesion funds (such as the European Fund for Regional Development; EFRD), the European Fisheries Fund (EFF), LIFE+ (the financial instrument for the environment), and the Seventh Framework Programme (for research).
The nature objectives for the Natura 2000 areas show a marked degree of potential integration with a wide variety of other sectors: agriculture and forestry,

recreation and tourism, water abstraction, water management and purification, coastal defence, port development, biomass production, and commercial fishing (Kettunen et al., 2011). Further analysis of several areas in which "integrated management" occurs reveals that it would indeed provide (socio-economic) added value, e.g. in the form of new financial resources for regional development, a halt to population shrinkage and/or a strengthening of social cohesion, and the strengthening of the local or regional economy (Van Apeldoorn, 2012).

7.3.2 Financing via a system of rights and concessions

The financial instruments which, in the opinion of the Council, can in the forecoming years supplement the basic provisions for the protection of nature and landscape would include a system of economic rights which are linked to societal obligations. This will achieve the intended balancing of costs and benefits. The obligations will be in the form of nature creation and management while the rights (in the form of concessions) will be granted by the government and will form a sustainable basis for management activities. These concessions will give rise to long-term obligations and are therefore most appropriate where the costs - especially those of management - are also long-term. The system would be less effective in the case of significant one-off capital investments such as land acquisition or (re)structuring costs.

A number of financial studies, including those by Bade et al.[7], conclude that various economic sectors derive substantial revenue within the nature areas. They include the health sector and leisure and tourism. It is also known that real estate in a green setting is generally of higher value than that in a non-green urbanised environment, and that the value of a property rises significantly if a nearby area is designated a national park. The creation of value as a result of such a designation, is not yet channelled into investments in the maintenance of the green assets. When value creation is linked to concessions which are granted to those deriving the benefits, an obligation to contribute to nature can be created.
Examples include the right to fish or hunt or to exploit a duck decoy. More modern forms of rights and concessions include patents, broadcasting rights, milk quotas, and CO_2 emission rights. The financial value of such rights is represented by the possibility of revenue generation, often over a very long term. In many cases, the government sells rights by auction, whereupon resources for the maintenance of the capital concerned are available on a one-off basis, or may grant rights free of charge, whereupon resources are not available at all. If the rights are directly linked to structural, ongoing obligations, they can play a part in the financing of landscapes. One familiar example is the purification and abstraction of drinking water in the dune-land areas, where the rights to do so are granted to water production companies in exchange for a commitment

7 The proposed concessions system, the "compass management" approach, and the "horizon strategy" are all derived from the work of Tom Bade, notably "Het groot rechtenboek der Vaderlandsche Natuurbescherming" (2011) and the essay "De natuur verdient beter" (Bade et al., 2011)

to protect and manage those areas. In this situation, the right (abstraction) and the obligation (nature management) are clearly interrelated and there are no conflicting interests. Another example is the right to run a public lottery, granted by the government to certain charitable causes. In the past, lottery concessions were a government monopoly. Today, lottery income helps many non-profit organisations (including the nature protection organisations) to cover their operating costs or to get new projects off the ground.
Unlike subsidies for nature management, which generally have a fixed term of four to six years during which time the terms and conditions will often change, rights have a much longer term and therefore contribute to both continuity and the mutual trust between the government and the rights-holder. The long term forces the government to look far into the future, while also offering the rights-holder protection against shifts in policy, thus enabling long-term sustainable investments to be made. A system of rights and concessions will therefore increase the investment capacity of private sector organisations by dint of the certainty it creates.

At first sight, the possibility of introducing a system of rights and concessions as a financing instrument would appear to be restricted because many (ownership) relationships are already firmly established. However, the current (spatial) dynamic is large enough to create situations in which such a system can be successfully applied. In the spatial domain alone, applications for various permits, licences and exemptions (all forms of "right") are submitted every day. If granted, government authorities can attach certain conditions and supplementary requirements. As an indication, the number of applications for various forms of environmental permit is currently in the order of 250,000 per annum (Schmidt & Kersten, 2012).

In elaborating a system of rights and concessions, it would be possible and perhaps appropriate to designate a "development area" covering a radius of several kilometres around an existing nature area. Within this area, the manager of the nature area itself would be entitled to establish and run restaurants, hotels and other amenities in association with private sector partners, based on their mutual interest in the maintenance of the green infrastructure. Opportunities for financing based on concessions are to be seen not only in tourism and recreation, but also in the traditional utilities sector: energy, water, underground infrastructure, etc. In the Krimpenerwaard region, for example, it has been proposed that farmers should be permitted to erect a (collective) windfarm on a vacant industrial site, the revenue from which will be devoted to meadow bird management elsewhere (Triple E, 2011).

One approach which would be appropriate to the proposed rights system is that which is already applied in the field of technology, in which the government will often make some temporary contribution to research and implementation. This

contribution is conditional on a certain market share having been achieved within a set period, whereupon the contribution is withdrawn or wound down. In the field of nature, and in both new and existing situation, nature managers could be given resources on condition that they have acquired adequate rights within, say, five years to enable them to reduce their reliance on government financing. The acquisition of such rights will be undertaken in association with the government authority providing the initial financing. This arrangement would establish a sustainable basis for nature protection and management.

Defining the role of government
The introduction of a system of rights and concessions will entail a new division of roles between all parties: government, market, and societal organisations. Traditional terms such as "privatisation" or "commoditisation" are no longer applicable. The most important aspect is that the government assumes the role of the party which organises the market structure and assigns rights (rather than allocating funds). The rights will initially be held by organisations operating in the societal interests. These might be the traditional nature conservation organisations, but they could also include new organisations, area funds, or corporations with a social remit. The sole requirement is that some mechanism is in place whereby all income earned further to the rights is directly channelled, without any government intervention, into the protection, conservation and management of nature and landscape.

The government will be able to grant rights in situations in which it has the necessary authority by virtue of policy responsibility or legislative power to issue certain types of permit. There might also be situations in which area development is undertaken as a public-private partnership based on voluntary agreements covering structural contributions to management costs in return for certain rights, either "usufructuary rights" (relating to income) or the restructuring of agricultural land by means of the voluntary "like for like" exchange of land parcels.

To generate new possibilities for financing based on rights, the government can opt to create a new dynamic, for example by giving an existing nature area a certain "recognised status". It is known that merely designating an area a "national park" increases revenue from tourism and leisure, while the value of nearby property rises. Given the relative scarcity of functional nature in the Randstad conurbation, there would appear to be opportunities to add value by granting the nature which does exist some special title or appellation that will appeal to the general public and emphasise the natural and landscape qualities. Regional nature networks can also add economic value in this way, not least in terms of leisure and tourism, thus further strengthening the financing basis for nature and landscape.

A rights system can be introduced at both the national and the local level of scale. Local authorities could for example link the licensing of restaurants to nature management obligations, while the Ministry of Economic Affairs could do likewise in the case of large-scale energy projects, e.g. financing nature management in a coastal area of the North Sea using revenue from wind energy licences (not necessarily relating to windfarms in the North Sea itself).

A system of rights and concessions demands a (legislative) basis and a system by which the revenue is transferred to the nature manager. The government has gained adequate useful experience in certain types of rights (CO_2, milk quotas, water abstraction in the dunes) to develop a rights system as a means of financing nature management. The use of rights between private parties, as already in place, also offers a useful basis for further development.

7.3.3 Financing by facilitation of societal initiatives

In the "energetic society" (Hajer, 2011; see also Chapter 6), non-governmental parties undertake initiatives which (help to) meet the societal responsibilities. Such initiatives can also support the financing of nature. To initiate these activities, it is important to understand the motives and wishes of the business community and the general public in terms of nature. Their engagement with, and involvement in, nature can be based on widely varying motives. Knowledge of those motives enables the government to "stay in touch" with society.

Although the total volume of charitable donations is rising in response to government cutbacks, nature protection organisations appear to be benefiting from the increase to a lesser extent than those concerned with other areas such as health or overseas development aid (PBL, 2012a). The private contribution to nature managers' income has remained relatively stable for the past several years. Given the (slight) decline in membership subscriptions to nature organisations, it seems unlikely that this income flow can be made significantly larger by advertising or recruitment campaigns. The current financial crisis also makes public fundraising somewhat more difficult (PBL, 2012a).

There does however seem to be room for some expansion in terms of the time and energy that individuals are willing to devote to nature management. Many people undertake voluntary work in landscape management, assist in the monitoring of flora and fauna (population censuses), or take part in civil initiatives for nature protection. However, statistical information about the extent of this involvement and its development over time is unavailable, whereby it is not possible to express the potential contribution of the societal actors in hard figures (Buijs et al., 2012).

The government can exploit the public's sense of engagement by creating low-threshold opportunities to help in the development and management of

nature, preferably in combination with nature education and social activities to promote "community building". The investments in time and energy can be combined with the generation of financial resources by means such as "*crowd funding*" whereby virtual (online) communities become involved in areas beyond their immediate residential environment and thus both emotionally and financially "connected" with nature elsewhere, perhaps at some considerable distance. The social media are becoming increasingly important in this regard. Engagement can also take the form of "shared ownership" of nature in the (immediate) area, through the sale of shares in area development funds or investment funds, whereby the "dividend" is paid in kind. The government can also encourage contributions by the private sector (including agricultural businesses) by making those contributions more visible to the general public, perhaps by means of a certification system which allows companies to use a special accreditation (e.g. "Nature-inclusive Company"). Government acknowledgement of private commitment to nature has a proven incentive effect.

7.4 Shared responsibility

In many cases, the multi-functionality of nature means that the responsibility for nature (areas) is shared between various public and private parties. Diverse objectives, both public and private, can be pursued simultaneously at one and the same location. Similarly, a single nature area can serve various objectives (such as landscape perception) at various levels of scale - local, regional, and national - whereupon various parties derive the benefits of that area (Sijtsma et al., 2013). This may give rise to partnerships between public and private parties, which in turn may entail bringing the available resources together within "regional area funds". For administrative purposes, however, it remains necessary to distinguish between public and private resources since each calls for a different form of accountability.

The regional area management funds could attract additional financing by issuing shares, with the "dividend" paid in kind. This serves to translate public engagement with an area and its nature into a financial commitment. The regional area fund might also approach the financial markets, thus attracting resources at the national or international level. Nevertheless, this financing model will be most effective at the local level of scale, for example when it is directly linked to the development of the regional nature networks. Allocation of resources via the regional area funds can enhance effectiveness, perhaps by making cooperation between implementing parties a condition of financing.

The government can help to ensure the efficient use of financial resources by overseeing the development of the area-specific funds and monitoring the experience gained in their use.

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APPENDIX

1 RESPONSIBILITY AND ACKNOWLEDGEMENT

Composition of the advisory committee and the project team

Chair
G.J. Jansen, from September 2011 until May 2012
A.M.A. van Ardenne-van der Hoeven, from September 2012 onwards

Members of the advisory committee
Prof. Dr B. Arts, Full Professor Forest and Nature Conservation Policy, Wageningen UR
T. Bade MSc, director Triple E
Prof. Dr F. Berendse, Full Professor Nature Conservation and Plant Ecology, Wageningen UR
Prof. Dr S.M.M. Kuks, (from December 2011 onwards). Dike reeve of the Regional Public Water Authority "Regge en Dinkel", Professor of Innovation and Water Policy Implementation, University of Twente

Members of the project team
D. Blom, Project Staff Member from September 2011 until March 2013
Dr B.H. van Leeuwen, Project Leader
B.B.W. Thorborg, Project Staff Member
S.J. Vaupel Kleijn, Project Assistant from February 2012
C.I.A. de Vries, Project Assistant from September 2011 until February 2012
G. Wenneker MSc, Project Staff Member from February 2012 until December 2012

Consulted experts and organisations
In preparing this advisory report, an information meeting was organised in conjunction with PBL Netherlands Environmental Assessment Agency and Wageningen UR, as well as two expert meetings. Below is a list of participants and consulted experts.

Information meeting of 23 January 2012
Dr A.E. Buijs, Wageningen UR
P.M. van Egmond, PBL Netherlands Environmental Assessment Agency
Dr A. Hinsberg, PBL Netherlands Environmental Assessment Agency
Prof. C.S.A. van Koppen, Wageningen UR
R. van Oostenbrugge, PBL Netherlands Environmental Assessment Agency
M.M.M. Overbeek, LEI Wageningen UR
Dr E. Turnhout, Wageningen UR
Dr M.P. van Veen, PBL Netherlands Environmental Assessment Agency
J. Wiertz, PBL Netherlands Environmental Assessment Agency

Expert meeting of 12 June 2012
H.A. Boeschoten, Staatsbosbeheer
R. Kwak, Vogelbescherming Nederland
T.J. Slob, Veelzijdig Platteland
T. van Slobbe, Stichting wAarde
M.E.G. Visscher, Stichting Geldersch Landschap en Kasteelen (GLK)
R. van Woudenberg, Federatie Particulier Grondbezit (FPG)

Expert meeting of 13 June 2012
C.N. de Boer, Dunea
I. Gelsing, RECRON
G.J.P. Jansen, Bosschap
P.A.J. van Kessel, Van Berkel
H.G.J. Litjens, ZLTO
Dr F. Woudenberg, GGD Amsterdam

Further discussions were held with:
Dr H. Baan, IPO
Prof. C. W. Backes, Maastricht University
J.M.C.T. van den Berg, Staatsbosbeheer
J. van den Bogaard, GGD Rotterdam-Rijnmond
R.P. van Brouwershaven, Ministry of Economic Affairs
A.M. Burger, Ministry of Economic Affairs
J.J. van Dijk, member of the Provincial Executive for Gelderland
L.J. van der Heiden, Ministry of Health, Welfare and Sport
W. Helmer, Stichting Ark
J.J.C. van den Hout, member of the Provincial Executive for Brabant
Dr A. van Iersel, Ministry of Health, Welfare and Sport
Dr E. Knegtering, Ministry of Economic Affairs
W.J. Kooy, Nationaal Groenfonds (NGF)
R.W. Krol, member of the Provincial Executive for Utrecht
E. Lubberink, IPO
A.N.A.M. Mulders, Ministry of Economic Affairs
R.W. Munniksma, member of the Provincial Executive for Drenthe
J.M. Osinga, Overijssel Province
G. de Peuter, Ministry of Economic Affairs
M.J. Roos, Staatsbosbeheer
J.M. Rutten, Ministry of Economic Affairs
Prof. M.G.C. Schouten, Staatsbosbeheer
D. Teeling, IVN Consulentschap Zuid-Holland
Dr D.A. Wensing, IUCN
R.B.M. Wouters, Ministry of Economic Affairs
F.J. van Zadelhoff, IUCN

External reviewers
Prof. Mr. M.A.P. Bovens, Utrecht University
Prof. J.J. van Duijn, Nationaal Groenfonds (NGF)
Dr M.P. van Veen, PBL Netherlands Environmental Assessment Agency

2 STUDIES

For the purpose of this advisory report, the Council for the Environment and Infrastructure (Rli) has commissioned the following studies.

1 Strategies for improving biodiversity conservation in the Netherlands: enlarging conservation areas vs. constructing ecological corridors - Prof. Otso Ovaskainen, University of Helsinki
A modelled study examining the influence of habitat size and the presence of corridors between nature areas on biodiversity. The author concludes that, given the current fragmentation of nature areas in the Netherlands, land acquisition and restoration activities should focus around the key areas of the existing networks in order to create larger, contiguous nature areas. Land area and the number of corridors should be optimised in order to create regional networks which address the biodiversity objectives at both national and international level. "Ecoducts" are of limited usefulness because they are specific to certain species. (Ovaskainen, 2012)

2 Effectiveness of nature management - Prof. J.P. Bakker, Groningen University
This study examines the effectiveness of (various types of) nature management intervention, and the possibilities for enhancing their effectiveness and/or reducing structural costs by means of one-off investments in specific areas. The author concludes that management practice can be optimised by seeking a better match between the type of management (interventions) and the scale, size, conditions and spatial structure of the area concerned. Further attention must be devoted to the accessibility of knowledge and expertise, monitoring, and the organisational structure of nature management. (Bakker, 2013)

3 Effectiveness of agricultural nature management - Dr D. Kleijn, Wageningen University and Research Centre
In this specific study concerning the effectiveness of agricultural nature management, the author concludes that the sheer size of the agricultural areas means that they can potentially make a very significant contribution to both nature development and general landscape value. From the ecological perspective, the success of agricultural land management depends on the size of the area(s) concerned, continuity of management activities, the presence of semi-natural landscape elements (for plants), and motivation on the part of the farmers themselves. Agricultural nature management would appear to be considerably less effective (compared to nature reserves) in protecting plant species than it is for mammals and birds. (Kleijn, 2012)

4 The valuation and financing of nature - Dr F.J. Sijtsma, Groningen University
This study is concerned with the relationship between the (regional) economy and nature, and with potential new financing systems. It describes the spatial structure which affects the (perceived) value of nature at the local, regional and national level, together with the regional economic significance of nature expressed in figures, based on the author's own past research and available examples. The study then goes on to seek a financial basis for nature in relation to its regional economic significance. The author examines the renewed interest in leasehold tenure arrangements, combinations of rights and obligations, the role of tourist taxes, and possibilities for establishing a link with the (rateable) value of real estate. (Sijtsma et al., 2013)

5 Support for nature - Dr A.E. Buijs, Alterra
This study is concerned with the development in (public) support for nature and nature policy in the Netherlands. The author examines societal discourses over time, support for local and national nature management practice, the shift from engagement and civil initiatives to self-governance, and trends in active and mental engagement (recreation and perception; landscape preferences). (Buijs et al., 2012)

6 Political discourses on nature and societal support - Dr D.A. Kamphorst, Wageningen University and Research Centre
This study presents the findings of a "quick scan" of political discourses about nature policy and public support at both national and regional level, and the relationship with the actual level of support for nature and nature policy observed within society. A section of society wishes to see nature policy brought more into the "ownership" of society itself and considers the "old" nature policy to be overly government-centred. The political discussions at national level have devoted little attention to the desire for local discretion and the opportunity to address the wishes and requirements of the general public. At the provincial level, by contrast, the political debate and resultant policy have devoted more attention to the public perception of nature, whereby the provincial authorities can be seen to be acting more in line with developments in societal support. (Kamphorst & Donders, 2013)

7 The future of nature perception and engagement in nature - T. van Slobbe, Stichting wAarde
This study is concerned with trends in the perception of nature among children and young people. The author examines the belief that technological progress will be such that nature will no longer be considered necessary for survival, the diminishing role of nature, the integration of nature with other aspects of life, and self-organisations, setting out the consequences of these developments in terms of policy. (Van Slobbe, 2012)

Review
All studies have been reviewed by the Netherlands Environmental Assessment Agency (PBL, 2013). The full text of the studies and the reviewers' findings can be downloaded (in *.pdf format) from www.rli.nl.

3 OVERVIEW OF PUBLICATIONS

2012
Keep Moving towards Sustainable Mobility. Council for the Environment and Infrastructure, October 2012 (RIi/EEAC)

2013
Room for Sustainable Agriculture ['*Ruimte voor duurzame landbouw*']. Council for the Environment and Infrastructure, March 2013 (RIi 2013/01)

Colophon

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