

PBL report 500070009

Work Programme 2009

Netherlands Environmental Assessment Agency

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1. Background and principles

In this publication, the Netherlands Environmental Assessment Agency (PBL) presents the main points of its Work Programme for 2009. The programme takes account of the strategic research agendas of various government departments relevant to our remit and the themes selected for special attention by the Dutch Cabinet.

An obvious area for investigation is the government's policy theme 'Scarcity and Transition'. PBL's activities are also relevant to the following 'pillars' in the coalition agreement: 'An active international and European role'; 'An innovative, competitive and enterprising economy'; 'A sustainable living environment', including the work programmes 'Clean and Efficient' and 'Beautiful Netherlands'; 'Social Cohesion'; and – to a limited degree – 'Safety'. In addition, the cabinet's letter of May 2008 to the House of Representatives on the cross-departmental strategy for sustainable development was an important input to the selection of topics for inclusion in the Work Programme. The cabinet's letter sets out the following themes:

1. Water and adaptation to climate change
2. Renewable energy
3. Biofuels and development
4. Carbon capture and storage
5. Biodiversity, food and meat
6. Sustainable building and urban development

Mission

The Netherlands Environmental Assessment Agency (PBL) is the national institute for strategic policy analysis in the field of environment, nature and spatial planning.

We contribute to improving the quality of political and administrative decision-making by conducting outlook studies, analyses and evaluations in which an integrated approach is considered paramount. Policy relevance is the prime concern in all our studies. We conduct solicited and unsolicited research that is both independent and always scientifically sound.

The Netherlands Environmental Assessment Agency's Work Programme focuses on acquiring knowledge that is important for informing on decisions to be made by the whole cabinet, both on national policy and on Dutch positions to be adopted in international negotiations. In bringing together scientific expertise to inform policy, PBL attaches considerable importance to maintaining and strengthening its scientific network and to cooperating with the other Dutch policy assessment agencies: the Netherlands Bureau for Economic Policy Analysis (CPB) and the Social and Cultural Planning Office of the Netherlands (SCP). Our reports are socially relevant and designed to serve the policy process within and across government departments. We are concerned primarily with policy processes that will lead to decision-making in 2009 or 2010. Our reports will often take the form of independent assessments of policy proposals, studies of future trends or outlooks for the available options for achieving policy goals.

2. Policy context and research questions

The Netherlands Environmental Assessment Agency (PBL) concentrates on four main research areas:

1. The integrated statutory reports (the Balances and Outlooks on the environment, nature and spatial development) and the development of a shared methodology based on welfare economics, systems analysis (of the sustainability of trends in the long term) and analyses of spatial connectivity and public administration (see Section 2.1).
2. Making intelligent use of space and managing urbanisation processes and mobility flows in such a way that a balance is found between competitiveness, accessibility, liveability, safety, futurity and various other aspirations, such as the maintenance of cultural heritage and landscape quality (see Section 2.2).
3. The use of renewable resources: biodiversity, water and food security, and the possibilities for combating hunger in the world, the loss of biodiversity and the accumulation of nutrients in soil and water. Important factors in this research area are habitat management and trends in agriculture and agricultural subsidies (see Section 2.3).
4. The concerns surrounding the use of fossil energy: climate change, air pollution, the depletion of natural resources, security of supply and possible measures to address these issues, such as emission trading, energy saving and the use of renewable energy sources (see section 2.4).

PBL prefers to take an inclusive approach to these issues by looking at the social and economic as well as the ecological aspects of the environment. Moreover, in all these research areas we reveal links, where relevant, between the international, national and local scales (vertical integration).

For each of these research areas we have identified the relevant policy processes and research questions. When selecting topics for investigation, we made grateful use of the reactions and comments from the PBL supervisory board, information obtained during consultations with government departments (from 25 June to 21 October 2008) and the cabinet discussion on strategic research questions on 22 August 2008.

2.1 Sustainable development and governance

Sustainable development has become an almost unchallenged policy goal. The task facing society is to carry out a whole array of activities in a sustainable way. Policymakers view the concept as a guiding principle for many policy areas.

At the same time, sustainable development is a problematic concept. For one thing, it is not clear exactly what 'sustainable' really means, who should do what, what policy measures are required to achieve sustainable development and how the results of these efforts can be monitored and evaluated. The challenge is to expand the approach developed by PBL in recent years into a generally accepted methodology. In this methodology, political and administrative deliberations are supported by systematically examining how persistent certain trends are, the uncertainties involved, the various options for action, how efficient these are, the possible win-win opportunities, potential obstacles to progress and the distribution of sacrifices and benefits.

Important for this field of study are the research questions arising from the cross-departmental policy theme Scarcity and Transition. This theme calls for internationally-oriented outlook studies and innovation strategies in which ecological problems are tackled in conjunction with poverty reduction in developing countries, migration and the security of energy supply. In consultation with the Ministry of Foreign Affairs, the Ministry of Housing, Spatial Planning and the Environment and others, PBL has set up an international study on this theme.

The Work Programme breaks down the research on sustainable development into more concrete topics that cut across a number of themes:

- The possible selection of sustainability indicators for the Sustainability Monitor;
- The global sustainability problem, in support of the government's policy theme of Scarcity and Transition;
- Building blocks for a European sustainability agenda, a survey of the key challenges facing the European Union in the fields of energy, agriculture, mobility and territorial cohesion;
- The sustainability of production and consumption chains (animal protein, bioenergy and sustainable building/sustainable cities) in preparation for an evaluation of the transition policy.

The pursuit of sustainable development is running up against increasingly pressing problems of governance. Not only are problems being thematised at various tiers of government, but social groups are also often called upon to participate in the formulation and implementation of policy. Through its studies, PBL aims to raise the effectiveness and legitimacy of government steering in pursuit of political goals. Evaluating the merit of various forms of governance at different scales is of particular importance in the context of the pursuit of sustainable development (in which diverse goals have to be reconciled). In the field of spatial policy, area development planning and the decentralisation of policy raise important questions of governance. Gaining understanding of governance issues often also presupposes a need for qualitative research (e.g. via case studies) to obtain insight into possibilities for making policy more effective. Some of the research activities that throw up questions regarding government steering are:

- the **ex durante** evaluation of the new Spatial Planning Act;
- an analysis of the interplay of institutional forces in spatial policy;
- research into the effectiveness of 'soft policy tools' for the environment.

2.2 Urban development and mobility

Economic, demographic and social processes drive new patterns of urban development, both within and outside the existing urban area. As development pressures in the Netherlands vary considerably from region to region, accessibility and increasing demographic and economic disparities between regions are an important source of legitimacy for spatial planning policy. Urbanisation is also a key element in discussions about landscape quality because uncontrolled urban development is judged to be an important cause of rural clutter. In addition, new developments in existing urban areas give rise to concern about the quality of the living environment in deprived neighbourhoods, the health of residents, the availability of green space and the degree to which the advantages of proximity and intensive interaction are actually exploited. Spatial planning is also about the international competitiveness of cities

and allocating new urban development across existing urban areas and the countryside, while the Beautiful Netherlands programme seeks to prevent rural clutter and visual intrusion in the landscape. The government is seeking to improve the international competitiveness of the Randstad, meet its ambitious housing programme, improve the quality of life in urban districts and neighbourhoods and foster sustainable urban development, among other goals, by preparing comprehensive visions for the Randstad and other urban networks.

In 2009, PBL will start new research to feed into these policy portfolios. These studies will be planned as a multi-annual programme under the label 'Sustainable Cities'. This research programme will address the research questions raised by the various policy plans and work towards the development of a comprehensive assessment framework for urban development proposals. We will assess future land requirements for housing, employment and mobility, evaluate policy roll-out and outline policy options for achieving the various development targets and objectives. These include sustainable urban development, social, ecological and other constraints on urban densification, and the supply and demand factors that will influence the working of the housing market in the long term.

PBL intends to deliver knowledge and expertise for the following policy portfolios:

- The urban development agreements for the period between 2010 and 2020. The current house building agreements between central government and the local authorities expire in 2009. New urban development agreements with the provincial and regional authorities are in preparation.
- The government-wide Randstad Urgent programme, which contains projects considered to be urgent for the competitiveness, liveability and safety of the Randstad.
- The Randstad 2040 Spatial Vision (September 2008), which includes proposals for more intensive use of the city centres.
- Preparation of long-term visions for the other national urban networks.
- The Beautiful Netherlands programme. This includes the Business Park Agenda, under which the policy for business parks will be reviewed and revised in 2009 to put greater emphasis on restructuring and mixed use.
- The Priority Neighbourhoods programme. In 2008, action plans for the 40 priority districts were agreed with the local authorities concerned.
- Development of a spatial investment strategy for the next 20 to 30 years.

The development strategies set out in these policy portfolios are urban restructuring, densification and extension. The research questions that follow from these policy processes are:

- *Urban extensions*: how much land will be needed for expanding housing and business locations and how can this be delivered? How can we find a balance between urban extension and densification?
- *Urban restructuring*: Which housing and employment areas are obsolete and how can they be revitalised? How does this mesh with the need for urban extensions?
- *Mobility*: What extensions and improvements are needed to the transport system in the Randstad and the other urban networks and urban regions? What is a desirable balance between the car, public transport and other modes of transport?

Current policy questions (by scale)

<i>Randstad and other urban networks</i>
<ul style="list-style-type: none">- How can the urban development strategy help to raise the international competitiveness of the Randstad?- How can we improve the linkages between the various activities across urban networks to create urban systems that exhibit sustainable functional synergy?
<i>Conurbation</i>
<ul style="list-style-type: none">- How can regional accessibility be improved?- What combination of housing, employment and recreational environment is needed to make a sustainable city and how does this compare with the quantitative and qualitative demand by residents and businesses for these environments?- How can the different spatial investments to be made in an area be combined to create enduring functional synergy (integrated area development)?
<i>Neighbourhood/district</i>
<ul style="list-style-type: none">- How can the planning and design of districts and neighbourhoods contribute to a cleaner environment, a more satisfying living environment and better health?- How can spatial planning policies and urban restructuring strategies be used to strengthen the social cohesion and economic vitality of neighbourhoods and districts?

Strategic options will have to be assessed against the long-term need for urban development, which has been reviewed by the policy assessment agencies in previous studies. As part of this process, it will be important to analyse how effective the current institutional framework for spatial planning and mobility policies will be in achieving the stated objectives. A considerable body of knowledge and information will be compiled in the Spatial Development Review (2009) and Spatial Outlook (2010). Where relevant, PBL will cooperate or liaise with the Social and Cultural Planning Office of the Netherlands (SCP) on the priority neighbourhoods and the Netherlands Bureau for Economic Policy Analysis (CPB) or the Netherlands Institute for Transport Policy Analysis (KiM) on mobility issues.

2.3 Biodiversity, agriculture and water

Biodiversity is declining rapidly all over the world, both on land and in the seas and oceans. The diversity of species in the Netherlands and in Europe as a whole is now just a fraction of what it once was. Maintaining and restoring this diversity will require setting aside land and areas of the world's seas and oceans, sustainable use of land and water (hunting, harvesting and logging) and creating the right environmental conditions. Policy instruments to counteract habitat fragmentation and prevent species loss due to climate change, phosphorus and nitrogen surpluses, excessive exploitation of natural resources and desiccation, appear to be having little effect and are difficult to reconcile with poverty reduction and economic interests. The Netherlands has a special international responsibility to protect its unique ecosystems and cultural landscapes, such as the reclaimed lakes and wetlands.

During the last twenty years of the twentieth century rural policies were concerned mainly with the conflicts between agriculture and nature; these have now been joined by concern for the landscape and water management. Historically, farming has shaped the Dutch landscapes and it is now increasingly a supplier of 'green and blue' services, including recreation and relaxation. Agriculture provides income and employment, but also has side-effects injurious to terrestrial and aquatic wildlife and in some cases runs counter to the desires of certain sections of society.

The challenge facing the green environment is to find a balance between objectives for food security, the provision of biomass for energy, water supply, flood safety and climate resilience, and the future of nature and the landscape. This will involve both land-use planning and the sustainable use of natural resources: water, soil and biodiversity. For biodiversity, the task is not only to avoid the depletion of renewable resources (such as fish stocks, clean water, soil fertility and species diversity) but also to prevent the unwanted accumulation of nutrients and toxic chemicals (pesticides) in soil, water and ecosystems.

Current policy issues
<ul style="list-style-type: none"> • What are the implications of changes in administrative arrangements and in the financing of nature and landscape management for policy objectives? In particular, what will be the effects of government decentralisation (the Rural Investment Budget) and the shift in responsibilities for conservation management from public agencies to private landowners? • How feasible are policy objectives for biodiversity (national and international)? What can or should be achieved in any case in the field of aquatic and terrestrial nature conservation and landscape management? What international responsibilities does the Netherlands have and what are the consequences of this for our national ambitions for biodiversity? What effect will the Beautiful Netherlands policy programme have? • How can the Netherlands be made more climate proof and what will that mean for other land uses? Should this be guided by a 'no regret' strategy, or can the required investments be made in phases? • How effective will water policies be in achieving goals for biodiversity and economic land uses? What might an optimal exploitation of the North Sea involve?

The required knowledge and information in these areas will be brought together in the Nature Balance (2009) and the Nature Outlook (2011). During 2009 separate reports will also be produced on a number of topics:

- Outlook for the revision of the EU Common Agricultural Policy
- International biodiversity outlook
- Outlook for climate proofing the Netherlands
- Evaluation of the National Water Plan

2.4 Energy, air and climate

Climate and energy are core topics in national and international environmental policies. Signs of the human influence on the changes in global temperature, sea levels, ice cover and ecosystems are convincing politicians in a growing number of countries around the world that international action is needed. This is bringing climate policy further into the implementation phase and the debate is shifting from knowledge about climatic systems to weighing up possible policy instruments. At the same time, it is become increasingly doubtful whether it is realistic to expect that the implementation of climate policies will be able to limit the temperature rise to the 'safe' limit of 2°C; besides mitigation, attention is increasingly shifting to the need to adapt to the consequences of climate change. In addition to climate change, the problem of security of supply is an important underlying principle of energy policy. Finally, it is important to keep in mind the fact that measures for improving combustion processes also have consequences (generally positive) for air pollution and the associated risks to human health and ecosystems. The physical interactions between air pollution and climate change are only partially known and may have major consequences for the effectiveness of policies.

The main objective of PBL research in this area is to evaluate and explore policy options for bringing about a transition to a clean and efficient energy economy, as announced in the government's Clean and Efficient programme. Given the global interdependencies, Dutch policy cannot be seen in isolation from European decisions, global negotiations on a new climate treaty and the institutional policy-making framework. In the past, energy consumption and CO₂ emissions could be derived from national economic trends, but now the EU Emission Trading Scheme links all European economies together and to draw up reference estimates we have to take account of a dynamic emission price. In addition, dividing the burden of future climate policy between the rich and poor countries and making arrangements for financing adaptation measures need to be addressed in the government's policy on international cooperation.

In recent years, interest in the spatial consequences of environmental policy has grown rapidly. What restrictions will environmental measures impose on spatial planning and land-use options? How can suitable locations be found for renewable energy developments? How can spatial planning contribute to low-carbon housing and reducing road traffic? The development of national environmental policy depends to a certain extent on how possible measures can be accommodated 'on the ground'. One of the topics for discussion in 2009 will be the location of wind parks in the North Sea as part of a wider plan for allocating marine resources and uses of the North Sea. Another discussion is about the routing of new high-voltage transmission lines, in part to enable greater use of renewable energy across Europe. The European Commission has already declared itself in favour of investing in a European 'supergrid', starting with a direct current network in the North Sea and Baltic Sea.

Current policy issues
<ul style="list-style-type: none">• What are the implications of the EU Climate and Energy Package for domestic emissions of greenhouse gases and atmospheric pollutants? And how will emission trading work for the industrial and energy sectors?• What are the expected results of the Clean and Efficient programme (spring 2009)?• What are the options open to us in the run-up to the new post-Kyoto global policy (Copenhagen, December 2009)? What are the feasible coalitions? What positions are being adopted by the Netherlands and the EU?• Against the background of the long-term trends, what are the conceivable options for locating wind parks in the North Sea and deciding on the routing of the 380 kV transmission line in the west of the Netherlands?

A core task in the Energy, Air and Climate research area is to evaluate progress with the Clean and Efficient programme, as well as exploring possible additional policy options. To this end PBL is drawing up new estimates of expected domestic emissions of greenhouse gases and other air pollutants. This evaluation pulls together various policy portfolios: policy development within the framework of the UN and EU and the new international obligations of the Netherlands that may follow from this, the detailed implications of the EU Emission Trading Scheme, spatial integration of energy measures in the landscape and their compliance with European air quality standards, and the contribution that spatial planning and infrastructure investments (public transport, supergrid) could make towards meeting international obligations and achieving the objectives of the Clean and Efficient programme.

To investigate the extent to which major progress can be made in the long term with tackling climate change and improving security of supply and air quality, we need to obtain greater understanding of possible technological breakthroughs, learning effects and the effectiveness of economic instruments in influencing technology development and human behaviour. This

type of research into ‘transitions’ is part of the PBL’s Sustainable Development and Governance research area.

Tackling global issues like climate and biodiversity is unthinkable without at the same time addressing the disparities between rich and poor in the world. This relationship is most prominent in the project Scarcity and Transitions within the Sustainable Development and Governance research area.

Within the Energy, Air and Climate research area PBL envisages four projects in 2009:

- Evaluation of progress with national policies for climate, air quality and energy
- Analysis of the operation of the EU Emission Trading Scheme
- Analysis of integrating renewable energy generation into the rural and urban environments
- Global climate strategies outlook study

3. Main points of the Work Programme 2009

3.1 Statutory studies

The statutory tasks of the Netherlands Environmental Assessment Agency (PBL) include policy assessment studies, such as the Environmental Balance, the Nature Balance and the Spatial Development Review, and the periodical publication of outlook studies in the fields of spatial planning, biodiversity and nature conservation, water management and the environment. PBL is seeking ways to strengthen the thematic coherence between the Balances (and the Spatial Development Review) and we are working on a common set of scenarios for studies on the environment, water, nature and spatial development. The statutory projects to be delivered in 2009 are:

1. Nature Balance: evaluation of the main goals of nature and landscape policies, the central theme being rural biodiversity and evaluation of the landscape goals in the Beautiful Netherlands programme,¹ also with reference to the division of responsibilities between central government and other government authorities. For international comparisons (benchmarking) we draw on data and knowledge from the International Biodiversity Outlook project. Aquatic ecosystems and the ecological consequences of climate change are a more or less permanent topic of study, for which data and knowledge are drawn from specific projects, such as the outlook for Climate Proofing the Netherlands and Evaluation of the National Water Plan.
2. Environmental Balance: evaluation of the main goals of environmental policy, with special attention to the effectiveness of voluntary agreements (covenants), the implementation of local environmental policies and the sustainability of food security.
3. Spatial Development Review: the main focus of this study is on the trends in the type and distribution of urban development in relation to current policy. Topics for investigation include the changes taking place in the city centres, residential districts and the urban fringe, the shifting relations between town and country and the position of the Netherlands regarding the development of urban networks in the global economy.

In addition, a start will be made with the Spatial Outlook and the Nature Outlook, to appear in 2010 and 2011, respectively. Points for consideration in these outlook studies are the knock-on effects of regional differences in population growth and decline, and trends in the economic functions of the landscape and of nationally and internationally important wildlife habitats. The Nature Outlook is an important integrative project which pulls together knowledge and expertise from other projects. The publication of a new Environmental Outlook will depend on whether the government wants to develop a long-term policy plan or not.

Harmonisation of assessment tables

In 2009, the assessment tables in the Nature Balance, Environmental Balance and the spatial policy monitors will be harmonised. We will develop a stable set of indicators for the evaluation of spatial policy. The topic of water will receive more thorough investigation in the Balances to permit evaluation of the implementation of the Water Framework Directive, the objectives of the National Water Plan and the policy improving the climate resilience of the Netherlands. In addition, we will

¹ Indicators for the other topics in Beautiful Netherlands will be developed during 2009 for use in the Target Achievement Monitor – National Spatial Strategy, which will be published in 2010.

ascertain the advantages and disadvantages of a change in the frequency of the Balances and the integration of the various outlook studies into a single outlook for the built and natural environment.

3.2 Priorities for 2009

Besides the three statutory products, PBL will submit the following reports to the government in 2009:

1. Scarcity and Transitions Outlook: in cooperation with the Netherlands Institute of International Relations Clingendael and with an emphasis on the prospects for developing countries, the role to be played by the Netherlands and Europe in tackling the problem of food and energy shortages and the loss of valuable natural habitats (agricultural and biofuel footprints), as well as possible policy options.
2. Sustainable Development Monitor: in cooperation with Statistics Netherlands (CBS), the Netherlands Bureau for Economic Policy Analysis (CPB) and the Social and Cultural Planning Office (SCP).
3. Ex durante evaluation of the new Spatial Planning Act: as promised by the Minister of Housing, Spatial Planning and the Environment to the Upper House. This will mainly examine how government objectives are being met, in other words how the policy instruments in the Spatial Planning Act are actually deployed.
4. Evaluation of the National Water Plan: an evaluation of the objectives and measures contained in the National Water Plan for freshwater bodies and the North Sea, and the contribution made by the national plan towards meeting ecological and economic goals. The study will also present options for implementing the Water Framework Directive and provide building blocks for balancing environmental and agricultural interests (crop protection, fertilisation).
5. Outlook for Climate Proofing the Netherlands: a study to identify and document the costs and effects of spatial strategies for reducing the long-term risks of climate change. The research will examine the possibilities for pursuing a robust spatial policy for the Netherlands that contains specific policies for tackling climate change and water management issues, while remaining alert to agricultural and nature conservation needs.
6. Sustainable Cities Outlook, an exploratory study of urban environmental quality over the long term, and particularly the policy options for liveability, safety, accessibility and competitiveness. A further elaboration of the outlook study the Netherlands in the Future.
7. Outlook Study on Urbanisation, Development of the Randstad and Spatial Investments: based on an integration of the knowledge and expertise available in the policy assessment agencies and, where necessary, supplemented with new analyses, this study will provide input to current policy processes. How can the fundamental choices in the Randstad 2040 Spatial Vision make the best possible contribution to achieving policy goals? What interactions can be identified? How do the partial elaborations of the vision relate to the policy intentions and what policy options can be suggested?

Over the next few years, PBL aims to reinforce the synergy between various projects. This will be pursued in the Sustainable Cities multi-annual research programme, for which projects 5, 6 and 7 are logical components. A key element of this research programme is a comprehensive approach to the urban development programme. The sustainable development

and design of urban areas is clearly about meeting economic, ecological and social needs and aspirations without needlessly compromising the possibilities for future generations to shape the physical environment. What is needed is to integrate knowledge about the pros and cons of diverse urbanisation strategies from a range of different perspectives and disciplines. This strategy will include international comparative research. Where necessary, this integration of knowledge will be supported by additional research, for example, to expose cross-connections and dilemmas and to analyse the interaction between different policy interventions and the unintended effects of policy.

In addition to the above, PBL aims to produce reports on specific international policy processes. These studies will be designed to deliver Dutch expertise to international processes at an early stage, in line with the recommendations of the Social and Economic Council of the Netherlands (SER), the Council on Housing, Spatial Planning and the Environment (VROM-raad) and others.

8. Outlook for the EU's Sustainability Agenda: to be prepared in cooperation with Swedish colleagues and submitted to the European Commission, this study will include a review of the key challenges facing the EU in the fields of energy, agriculture, mobility and territorial cohesion, in part as a response to the global problems of security of supply, climate, famine and biodiversity.
9. Global Climate Strategies Outlook Study: an input to decision-making on the post-2012 regime. The project will identify cross-connections with the implementation of climate and air quality policies in the EU, the security of energy supply and development cooperation.
10. International Biodiversity Outlook: a building block for evaluating the biodiversity targets in the UN Convention on Biological Diversity and the European and national conservation objectives derived from it, and for formulating new policy objectives for the period after 2010. The study will pay particular attention to the long-term conservation objectives, including the options and possible consequences for the Netherlands.

Lastly, in 2009 PBL will undertake preparatory work for reports to be published in 2010. As part of a broader outlook study or evaluation to appear in 2010, several specific analyses required for the preparation of government policies will be published in 2009. These analyses will address the following programmes:

11. Outlook for Sustainable Production and Consumption Chains: in 2009, as part of this project, supply-chain analyses will be made of bioenergy and protein production systems. These will include analysis of the potentials of system innovations and governance options.
12. Outlook for the Revision of the EU Common Agricultural Policy: various options will be analysed in preparation for discussions in the EU about amending the principles underlying agricultural subsidies, the increasing use of biomass for energy supply and agreements on the protection of nature conservation areas. This study is consistent with the proactive stance the Netherlands has adopted in the European policy preparation process. It will examine not only the future of agriculture (the socioeconomic aspects) but also the socialisation of these funding streams and particularly their deployment for the delivery of 'green/blue' services and the realisation of nature and landscape objectives.

13. Outlook for Spatial Aspects of Energy Supply: for the development of long-term visions on the relation between energy policy and spatial development, PBL will analyse the possibilities for offshore wind energy generation.
14. Evaluation of Climate and Air Quality Policies: in preparation for the evaluation of the Clean and Efficient programme in 2010, PBL will conduct a mid-term review in 2009. This review will examine the relation between national targets and European legislation for reducing emissions of greenhouse gases and other atmospheric pollutants. The feasibility of new European emission ceilings and limit values for air pollution will be evaluated and the latest insights into the risks of CO₂ storage will be enumerated.
15. Evaluation of the Priority Neighbourhoods Policy: in 2009, as part of this evaluation, PBL will analyse the neighbourhood economy: What is the economic cornerstone of the 40 priority neighbourhoods? To what extent do neighbourhood characteristics determine business performance? What contributions do businesses make to neighbourhood development? To what extent is it possible to influence the economic development of neighbourhoods and districts through policy?
16. Analysis of Urban Development Policy and New Social Divisions: in 2009, PBL will analyse the degree to which major new housing projects in the past have driven the spatial segregation of population groups (by ethnicity, income and life stage) in urban districts and neighbourhoods. In connection with the urban development agreements for 2010–2020, the study will also examine ways in which such divisions can be prevented in the near future.
17. Evaluation of Integrated Transport and Urban Development Projects: in 2009, PBL will analyse the degree of coordination between investments in public transport and urban densification as part of an investigation into how the social and ecological effects of integrated projects can be assessed in a cost-benefit framework. This research question, submitted by the interdepartmental committee on spatial economics (ICRE), will be investigated in cooperation with the Netherlands Institute for Transport Policy Analysis (KiM) and the Netherlands Bureau for Economic Policy Analysis (CPB).
18. Governance: in 2009, as part of a wider assessment of the effectiveness of government intervention in pursuit of social goals, PBL will analyse the interplay between institutional forces in spatial planning policy: What are the implications of decentralisation and ‘Europeanisation’ for achieving spatial planning objectives?

3.3 Ongoing projects

PBL executes specific *service tasks* which will continue in 2009, such as:

- maintaining environmental, ecological and spatial data on its website (the Environmental Data Compendium and the Spatial Development Monitor will be combined to form a Compendium of the Built and Natural Environment);
- making forecasts of regional population growth and housing demand;
- estimating the demand for business parks;
- estimating air quality, as required by the Air Quality Act;
- estimating national emissions (emissions registration), also to meet international reporting obligations;
- drawing up reference estimates for emissions to air, water and soil, for use, among other purposes, as inputs to the evaluation of the government’s Clean and Efficient programme and of the energy targets set out in the Energy Policy Document (2008);

- analysing new proposals by the European Commission in the field of sustainable development, nature conservation, territorial cohesion, climate and air quality (emission trading, emission ceilings, biofuels), including assessments of the consequences for the Netherlands in terms of costs, land use and impacts on nature and the environment;
- evaluation of civil aviation and noise policies (in 2009: Spatial Vision for Schiphol and Innovation Agenda for Civil Aviation);
- coordinating research programmes on climate and air quality;
- advising on policy proposals in the *Commissie Duurzame Leefomgeving* (CDL) (Commission for a Sustainable Built and Natural Environment) and the *Raad voor de Duurzame Leefomgeving* (RDL) (Council for a Sustainable Built and Natural Environment).

In addition, PBL participates in joint projects with the OECD, the World Bank, the IPCC and UNEP. In 2009, PBL will provide information to support decision-making by the EU and UN on climate policy for the period after 2012, the evaluation of biodiversity policy (UN and EU), the setting of new emission ceilings (UN and EU) and the evaluation of the Common Agricultural Policy (EU). PBL houses two international agencies: the European Environment Agency's Topic Centre on Air and Climate Change (ETC/ACC) and the Coordination Centre for Effects for the UN Convention on Long-Range Transboundary Air Pollution (with financing from the European Commission). PBL is the Dutch contact for the European ESPON programme and the European Environment Agency (EEA).

Part of PBL's research capacity has been reserved for long-term *strategic research*, with the purpose of acquiring expertise and developing methods that PBL will need in the long term to ensure it can carry out its tasks to the required scientific standards and social relevance. The strategic research for the period between 2009 and 2011 will concentrate on the following themes:

- Quality of life and sustainable development
- Behaviour, institutions and governance
- Ecosystem services and biodiversity
- Integrated spatial analysis, networks, agglomerations and regional dynamics

The results of this strategic research will be published in scientific journals and technical reports.

Maintaining the *scientific quality* of PBL's reports and studies requires continuous attention to data management, information management and the maintenance of computer models and expertise. These efforts are geared not only to the quality of information management, ICT management and consulting, data management, editing and other support services, and advisory services on methods and techniques for PBL as a whole, but also to adapting models for specific applications, quality assurance and the maintenance of scientific, policy and social networks for each of the research areas.

Currently, PBL maintains and upgrades about 20 models, varying from national demographic and spatial-economic models to international models for air quality, climate and biodiversity. Some of the models used by PBL are maintained by other organisations, such as the Netherlands Bureau for Economic Policy Analysis (CPB), the Energy Research Centre of the Netherlands (ECN), TNO, IIASA, Wageningen University and Research Centre (WUR), the

National Aerospace Laboratory (NLR) and the Deltares Institute. In most cases, PBL meets some of the costs and has a management input in the maintenance and development of these models.

Models are managed and developed for policy applications now and in the future. This includes updating relevant data systems, quality assurance (including validation) and organising external audits and reviews of models.

Management of the knowledge base involves the following activities: actively monitoring and steering research activities, both internal and external, that are relevant to current and future policy applications; supervising external research projects essential for PBL; actively monitoring national and international policy and social trends in fields relevant to PBL; and actively monitoring interaction and synergy with policy trends in other related domains for the purpose of integrating knowledge. PBL employs experts from a wide variety of disciplines (including planners, economists, technologists, physicists, biologists and policy scientists). By challenging and questioning each other, these disciplines work together on maintaining and improving the quality of PBL products. Research areas in which our knowledge and expertise is kept up to date, in anticipation of ad hoc policy questions and future studies and evaluations, include urbanisation, road transport, civil aviation, ecology and nature conservation, water quality and management, agriculture, climate, air quality, biofuels, policy instruments, cost-benefit analysis, technology development and safety (risk management).

If during the course of the year government departments submit additional questions to PBL which cannot be answered by drawing on this knowledge base, the work planning and timing of products will be reviewed.

4. Coordination

The Netherlands Environmental Assessment Agency works continuously to maintain its scientific network in each of its research areas. We actively seek interaction and synergy with developments in closely related fields to support our aim of providing integrated and complementary analyses and recommendations on policy issues. In particular, we coordinate our activities with the Social and Cultural Planning Office (SCP) and the Netherlands Bureau for Economic Policy Analysis (CPB). The three Dutch policy assessment agencies work together on the Sustainable Development Monitor. In addition, PBL intends to cooperate with SCP on topics like the priority neighbourhoods and sustainable cities and for strategic research into quality of life and governance. We will look to cooperate with CPB on a number of strategic research projects (cost-benefit analysis, drawing up reference estimates, macroeconomic modelling of energy and environmental policy, integrated spatial monitoring and modelling of agglomeration formation). Moreover, the PBL's international outlook studies on the scarcity of energy supply, food and biodiversity may be relevant to the CPB's international studies. In the field of traffic and transport we work with the Netherlands Institute for Transport Policy Analysis (KiM). We collaborate with the Energy Research Centre of the Netherlands (ECN) on studies involving energy supply to the built environment, on the evaluation of the Clean and Efficient programme and when drawing up reference estimates.

Appendix 1

Contributions to the Work Programme 2009 by WOT Nature and Environment, Wageningen UR

In 2007, PBL signed an agreement with Wageningen UR to 'systematically maintain the expertise within DLO [WUR's Agricultural Research Department] relevant to policy assessment agency tasks to ensure that the annual work programme can be satisfactorily carried out, both now and in future'. This agreement is an addendum to the Implementation Agreement on the assessment agency's tasks for Nature and Environment Policy, which was entered into by the Ministry of Agriculture, Nature and Food Quality and Wageningen UR in 2004. This agreement sets out the statutory research tasks (WOT N&M) and how they are financed. The Work Programme 2009 for the WOT N&M unit at Wageningen UR sets out the detailed research tasks for 2009 that fall under both these agreements.

The WOT N&M unit at Wageningen UR supports PBL in carrying out its tasks by contributing directly to the statutory products and by developing scientific knowledge and expertise at Wageningen UR and making this available.

PBL has defined its knowledge development requirements in a number of questions under the following themes:

1. Landscape
2. Costs and benefits of nature
3. Biodiversity (terrestrial and aquatic)
4. Agriculture, land use and nature/biodiversity
5. Global and European nature policies
6. Governance and society
7. Scientific infrastructure
8. Evaluation of sustainable crop protection
9. Rural environmental quality

The ultimate goal of this knowledge development programme is to provide central government with the right information via PBL's statutory products and ad-hoc recommendations and advice. In 2009 WOT N&M will contribute to the following PBL products:

Statutory products:

1. Nature Balance 2009
2. Preparatory work for the Nature Outlook 2011
3. Environmental Balance 2009
4. Target Achievement Monitor of the National Spatial Document 2010
5. Preparatory work for the Nature Balance 2010

Other projects:

6. Analysis of the consequences of climate change for ensuring the ecological quality of the National Ecological Network
7. Evaluation of sustainable crop protection 2010
8. Emissions registration
9. Compendium of the Built and Natural Environment

10. National Focal Point EEA
11. Monitoring of sustainable agriculture and outlook study on sustainable protein production systems
12. Preparatory work for the evaluation of fertiliser policy 2012
13. Preparatory work for implementing and evaluating the Water Framework Directive 2010

In support of these products WOT N&M will contribute to:

- ongoing service provision and maintenance of the knowledge base;
- dissemination of the knowledge developed in 2008;
- scientific quality assurance, also for databases and modelling instruments;
- the discussions on rethinking the Balances.

Appendix 2

PBL Work Programme: Terminology, Reports, Projects and Organisations

Agenda Bedrijventerreinen	Business Park Agenda
Analyse verstedelijkingsbeleid en nieuwe maatschappelijke scheidslijnen	Analysis of Urban Development Policy and New Social Divisions
Compendium voor de Leefomgeving	Compendium of the Built and Natural Environment
Doelbereikingsmonitor Nota Ruimte	Target Achievement Monitor of the National Spatial Document
Duurzaamheidsmonitor	Sustainability Monitor
Energienota	Energy Policy Document
Evaluatie integrale verkeers- en ruimteprojecten	Evaluation of Integrated Transport and Urban Development Projects
Evaluatie klimaat- en luchtbeleid	Evaluation of Climate and Air Quality Policies
Evaluatie krachtwijkenbeleid	Evaluation of the Priority Neighbourhoods policy
Evaluatie van het nationale waterplan	Evaluation of the National Water Plan
Innovatieagenda luchtvaart	Innovation Agenda for Civil Aviation
Investeringsbudget Landelijk Gebied (ILG)	Rural Investment Budget
kabinetsbrede aanpak / programma	cross-departmental strategy / programme
kabinetsbrede thema	cross-departmental policy theme
kabinetsthema	government policy theme
Krachtwijkenprogramma	Priority Neighbourhoods programme
meerjarenonderzoeksprogramma 'Duurzame stad'	Sustainable Cities multi-annual research programme
Milieu- en Natuurcompendium (MNC)	Environmental Data Compendium (MNC)
Monitor duurzame ontwikkeling	Sustainable Development Monitor
Mooi Nederland programma	Beautiful Netherlands
Natuurverkenning	Nature Outlook
Nederland Later	'The Netherlands in the Future' outlook study
ontwikkelingsplanologie	area development planning
ruimtelijke cohesie [in EU verband]	territorial cohesion
ruimtelijke investeringsagenda	spatial investment strategy
Ruimtemonitor	Spatial Development Monitor
Schaarste en Transitie	Scarcity and Transition
Schoon en zuinig programma	Clean and Efficient programme
Staat van de Ruimte	Spatial Development Review
Structuurvisie Randstad 2040	Randstad 2040 Spatial Vision
Structuurvisie Schiphol	Spatial Vision for Schiphol
tussenbalans	mid-term review
Uitvoeringsovereenkomst voor de Planbureaufuncties Natuur en Milieu	Implementation Agreement on the assessment agency's tasks for Nature and Environment Policy
Verkenning duurzame productie- en consumptieketens	Outlook for Sustainable Production and Consumption Chains
Verkenning duurzame stad	Sustainable Cities Outlook
Verkenning energie en ruimte	Outlook for Spatial Aspects of Energy Supply
Verkenning EU duurzaamheidsagenda	Outlook for the EU's Sustainability Agenda
Verkenning herziening gemeenschappelijk EU-landbouwbeleid	Outlook for the Revision of the EU Common Agricultural Policy
Verkenning internationale biodiversiteit	International Biodiversity Outlook
Verkenning klimaatbestendig Nederlands	Outlook for Climate Proofing the Netherlands
Verkenning schaarste en transitie	Scarcity and Transitions Outlook

Verkenning van de Leefomgeving	Outlook for the Built and Natural Environment
Verkenning van de Ruimte	Spatial Outlook
Verkenning van mondiale klimaatstrategieën	Global Climate Strategies Outlook Study
Verkenning verstedelijking, Randstadontwikkeling en ruimtelijke investerings	Outlook Study on Urbanisation, Development of the Randstad and Spatial Investments